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Proposition 11 and Contemporary Medication in the U.S

Katrina T. Olson
Research Scholar
Science Scholar, Global Science Group, Canada

Abstract

Based on the findings obtained in this study, alternatives are proposed relative to service delivery among ambulance companies in California. Indeed, there is a need for California to embrace a unified service area in which ambulance companies may propose services for part of or all of the selected area in which they serve. This alternative exhibits economies of scale and reflects a more innovative approach to response among ambulance companies. By adopting this alternative, the implication is that the most appropriate and closest resource can be deployed to the scene. However, a demerit lies in logistical complexities in which competing firms might end up exhibiting effort duplication or, in some cases, fail to deploy resources on the assumption that other companies are available. Another alternative involves updating the standards of response time to ensure that patterns of California's population are considered. Notably, this option is advantageous because it aligns travel time standards among ambulance companies and, in turn, steer uniformity in service delivery. However, the demerit is that it fails to consider the effects of geographical patterns such as desert, outlying, rural, and urban conditions (and their impact on the realization of the travel time standards).

Keywords*: Medication, Proposition 11*

Introduction

In the U.S., Proposition 11 sought to ensure that the ambulance industry avoids the liability associated with practices that occur past break-time; as it strived to (legally) protect the practices. With EMTs and paramedics denied uninterrupted rest and meal breaks, this health measure (Proposition 11) implies that the ambulance staff ought to remain on duty during those breaks and ensure that they keep their pagers and radios on (even as they get lunch or coffee). The resultant dilemma is to what extent might this initiative shape operations from the perspectives of ambulance companies, the ambulance staff, insurance companies, healthcare organizations, and the federal and state governments?

Methods

One of the provisions of this health measure is that it allows ambulance providers to have their workforces paid at regular rates but remain on-call during breaks (Monterey County Herald, 2018). Also, the measure requires that the employers provide room for the additional training of paramedics and EMTs. Also, the measure calls for the employers to offer paid mental health services to the paramedics and EMTs (Vranjes, 2018). In the context of Proposition 11, the employees' need to remain on-call implies that they ensure that they are reachable via portable communication devices whenever they are on rest breaks and during meals (Matthews, 2018). In situations, where a worker's break is interrupted, the break does

not contribute or count as one that the worker may receive. Regarding the provision of training among ambulance providers, the initiative targets knowledge and skills related to mental health, violence prevention, natural disasters, multiple casualties, and active shooters (Brollini, 2018). It is also worth highlighting that the initiative seeks to have ambulance providers offer up to 10 paid mental health services to their workers (annually). For the case of employers offering health insurance, the initiative requires that the employers provide health insurance plans. These plans are expected to be those offering long-term mental health services (Chronicle Editorial Board, 2018).

Results

Mixed outcomes have been reported regarding the beneficial effects and demerits of this health initiative. For the proponents, the initiative was poised to lower the net operating expenses in such a way that as paramedics and EMTs stay on call even at the time of break, ambulance companies will avoid new ongoing annual costs (Monterey County Herald, 2018). According to Vranjes (2018), these costs are linked to the provision of off-duty breaks. Also, proponents avowed that the health initiative is advantageous because it provides room for the ambulance companies to operate more ambulances in a quest to rest break and meal schedules (Matthews, 2018). However, opponents avow that this decision leads to new costs due to the need for more ambulances.

Indeed, it is imperative to highlight that some paramedics and EMTs have sued the companies claiming that they might have violated the law in the past; yet Proposition 11 holds that the decision by private ambulance companies to advocate for the on-call rest and meal breaks was still allowable (Chronicle Editorial Board, 2018). Therefore, the extent to which the initiative will allow the ambulance companies to avoid the penalties of violating the law (hence avoid the one-time costs) will depend on the court's decision; whether in favor of the companies' past practice of requiring on-call rest and meal breaks or it will be in favor of the paramedics and EMTs, who have sued the ambulance companies (and the lawsuits are active) (Monterey County Herald, 2018).

Lastly, proponents of Proposition 11 avow that it exhibits a fiscal benefit of potentially reducing the net ambulance costs among local governments. According to Vranjes (2018), this assertion is informed by the proponents' position that the health initiative promises lower net costs among ambulance costs and this beneficial effect is likely to trickle down to local governments in which there will be higher revenues (in the wake of lower costs) (Matthews, 2018). Particularly, the reduction in the net costs for ambulance companies (hence local governments) accrues from the assertion that the initiative will relieve the companies of costs linked to the provision of off-duty rest and meal breaks (Brollini, 2018).

Several dilemmas arise from Proposition 11. For instance, the ambulance companies might increase insurance charges for commercial insurance firms (for the patients' trips); leading further to an increase in the peoples' health insurance premiums (Chronicle Editorial Board, 2018). Another dilemma is that the ambulance firms might replace paramedics with EMTs or lengthen the time of response to emergency calls. Notably, EMTs receive generally

lower wages than paramedics (Monterey County Herald, 2018). Other scholarly assertions indicate that the companies might pay counties less for the rights to offer services in their regions and, in areas deemed less profitable, the ambulance firms might not pay for the rights to offer services (Vranjes, 2018). In such cases, Matthews (2018) observed that the counties might be forced to pay ambulance companies to receive services in the perceivably less profitable areas (rather than vice versa).

Based on the findings above, alternatives are proposed relative to service delivery among ambulance companies in California. Indeed, there is a need for California to embrace a unified service area in which ambulance companies may propose services for part of or all of the selected area in which they serve. This alternative exhibits economies of scale and reflects a more innovative approach to response among ambulance companies (Brollini, 2018). By adopting this alternative, the implication is that the most appropriate and closest resource can be deployed to the scene. However, the Chronicle Editorial Board (2018) documented that the demerit lies in logistical complexities in which competing firms might end up exhibiting effort duplication or, in some cases, fail to deploy resources on the assumption that other companies are available. Another alternative involves updating the standards of response time to ensure that patterns of California's population are considered. According to the Monterey County Herald (2018), this option is advantageous because it aligns travel time standards among ambulance companies and, in turn, steer uniformity in service delivery. However, the demerit is that it fails to consider the effects of geographical patterns such as desert, outlying, rural, and urban conditions (and their impact on the realization of the travel time standards) (Matthews, 2018).

Conclusion

The best alternative involves the use of a unified service area model. This model is proposed because it seeks to counter several, potential demerits associated with Proposition 11. For instance, this model will curb the ambulance companies' potential failure to comply with the health initiative via the decision to pay counties less for the rights to offer services in their regions and even withdraw their services from areas deemed less profitable. Also, this alternative seeks to curb the potential negative response of the ambulance companies involving the increase in insurance charges for commercial insurance firms; as the model will specify the expected services, areas served, and the personnel expected to provide the ambulance services. The latter aspect will also aid in shunning the possible negative effect of the companies' decision to replace paramedics with EMTs, who receive generally lower wages than the paramedics. Hence, it is projected that the adoption of this alternative will improve ambulance services while curbing the weaknesses and dilemmas surrounding Proposition 11.

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The Study of Stem Cell Therapy and Implications for Medical Systems

Yi Schellen
Research Scholar
Russian Institute of Cultural Research

Abstract

Stem cell therapy has unlimited dental and medical applications. The evolution of the stem cell regeneration concept reflects a shift from the surgical care model to a medical model that has, in turn, paved the way for a biological model of care (through stem cell therapy). However, most of the selected articles affirm that the success of this practice and the ability to achieve the desired goals of stem cell therapy depend on the degree of collaboration and expertise among practicing dental surgeons, matrix biologists, cell biologists, biomaterial scientists, immunologists, and molecular biologists.

Keywords*: Stem Cell Therapy, dental and medical applications, regeneration etc.*

Introduction

Stem cells exhibit the capability to transform into any type of body cell (Poulos, 2018). This feature has paved the way for the cells to be used for purposes of repairing or regenerating diseased organs and tissues (Kim, Mehrazarin & Kang, 2012). This paper provides a literature review of some of the past scholarly studies that have focused on the subject of stem cell regeneration. In so doing, the section is projected to give an issue into subjects such as the current trends in stem cell regeneration, some of the merits and demerits of this practice, and future implications.

Methods

Some studies have focused on the efficacy of stem cell regeneration. In the experiment by Wu, Chiu and Chin et al. (2014), the main aim was to regenerate damaged tissues via the therapeutic use of stem cells. The study employed adult homologous stem cells and strived to determine their efficacy in damaged tissue regeneration. In the findings, the study reported that this therapy, which employs stem cells, is safe. Sudarshan, Annigeri and Vijayabala (2012) concurred that stem cell regeneration as a therapeutic intervention yields significant improvements in pump function and myocardial vascularization. Based on these findings, it can be inferred that the subject of lost tissue regeneration has received in-depth analysis but only recent research has made regenerative dentistry and medicine gain momentum; proving contributory to the subject of molecular biology. This secondary analysis draws information from journals and e-books, with a content analysis technique aiding in analyzing the study's results.

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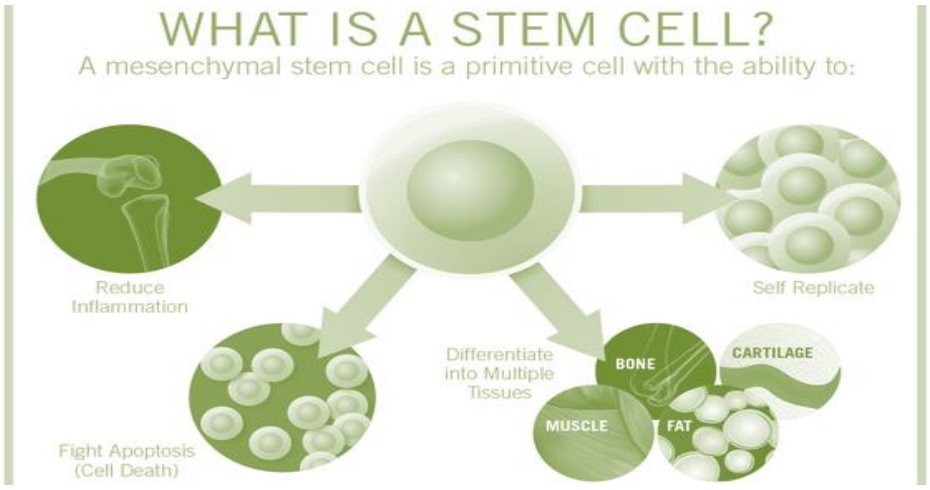
Results



In medicine, chronic debilitating diseases have led to the exploration of stem cells and their possible role in repairing, repopulating, replacing, and rewiring organs and tissues (Sankaranarayanan, Kailasam, Elangovan, Ravi & Sarkar, 2013). According to Kim, Mehrazarin and Kang (2012), the increasing attention in stem cell regeneration is informed by overwhelming success with which the therapy has been reported ─ relative to animal studies. With the animal studies avowing that stem cell regeneration is a promising therapy, several clinical trials have been conducted. In the study by Poulos (2018), the central objective was to find out the role of cell replacement therapy or stem cell regeneration in alleviating symptoms of diseases such as peripheral vascular disease, diabetes, arthritis, and cancer. In a related study, Alpert and Chen (2017) sought to unearth the contribution of stem cell regeneration in addressing heart failure and hematological disease. Findings suggested that stem cell regeneration is a promising therapy due to its promising results. In a related experiment, Nolta (2016) documented that for patients with type-1 diabetes, stem cell regeneration aids in protecting pancreatic islet cells. On the other hand, Horst, Chavez, Jheon, Desai and Klein (2012) observed that for individuals diagnosed with the chronic obstructive pulmonary disease, the cell therapy procedure aids in repairing the lung tissue.

Stem cell regeneration has also gained application in dentistry. For these studies, dental tissues have been used to obtain the stem cells. Some of the areas in which promising results have been reported include the ability to foster whole tooth regeneration, craniofacial defects' bone replacement and repair, and periodontal regeneration (Gasparotto, Landim-Alvarenga and Oliveira et al., 2014). Others include the repair of perforations and regeneration of apical or cervical dentin and resorbed root, as well as regenerations of damaged coronal pulp and dentin (Kim, Mehrazarin & Kang, 2012). In relation to the regeneration of damaged coronal pulp and dentin, stem cell regeneration has been found to facilitate the deposition of physiologic dentin (Wu, Chiu and Chin et al., 2014). According to Sudarshan, Annigeri and Vijayabala (2012), this facilitation has been contributory to medicine and dentistry whereby it has minimized micro-leakage and interfacial failure ─ while ensuring that the structural integrity of the tooth is restored.

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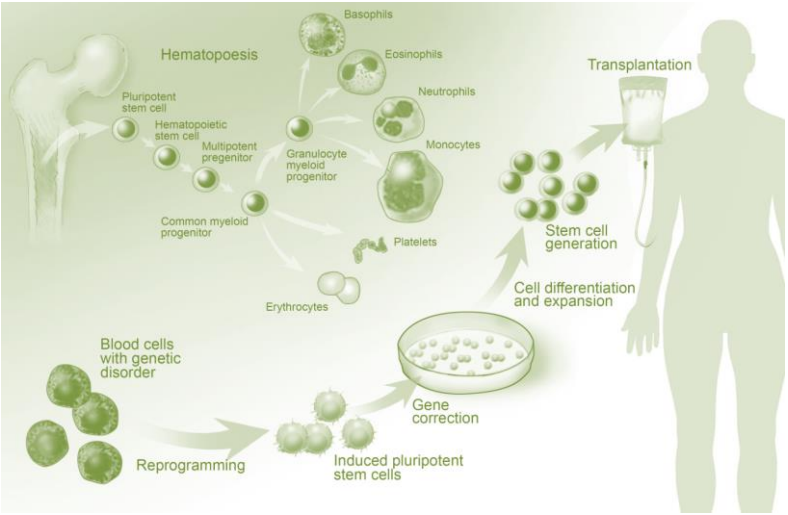

In the study by Sankaranarayanan, Kailasam, Elangovan, Ravi and Sarkar (2013), it was acknowledged that in situations, where apexification or apexogenesis is required for young permanent teeth, stem cell regeneration leads to pulp regeneration. As such, it was observed that stem cell regeneration is important because its associated ability to promote pulp regeneration paves the way for the completion of development of lateral and vertical roots. In so doing, Poulos (2018) indicated that long-term prognosis is improved.

As mentioned earlier, stem cell regeneration has also been used in periodontal regeneration. According to Alpert and Chen (2017), some of the techniques that have been embraced to foster the regeneration of the periodontium include the use of alloplastic materials, allografts, and autologous bone grafts. Whereas the techniques have been used widely, Kim, Mehrazarin and Kang (2012) cautioned that the structure of the periodontium, which constitutes soft and hard tissues, has proved complex and too challenging for these methods. As such, cell-mediated regeneration has been employed to counter the limitations with which the techniques highlighted above are associated. In one of such studies, Nolta (2016) indicated that when expanded autologous marrow stromal stem cells (MSCs) are transplanted *ex vivo*, this process leads to the regeneration of new periodontal ligaments, alveolar bone, and cementum. Particularly, the experiment was conducted with dogs experiencing class III periodontal defects. In situations, where *in vitro* cultures of periodontal ligament cells are established, Horst, Chavez, Jheon, Desai and Klein (2012) asserted that the results demonstrate re-implanting into periodontal defects; upon which periodontal regeneration is promoted. Given the degree of concurrence among the scholarly studies and results documented above, it can be inferred that stem cell regeneration is highly contributory to medicine and dentistry because it fosters tissue regeneration in very complex tissues; including the periodontium.

Stem cell regeneration has also gained application in the orofacial region. According to Gasparotto, Landim-Alvarenga and Oliveira et al. (2014), mesenchymal stem cells, which are obtained from dental and non-dental sources, aid in the regeneration of maxillofacial regions. Some of these regions include craniofacial regeneration, the repair of the palate and cleft lip, regeneration of salivary gland, and the production of dentin and enamel (Wu, Chiu and Chin et al., 2014). In experiments where the mesenchymal stem or stromal cells have been used,

prophylactic treatment has been achieved in relation to atrophy or vocal fold scar (Sudarshan, Annigeri and Vijayabala, 2012). For the mesenchymal stems cells that have been transplanted into vocal folds (pre-clinically *in vivo* and *in vitro*), no adverse risks have been reported (Kim, Mehrazarin & Kang, 2012). In studies where focus has been on oral submucosal fibrosis (which is a chronic condition that restricts mouth opening and affects the underlying muscles of mastication, esophagus, pharynx, lips, cheeks, fauces, palate, and the sub-mucosal layer of the pharynx), stem-based therapy has been embraced (Sankaranarayanan, Kailasam, Elangovan, Ravi & Sarkar, 2013). As affirmed by Poulos (2018), the main of stem cell therapy has been to steer neoangiogenesis via the release of growth factors and cytokines. In the findings, stem cell regeneration studies focusing on oral sub-mucosal fibrosis avow that the practice yields promising results (Alpert and Chen, 2017). Particularly, neoangiogenesis, a product of stem cell therapy, has been found to aid in reversing hypoxia and increasing the supply of additional scavenging defenses in diseased issues, upon which the removal of senescent cells has been facilitated (Nolta, 2016). Also, stem cell therapy stimulates resident tissue stem cells, upon which the latter cells are transformed into new fibroblasts. According to Horst, Chavez, Jheon, Desai and Klein (2012), the eventual role of the new fibroblasts lies in the removal of morphologically altered and biochemically disintegrated collagen fibers.

Indeed, most of the current literature suggests that stem cell therapy plays a contributory role in regenerative medicine. This procedure entails the use of undifferentiated cells for purposes of curing diseases. Some of the diseases that have been targeted include autoimmune disease, cardiovascular disease, diabetes, liver disease, and Parkinson's disease; which are neurodegenerative conditions. The selected studies highlight further that one of the specific zones to which the stem cell regeneration procedure has been applied entails the orofacial region. In particular, stem cell therapy has been employed in this region for purposes of alveolar bone regeneration, temporomandibular joint reconstruction, and periodontal and tooth regeneration. From the scholarly affirmations, it is evident that stem cell therapy's curing ability is promising; with the dental pulp and other craniofacial stem cells forming sources from which the required cells have been obtained.

Conclusion

In conclusion, stem cell therapy has unlimited dental and medical applications. The evolution of the stem cell regeneration concept reflects a shift from the surgical care model to a medical model that has, in turn, paved the way for a biological model of care (through stem cell therapy). However, most of the selected articles affirm that the success of this practice and the ability to achieve the desired goals of stem cell therapy depend on the degree of collaboration and expertise among practicing dental surgeons, matrix biologists, cell biologists, biomaterial scientists, immunologists, and molecular biologists.

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Vocational Nursing and Impact on Health Care Service Outcomes

Gloria F. Johnson
Research Scholar
Instute of Global Research and Future Innovations, New Zealand

Abstract

Scope of practice covers what the law allows for specific experience and education; with specified competencies expected to be demonstrated by the affected professionals. In California, the Board of Vocational Nurse and Psychiatric Technicians (BVNPT) regulates the practice and licensure of vocational nurses; with the practice of authorization conducted by the California Business and Professions Code. On the other hand, the case of the state of Washington operates in such a way that the scope of practice for LVNs is governed by the Washington State Department of Health. This comparative case study seeks to unearth the scope of practice for LVNs in the contexts of California and Washington.

Keywords*: Vocational, Health Care Service etc.*

Introduction

In California, the scope of practice for registered nurses (RNs) is governed by the Board of Registered Nurses. The role of this board is to determine some of the activities that are likely to overlap medical practice and, in turn, prompt standardized procedures. It is also worth noting that the board defines dependent functions such as the administration of medications, independent functions such as patient care services involving personal hygiene, comfort and safety, and interdependent functions such as observing signs and symptoms of illnesses, general behavior, and reactions to treatment (Corazzini, Anderson, Mueller, McConnell, Landerman, Thorpe & Short, 2011). This study focuses on a comparative analysis of LVN scope of practice in Washington and California, a secondary analysis aimed at predicting the future of the specialty in the selected regions.

Methods

By understanding the scope of practice, nurses are likely to gain an insight into some of the safe parameters within which they are expected to work. The eventuality is that patients are protected from unsafe and unprofessional nursing practice (Corazzini, Anderson, Mueller, Thorpe & McConnell, 2013). In addition, the knowledge of the scope of practice is important because it aids in avoiding a confusion of roles by specifying the processes, actions and procedures that the RNs are expected or allowed to perform. By providing professional support and guidance to RNs regarding issues relating to clinical practice, the scope of practice is important because it promotes effective decision-making processes (National League for

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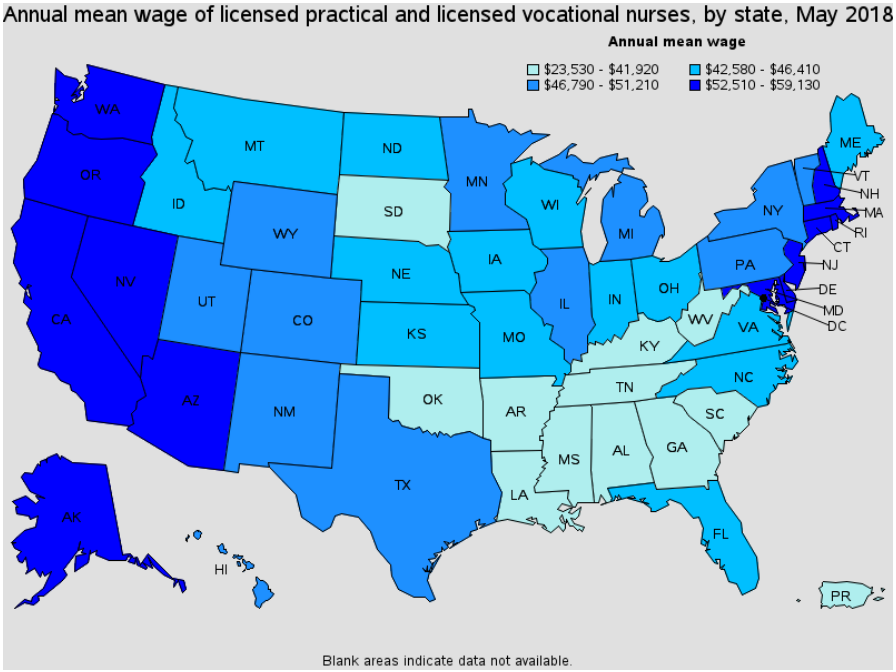
Nursing, 2010). This study adopts a secondary research approach, gaining and analyzing data from government and institutional reports.

Results

A confusion of roles, which may result from the decision by nurses to perform roles beyond their scope, is likely to compromise the state of patient safety due to the possible incapability of the practitioners to handle what is beyond their levels of qualification (Institute of Medicine, 2011). Besides, defying the scope of practice is likely to cause overlaps or a duplication of effort because operating beyond one's scope implies that the nurses will have "taken over" the roles and responsibilities that may have, otherwise, been meant for other care providers (in the units perceived to be intruded by nurses operating beyond their scope). Lastly, operating beyond one's scope of practice implies that the resources available are likely to be utilized inefficiently and ineffectively; either leading to an underutilization of the resources in the new sections that nurses intrude or an overexploitation of the resources available in one's unit while struggling to meet the needs of patient groups beyond their area of coverage (Corazzini, Anderson, Mueller, McConnell, Landerman, Thorpe & Short, 2011).



LVNs, under the supervision of doctors, can give medication via oral administration and hypodermics injections, draw blood from patients after being instructed by physicians or RNs, and start and continue to give intravenous fluids medications (Corazzini, Anderson, Mueller, Thorpe & McConnell, 2013). Similarly, LVNs can carry out skin tests (such as coccidioidin, histoplasm, and TB tests), give immunizations (after demonstrating the capacity and knowledge of emergency reactions and rededications), help in emergency situations requiring nursing skills, and exercise voluntary work similar to that of religious establishments (National League for Nursing, 2010).

	California	Washington
Similarities	▪ Nurse practitioners and LVNs operate in collaboration with physicians ▪ LVNs in California are restricted to less critical situations such as those involving oral administrations of medication and drawing blood from patients; rather than allow the groups to participate in advanced and physician-related activities	• Similar to California, nurse practitioners and LVNs operate in collaboration with physicians • Similar to the case of California, groups such as LVNs and engaged in less critical medical practices such as oral administrations of medications while advanced skills lied in the hands of physicians
Differences	✓ Within collaborative practice agreements, nurse practitioners engage in the ordering, administration, dispensing, and prescription of medications ✓ In California, nurse practitioners are not allowed to sign death certificates but only permissive regarding parking handicap permits	❖ Nurse practitioners make basic observations, collect information, and help in identifying problems and needs relevant to clients (as directed by supervising persons) ❖ The Washington State law does not define the community member to sign death certificates and allows advanced registered nurse practitioners, physician assistants, and physicians to sign the certificates

LVNs work in structured settings such as private physician offices, clinics, skilled nursing facilities, rehabilitation centers, hospitals, and nursing homes (Institute of Medicine, 2011). Specifically, these nurses aid in determining the mental and physical health needs, statuses, and preferences of socially, ethnically and culturally diverse patients, as well as their families based on the interpretation of health-related information (Corazzini, Anderson, Mueller, McConnell, Landerman, Thorpe & Short, 2011). Upon collecting information, the LVNs recognize changes in conditions before reporting to RN supervisors or other appropriate clinical supervisors for problem identification and goal formulation. Thus, the focused assessments produced by LVNs enable the RNs to form nursing processes (Corazzini, Anderson, Mueller, Thorpe & McConnell, 2013). Licensed vocational nurses are also expected to safeguard the health and safety of patients by documenting care based on professional standards while performing services based on specifications in business and professions codes.

For LVNs, some of the behavioral and ethical standards to which they are expected to adhere include maintaining current skills and knowledge for competent and safe practice, maintaining confidentiality among clients or patients, and maintaining professional boundaries during the practitioner-patient interaction processes (National League for Nursing, 2010).

Other standards include abstaining from substance or chemical abuse and cooperating with state boards during investigations. Whereas a majority of these standards exhibit a commonality in California and Washington, the difference is that the latter state holds the nurses accountable for the clients' safety. Similarly, the case of Washington operates in such a way that the nurses may delegate personal care tasks to other care givers perceived to be qualified.

Conclusion

At the personal level, the knowledge gained is critical and the resultant insights will be applied in future practices. For example, patient safety will be safeguarded in a scenario involving a patient diagnosed with a chronic condition such as asthma but reported to resist medication. The ethical and behavioral standard that will be applied is that which requires care providers to maintain confidentiality among patients and clients. To achieve this objective, I will use the patient's family members, close friends, and other relatives as entry persons to allow the patient express himself or herself regarding medication history. Given that the cause of resistance to medication might be informed by potential tensions that might be present at the initial stage, confidentiality will be assured due to the perceived trust that the patient might have in members of the family, rather than me, the care provider. In turn, the family members will be instructed to explain to the patient about some of the possible adversities that could accrue from failed administration of medication, as well as the expected benefits, should the patient agree to undergo treatment. With a harmonious atmosphere created, I will collect the patient data or medication history with the aid of members of the family and deliver the same to the physician for further processes. Thus, the use of family members as entry persons will demonstrate the maintenance of confidentiality with the patient by allowing the information to flow between the patient and these members 9as well as the care provider), rather than attract the attention of additional groups such as other patients in the unit, members of staff at the healthcare firm, and other authorities. Overall, the insights gained from the study will enable me to examine some of the possible causes of patient resistance to medication and determine the most appropriate channels that could be used without zed groups to access the patient's data or case at hand. This step is predicted to not only enhance confidence and promote trust but also create a harmonious nurse-to-patient relationship or environment.

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Community Windshield Survey in Nursing and Medical Practice: Focusing on Miami's Coral Gables

Linda P. Uribe
Research Scholar
Science Scholar, Global Science Group, Canada

Abstract

This paper has provided a summary of a windshield survey that focused on Coral Gables. The city, found in Miami County of Florida, is dominated by groups such as African-Americans, the Hispanics, Asians, Native Americans, and the Pacific Islanders. Recent statistics indicated that Coral Gables has a population of 49,631. In relation to health, some of the factors placing these communities at risk include poverty, sedentary living (that is characterized by little physical exercising), and poor eating habits. It is recommended that nurse practitioners and other relevant healthcare authorities strive to understand the people's state of cultural competence. In so doing, valid and reliable plans might be formulated in a quest to curb healthcare disparities by enhancing accessibility while encouraging physical exercising and healthy eating behaviors.

Keywords*: Windshield Survey, Coral Gables etc.*

Introduction

Coral Gables is located in Florida's Miami County. Specifically, the official city is situated on the downtown of Miami. The 2013 census statistics indicated that Coral Gables has a population of 49,631. Demographically, the city is dominated by groups such as African-Americans, the Hispanics, Asians, Native Americans, and the Pacific Islanders. It is also worth noting that Coral Gables is a home to multiracial groups (Williams & George, 2011). In this windshield survey, focus has been to gain an insight into the state of health in the city, with the participant observation technique forming the main approach for collecting and analyzing the data.

Methods

As one drives through Coral Gables on a typical weekend morning, several neighborhoods would be observed to constitute individuals working in their yards. In addition, other people would be observed either grilling or conversing with their neighbors at the yards. Children are also observed to be engaged in play. It is also worth highlighting that a majority of the population constitutes the Hispanics and African-Americans. However, a significant population is evidently overweight. This state of health could be attributed to the predominant dining on fast foods, as well as the presence of the city's relaxation centers that beam with enjoyment.

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Results

Relatively, a significant population is observed to live in poverty. This affirmation is indicative of the majority's inability to access healthcare that could address issues such as obesity at the individual and family levels. The risk to healthcare intervention is also exacerbated by disparities arising from constrained and biased provider-patient communication, as well as health illiteracy. Most of these differences arise from deviations in the residents' ethnicity, socio-economic statuses, and race differences. Whereas developments such as access to preventive care are observed, the city's state of intense healthcare disparities in some of its zones remains unaltered.

In relation to equitable healthcare access, a challenge is presented by the city's health resources. Given that most of the healthcare facilities are located in town, transportation from residential areas, which are miles away, remains challenging. In addition, emergency services are dire, with voluntary emergency departments forming a major player in case of emergencies.

The main health condition observed is obesity, arising from non-healthy eating. One of the reasons accounting for this state is the consumption of food without paying attention to the calorific value. As documented by Flegal, Ogden and Wei et al. (2013), the current society continues to consume most of the McDonald's foods. Specifically, Big Mac contains about 33 grams fat and 500 calories, a significant amount indeed. The survey found out that most of the residents overlook the effect of calories on their state of health. In most parties, the survey revealed that most of the people prefer foodstuff with a lot of salt, fat and sugar. This trend was further evident in restaurants. During free times, a majority of the individuals were observed eating snacks and cookies. Besides, settings such as pubs were dominated by people watching televisions while drinking and eating snacks. Indeed, the trend is worrying because of a lack of adequate exercising while engaging in unhealthy eating behaviors. Overall, the survey indicated that a sedentary lifestyle characterizes a significant number of residents in Coral Gables.

With busy schedules characterizing the community, it was inferred that they are unlikely to get enough time to sleep. According to Marlow and Shiers (2010), mechanization continues to deprive over 60 percent of populations of physical exercising. With the evolution of mechanized transport, concerns have arisen regarding the significant decrease in physical exercising. Domestic technologies have also been introduced to save on labor or the amount of energy used to accomplish tasks. These technologies include the TV remote controls, washing machines, and elevators (Karnik & Kanekar, 2012). In Coral Gables, the level of the children's engagement in physical activities was observed to be low; evidenced by reduced walking. The rest of the age groups were observed to engage in leisure activities that would incorporate few physical activities. In both adults and children, leisure activities involving the Internet and television were evident.

The presented scenario in Coral Gables proves to be challenging to nursing as a practice. Observable issues include the general state of sedentary lifestyles, poor eating habits, and unequal access to care. The implication is that nurse practitioners and other members of

the community could engage in various interventions (or initiatives). One of the approaches involves exercising cultural competence. To achieve this objective, there is a need to understand the Coral Gables community's culture. By understanding the cultural assumptions, experiences and perceptions of residents in this region, nurse practitioners are likely to achieve the objective of attitudinal and behavioral change. It is also worth avowing that nurses may strive beyond care provision to offer additional advice regarding the need for patient groups to exercise healthy eating habits in a quest to curb conditions such as obesity and diabetes. Similarly, the healthcare authorities in Coral Gables and the rest of Miami ought to formulate a plan through which improvements could be made towards enhanced accessibility to healthcare. By increasing healthcare resources, emergency services might be improved while seeking to achieve a healthy population in Coral Gables. Overall, the survey affirmed that physical exercising and poor eating habits form critical predictors of healthcare disparity in Coral Gables. Other potential attributes that complement sedentary living include the considerable amount of time spent on the Internet and television, as well as poverty. By addressing these disparities, it is projected that the state of healthcare access and provision in the city and its environments would be improved to a significant extent.

Conclusion

In conclusion, this paper has provided a summary of a windshield survey that focused on Coral Gables. The city, found in Miami County of Florida, is dominated by groups such as African-Americans, the Hispanics, Asians, Native Americans, and the Pacific Islanders. Recent statistics indicated that Coral Gables has a population of 49,631. In relation to health, some of the factors placing these communities at risk include poverty, sedentary living (that is characterized by little physical exercising), and poor eating habits. It is recommended that nurse practitioners and other relevant healthcare authorities strive to understand the people's state of cultural competence. In so doing, valid and reliable plans might be formulated in a quest to curb healthcare disparities by enhancing accessibility while encouraging physical exercising and healthy eating behaviors.

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Recent Advancements in the Detection of Possibly Cancerous Tumours

Ranvijay Singh[1], Bikash Ranjan Bindhani[2], Sanjay Sahoo[3], Debapreeti Mohanty[4], Jasbir Meher[5], Pritam Mohanty[6]

[1]BDS (Dental Surgeon),Address: Ratnakunj Heights, Amrit 201, Behind Reliance Fresh, Beside Lal Bhai park, Waghodia road, Vadodara, Gujrat- 390024,
Email: dr.ranvijaysingh4@gmail.com;

[2]PGT (Department of Orthodontics and Dentofacial Orthopaedics), Room No. 7, Kalinga Institute of Dental Sciences, KIIT- Campus-5, Bhubaneswar,Odisha- 751024.
Email: smiledr.vicky@gmail.com;

[3]Senior Lecturer (Department of Periodontology and Oral Implantology),Kalinga Institute of Dental Sciences, KIIT- Campus-5, Bhubaneswar,Odisha- 751024.
Email: sanjay1976sahoo@gmail.com;

[4]Senior Lecturer (Department of Endodontics and Conservative Dentistry),Kalinga Institute of Dental Sciences, KIIT- Campus-5, Bhubaneswar,Odisha- 751024.
Email: drpreetim1@gmail.com;

[5]Reader (Department of Orthodontics and Dentofacial Orthopaedics)Room No. 7, Kalinga Institute of Dental Sciences, KIIT- Campus-5, Bhubaneswar,Odisha- 751024.
Email: drjasbir.orthodontist@gmail.com;

[6]Professor (Department of Orthodontics and Dentofacial Orthopaedics), Room No. 7, Kalinga Institute of Dental Sciences, KIIT- Campus-5, Bhubaneswar,Odisha- 751024.
Email: drpritammohanty@gmail.com

Corresponding Author:Debapreeti Mohanty, Senior Lecturer (Department of Endodontics and Conservative Dentistry),Kalinga Institute of Dental Sciences, KIIT- Campus-5, Bhubaneswar,Odisha- 751024. Email: drpreetim1@gmail.com

Abstract:

Histopathologic characteristics, location of involvement, and stage of illness are now used to diagnose and treat oral premalignant lesions and squamous cell carcinoma. This article discusses recent developments in strategies for identifying the lesions and forecasting theadvancement or reappearance. Exfoliative cytology and vital tissue staining (with toluidine blue) are adjuncts for detecting lesions and selecting biopsy sites. Advances in molecular diagnostics and staging are likely to have an impact on therapy options and patient satisfaction. Dental health care workercomprehends these advancements in examination and diagnosis of premalignant lesions in oral cavity.

Introduction:

Cancer in oral region is the world's eleventh common most kind of cancer having a serious social impact, with more than 2 lakhs cases per year, two-thirds of which occur in poor nations. The most frequent kind of cancer in the head and neck is oral squamous cell carcinoma (OSCC), often known as mouth cancer [1]. About half of all head and neck cancers are oral cancers, such as those of the upper and lower lips, tongue surfaces, and mouth. Epithelial cell carcinomas account for 90% of them [2]. Other oral cancer locations include the linings of the cheeks, gingiva (gums), and palate (roof of the mouth).

Men's oral cancer is the most frequent and lethal malignancy in India. In Indian women, it is the third most prevalent cancer. Patients with such tumors have an 80 percent 5-year survival rate when identified early, 40 percent when regional dissemination occurs, and fewer than 20% when metastasis occurs [3].

Diagnosis of Pre-Malignant Oral Lesions:

For cancer screening, an oral examination using white light illumination and palpation is usually used. The examiner's experience is crucial in such operations, especially in the early stages of lesion formation. The diagnostic gold standard for a suspicious lesion is surgical biopsy followed by histology. Every patient will not be able to undergo a biopsy and the necessary follow-up care. The patient is frequently hesitant and even afraid of such an intrusive surgery. Furthermore, the intrusive technique may create wound healing issues or worsen scarring in trismus sufferers. As a result, there is a pressing need for practical, easy, non-invasive, low-cost, and painless diagnostic techniques that may be done in an out-patient setting [4]. Various screening devices have been created to improve and ease clinical examination in order to differentiate and diagnose precancerous and cancerous oral lesions at an early stage. Salivary proteomics [5], brush biopsy[6], and cytology with unique adjuncts such DNA-image cytometry or mRNAmarker assessment [7], immune cytology [8], and gene expression analysis [9], as well as analysing molecularmarkers are all available. Iodine and toluidine blue stains, as well as autofluorescence and spectroscopy, are further optical-based adjuncts enabling improved imaging of possibly dysplastic alterations in the oral mucosa [10].

Exfoliate cytology:

This is a straightforward, non-invasive, low-cost method for finding biomarkers that can be used in any laboratory and is well-liked by patients [11]. The Papanicolau (PAP) stain is a worldwide exfoliate cytology stain that may distinguish between normal and abnormal cytological characteristics in cytological smears. The nucleolus organiser regions (NORs) are also stained with silver salt (Ag) to detect malignant alterations in exfoliative cells. The amount of AgNORs per nucleus influences the level of ribosomal RNA transcription, cell growth, and genomic structure. With the rise in NORs, frequency of ribosome and cell duplication increases. Even before changes are observed histologically, AgNOR analysis is thought to be beneficial marker of incipient cellular abnormalitiesquantitatively [12].AverageAgNORs in a nucleus might evolve as a necessary marker in identifying cancer cells; current techniqueenhances selectivity for differentiating the stage of cancer cells (malignant or benign), reducing the risk of adverse outcomes. Staining with AgNOR is a economical and easy method. According to several research, combining multiple approaches can improve sensitivity in identifying incipient malignant alterations and can be used in preventative programmes.

Toluidine Blue:

Toluidine blue is indeed a basic thiazine metachromatic marker that has a strong affinity for acidic cellular constituents, allowing it to stain DNA and RNA-rich tissues. Because of its

metachromatic property, it has found extensive use as an essential stain in live tissues as well as a unique stain. In vivo, toluidine blue has been used to detect alteration and cancer of the mouth [13]. It binds to DNA and is water and alcohol soluble in small amounts. Because cancerous cells have a greater quantity of acidic componentsas compared to healthy cells, tissue processing with TB may help in detection ofthe changes in oral mucosa. TB has proven to be an important stain for detecting cancerous lesion of oral cavity since early 1980's. A dark royal blue staining of tuberculosis can be seen. Because of the increase in false-positive findings, the TB test proves to be a boon to staining procedures[3].

VELSCOPE (Narrow-emission tissue fluorescence):

Tissue auto fluorescence has been used to screen for precancers and early malignancies and to diagnose them. Changes in epithelium shape and metabolism, along-with the sub-epithelium, are thought to affect how light interacts with them. This change in epitheliumlayer, in particular, may modify the tissue structure resulting in the release pattern of fluorescentpost stimulation with strong blue excitation light (400 to 465 nm). Finally, a human viewer may see the auto florescence signal first-hand [4].

Molecular analysis of exfoliated cells:

Exfoliated cells may be subjected to further testing. As previously indicated, the molecular level changes occur before they are observed under the microscope. Common alterations at chromosomal locations, which lead to changes in RNA and subsequent protein expression, are among the molecular changes seen in the development to SCC. Exfoliated cells can be examined for LOH and other molecular alterations, such as changes in p16, p53, and cyclin D. Molecular examination of cells recovered by mouth rinse revealed the same alterations found in tumour biopsy tissues. There were no false-positive results when exfoliated cells from oral lesions exhibited LOH that was highly linked with biopsy findings from the same areas [14]. Exfoliated cells may be examined for molecular markers to determine the development of change and therapeutic outcomes, including preventative studies. As a result, molecular analysis of exfoliated cells might make it easier to detect lesions and monitor their development during therapy and follow-up [15].

Autofluorescence Spectroscopy:

Fluorescence spectroscopy with laser and polarisation [16][17], time-resolved fluorescence spectroscopy, and fluorescence lifetime imaging [18] are all terms used to describe autofluorescence spectroscopy. It is a simple and non-invasive method for detecting changes in cell structure and chemical components in pre-malignant lesions and malignant tumours. Tissue auto-fluorescence is caused by fluorophores from the tissue matrix molecules and intracellular molecules such as collagen, elastin, and NADH. When diseased tissues are subjected to certain wavelengths of light, photosensitizers such 5- aminolevulinic acid-induced protoporphyrin IX are applied topically or systemically, causing them to glow. Using high-performance liquid chromatography, Onizawa et al. observed auto-fluorescence in oral squamous cell carcinoma corresponds to fluorescent protoporphyrin with progression of lesions, is generated within tandem with the malignant tissues. According to Ronchese et al.,

strong red fluorescence indicates a bad prognosis, while orange or no fluorescence indicates a favourable prognosis.

Conclusion:

Oral cancer detection at an early stage is a critical goal in which oral medicine specialists play a critical role. Early identification would result in less treatment harm and a better prognosis. The detection of mouth cancer and precancerous lesion can be aided by a range of current methods. The sensitivity and specificity of light-based detection devices are excellent. The light-based screening tool should only be used as a supplement to a clinical evaluation for detecting possibly cancerous tumors. The absence of well-designed clinical trials is one of the drawbacks of their utilization.

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Design and Analysis Low Power 8×8 SRAM Array Using MT-CMOS Technique and VT-CMOS Technique

Dr V. Saminandan,
B.Tech, M.Tech, Ph.D. Miste, Professor In Ece Dept In Pondicherry University.

S Farooq Anwar,
M.Tech (Ph.D.) In Ece Department Pondicherry University.

Dr G. Venkatasubbaiah
B.Tech, M.Tech, Ph.D. Miste, Professor In Ece Dept Insrm University.

Abstract: Storage of data is required in all the high performance VLSI circuits used today. The need for the day is large amount of data to be stored and accessed as fast as possible, The Static random access memory (SRAM) is widely used memory in consumer electronics. So, it is need to be a ultra-low power design. To obtain low power SRAM cell need to apply low power techniques. Firstly, Design the 8T SRAM cell check it's write and read operation for that 8×8 SRAM array is to be designed, the essential circuits required to design SRAM array are 3 to 8 Decoder, Precharge circuit, Write Driver, Sense amplifier after this initiate the implementation of low power techniques to the SRAM cell. Here two low power techniques are used for designing of SRAM Cell. The Low power techniques are Multi Threshold CMOS (MTCMOS), Variable ThresholdCMOS (VTCMOS).The simulation results and graphical plots demonstrate the most suitable low power technique to reduce the dynamic power consumption of 8T SRAM cell. For Designing of low power 8X8 SRAM Array using TANNER Eda V16.0.

Keywords: Low power, Static random access memory, SRAM Array, Multi Threshold CMOS Technique (MTCMOS), Variable Threshold CMOS Technique (VTCMOS).

INTRODUCTION

With advancing technology, there is always an increase in demand for larger data storage capacity. This has driven the fabrication technology and memory development towards more compact design rules and towards higher data storage densities. A variety of memories are available to store and access the information stored. According to ones need one may select a read only memory which is generally used in microcontrollers or a read write memory that is generally used in microprocessors. In comparison to DRAM though SRAM requires more space, it is easily fabricated and is much faster. Dynamic RAM unlike the Static RAM needs to be refreshed after equal intervals of time. Hence for SRAMs the standby power is very low despite of high density of transistors. SRAM cells have high noise immune due to larger noise margins, and have ability. The most important application of SRAM is in CPU cache memories, small onchip memories, FIFOs or other buffers. Here, design of 8x8 SRAM array chip and analyses the area and delay of the entire chip.

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LITERATURE REVIEW

The no of transistors used in the circuit is main concern for power optimizations. Even though four transistors is enough to design the SRAM circuit, it needs the resistive loads additionally which reduces the reliability of the circuit. The writing stability of the load less 4T SRAM cell is not good [1]. To improve the writing stability the 5T SRAM cell is designed [2]. This circuit possesses the large amount of leakage power due its feedback connection. To avoid the instability of the write operation, look ahead bias that controls the threshold voltage dynamically. This circuit uses the 7 transistors [3]. In order to reduce the leakage current, the self-controllable voltage circuit is employed. But, its data retention and transistor sizing is complicated [4]. The MTCMOS technique is more efficient than the self-controllable voltage circuit. MTCMOS is the Multi Threshold CMOS technique is used in 12T SRAM circuit [5]. In this paper, the circuit complexity is high. To optimize the power the memristor is used. Being an analog element the memristor possesses an accountable leakage power. The overall area of the circuit is increased due to the presence of memristor [6].

Design of 8T SRAM Cell

The SRAM cell that we considered in this paper is "8T SRAM Cell" which consists of two crossly coupled inverters and access transistors to read and write the data and additional two symmetrical NMOS transistors (N5 and N6) placed opposite to the access transistor. Instead of 6T SRAM Cell the 8T SRAM Cell is used. Because this cell has low leakage power compared to the conventional 6T SRAM Cell. But the addition of those two NMOS transistors (N5 and N6) the power consumption of this cell increased. The supply voltage of this cell is 800.0mv. For write operation drive the input value and its compliment to the bitline (BL) and bitline_bar (BLB) then raise the wordline (WL). Pre charging of bit line (BL) and bitline_bar (BLB) is set to high and let them float. The QA and QB are the outputs of these two cross coupled By observing the transient response of 8T SRAM cell it indicates working nature of the cross coupled inverters the word line is maintained at 1V constantly, QA is compliment to bitline (BL) and QB is compliment to bitline_bar (BLB) as shown in the Fig.

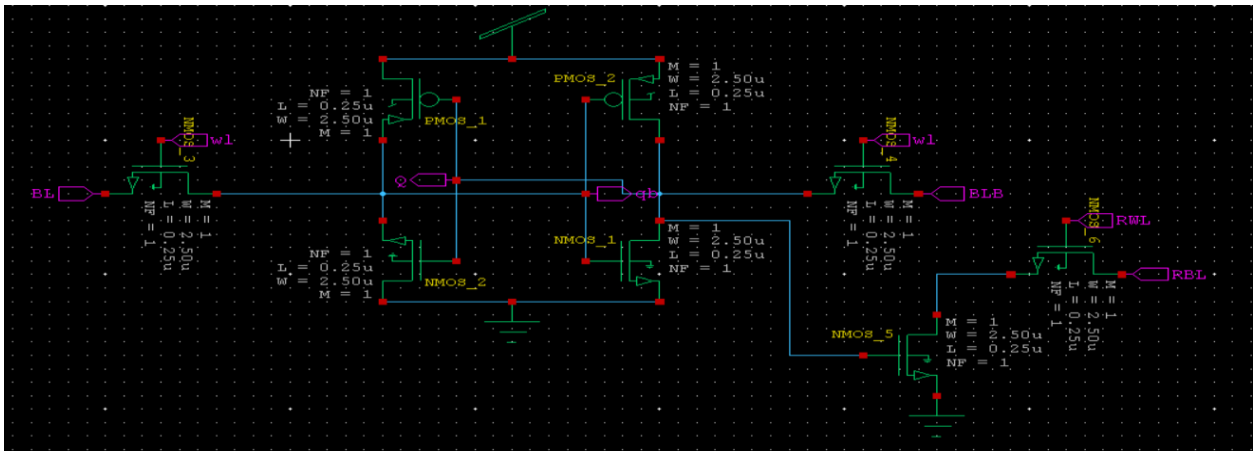

Fig: Schematic of 8T SRAM Cell

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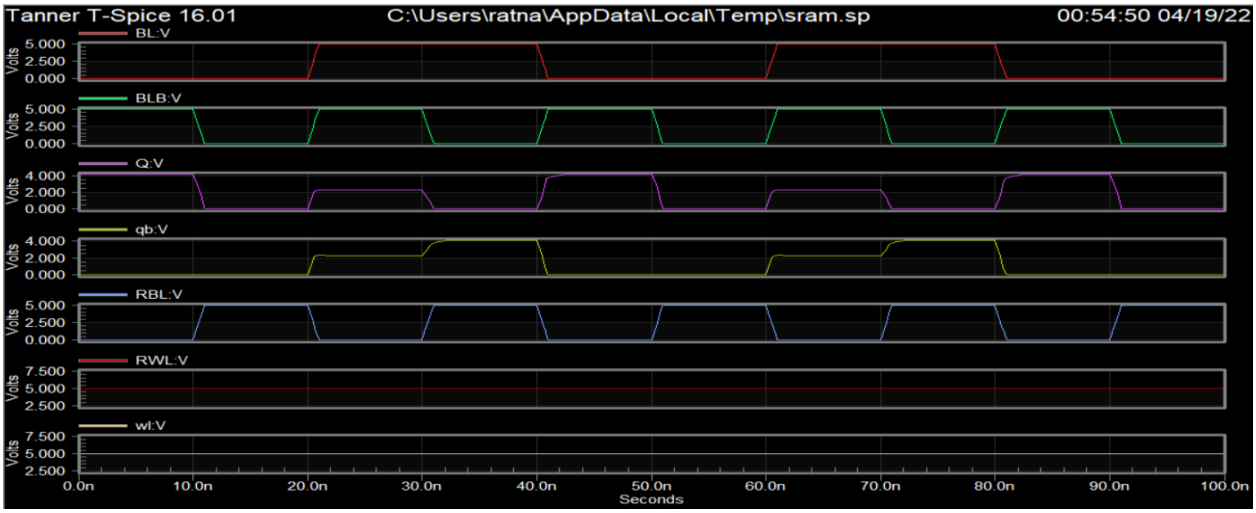

Fig: Transient response of 8T SRAM Cell

BLOCK DIAGRAM OF GENERIC SRAM ARRAY

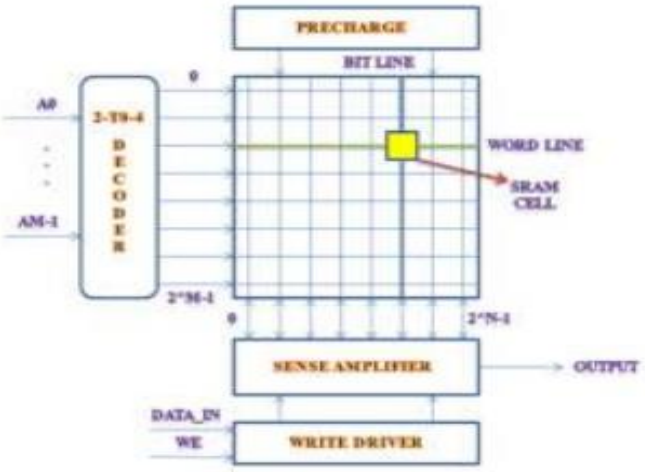

Fig: block diagram generic SRAM Array

To Design SRAM Array, Firstlydesign sub circuits of SRAM Array are essential circuits and plays crucial role in designing of SRAM Array. They are 3 to 8 Decoder, Pre-charge circuit, Write Driver, Sense amplifier, SRAM cell.

DESIGN OF 3 TO 8 DECODER

The decoder is a logic circuit that accepts the set of inputs that represent a binary number and activates that output which corresponding to the input binary number. A decoder has „n‟ inputs and 2n output lines. The 3-to-8 decoder operates according to the Truth table as shown in Table 1. • The 3-bit input is A0, A1,A2and the Eight outputs are D0, D1, D2, D3, D4, D5, D6, D7. • If the input is the binary number i, and then output Di is uniquely true. • For example, if the input A0, A1, A2=01, then output D0 is true, and D1, D2, D3, D4, D5, D6, D7 are all false. • This circuit “decodes” a binary number into a “one-of-eight” code.

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A_2	A_1	A_0	D_7	D_6	D_5	D_4	D_3	D_2	D_1	D_0
0	0	0	0	0	0	0	0	0	0	1
0	0	1	0	0	0	0	0	0	1	0
0	1	0	0	0	0	0	0	1	0	0
0	1	1	0	0	0	0	1	0	0	0
1	0	0	0	0	0	1	0	0	0	0
1	0	1	0	0	1	0	0	0	0	0
1	1	0	0	1	0	0	0	0	0	0
1	1	1	1	0	0	0	0	0	0	0

Table 1. Truth Table of 3 to 8 Decoder

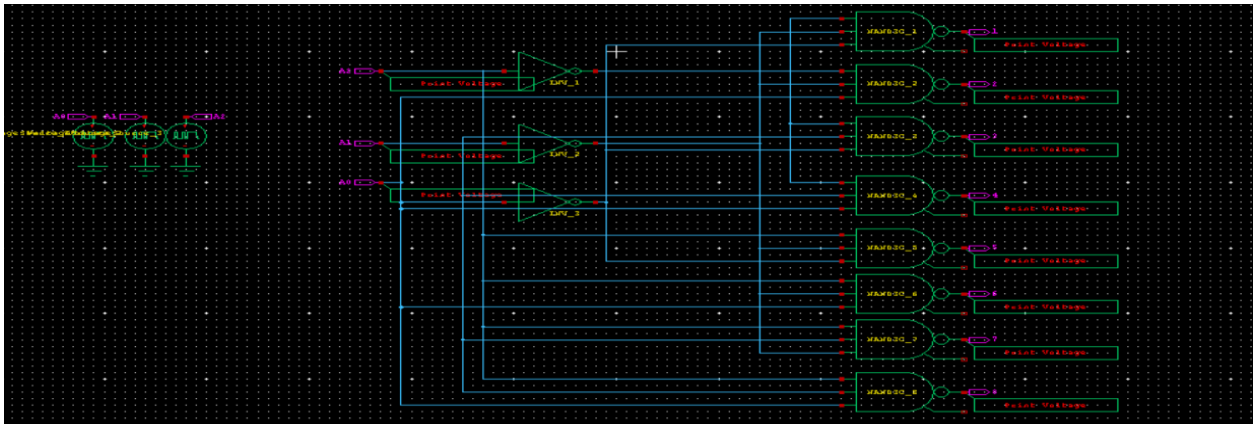

Fig : Schematic of 3 to 8 Decoder

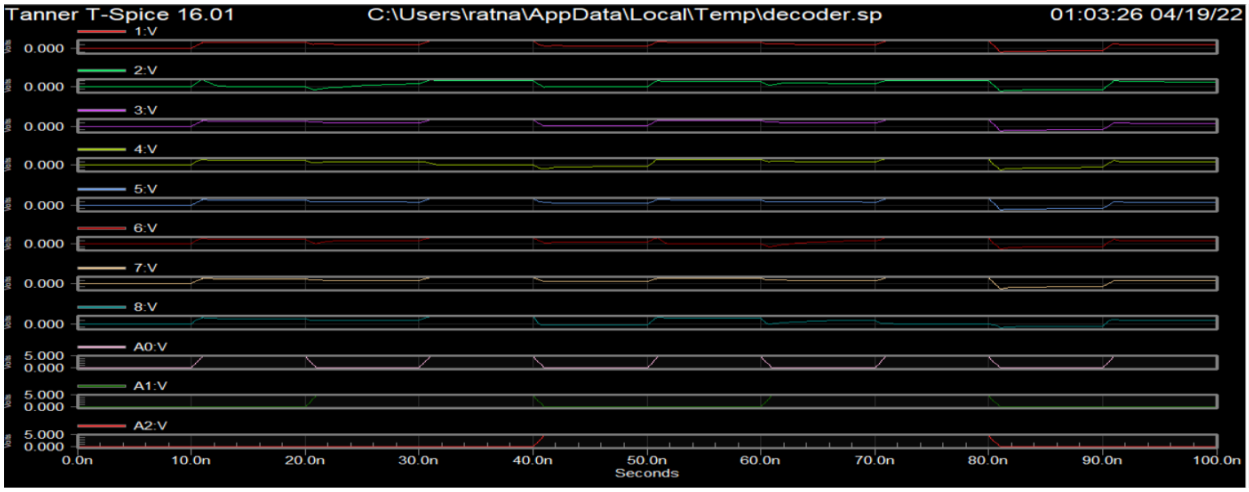

Fig: Transient response of 3 to8 Decoder

DESIGN PRE-CHARGE CIRCUIT

The pre-charge circuit is one of the vital component that is persistently employed within SRAM cell. The work of the precharge is to charge the bit and bitline-bar to the power supply

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Vdd=1.8v. The precharge circuits authorize the bit lines to be charged high at all times aside from throughout read and write operation.

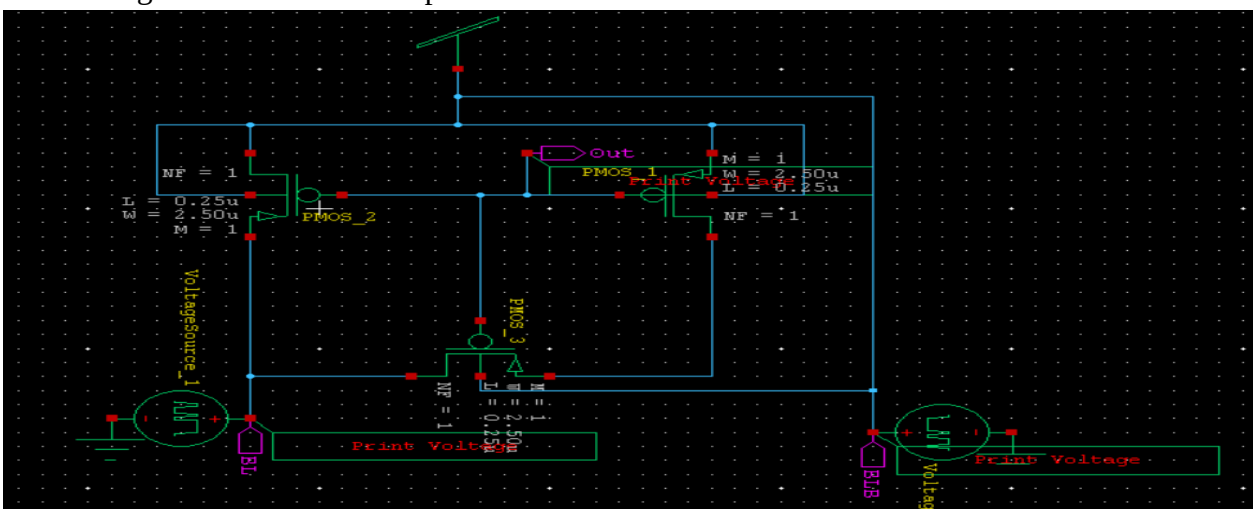

Fig: Schematic of Pre-charge circuit

Pre-charge of the power line voltages in a high voltage DC application is a preliminary mode which limits the inrush current during the power up procedure. The pre-charge that holds bit lines at positive voltage makes it possible to amplify that differential signals to a useful logic level.

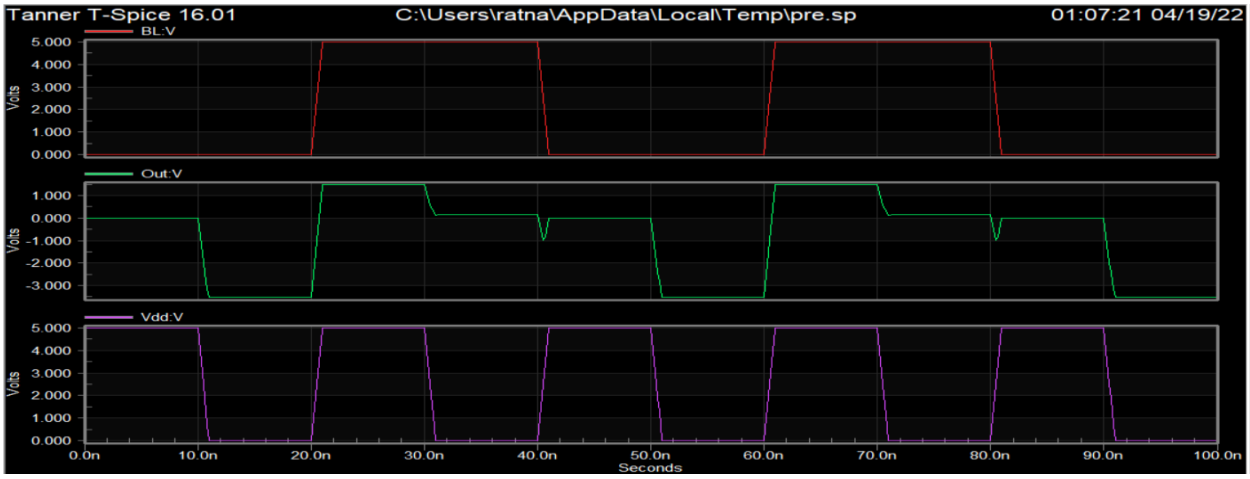

Fig: Transient response of Precharge circuit

DESIGN OF WRITE DRIVER CIRCUIT

The write driver circuit is one of the vital component in the SRAM array design. The job of the write driver is to keep thebit line and bitline-bar to ground potential for the further next level of its work. Before this the bit line and bitline-bar are being charged maximum supply voltage of Vdd. By the usage pre-charge circuit it will get charged and after that it gets discharged. The two logics are given to the two points of the junction of the NMOS. i.e0 and 1.The bit line which is nearer to the 0 logic it gets discharged first after that its logic gets inverted. In this way the bit line and bitline-bar gets discharged to the ground. With this kind of operation the bit line and bit line bar gets discharged. So that the voltage difference

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between bit line and ground, bit line bar and ground is zero. So that another data can be easily retrieved by the memory cell.

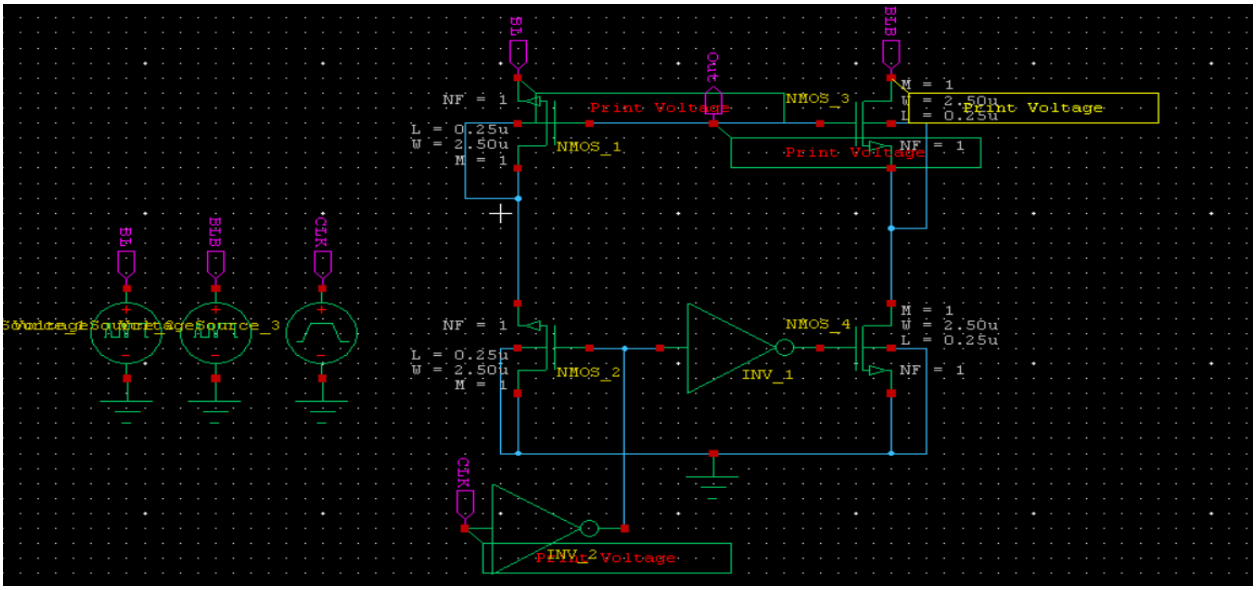

Fig: Schematic of Write driver

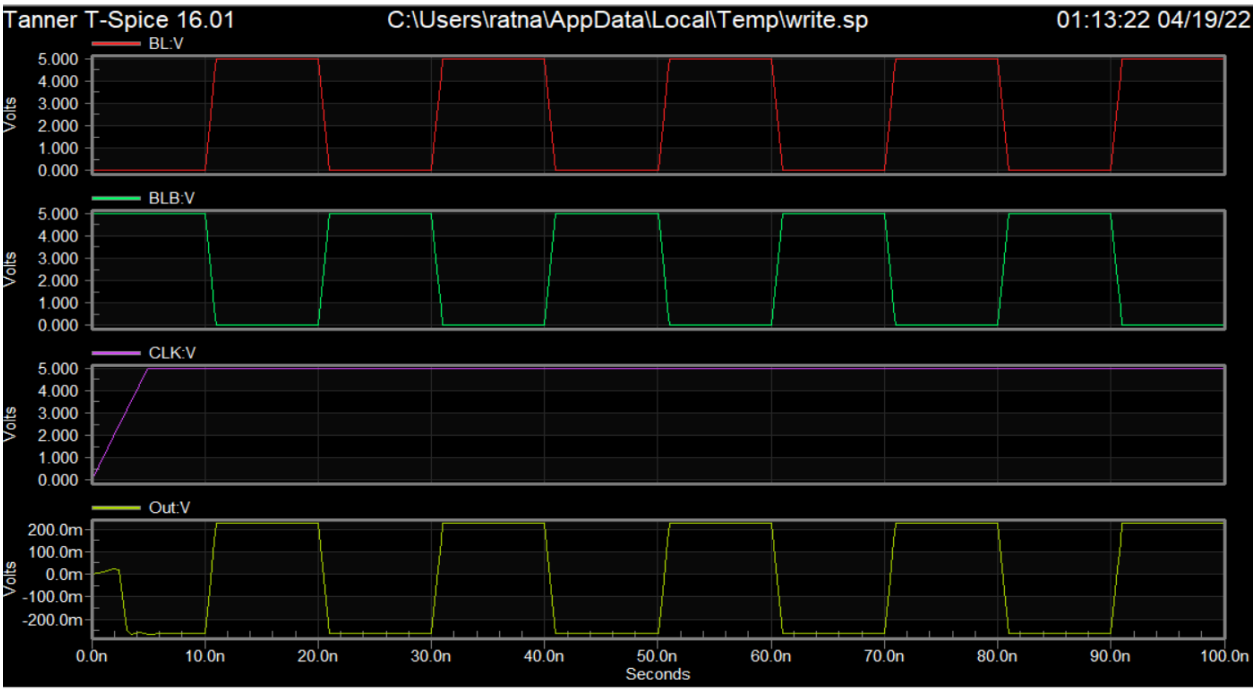

Fig: Transient response of Write Driver

DESIGN OF SENSE AMPLIFIER

The Sense amplifiers are the essential component in the SRAM memory design. The job of sense amplifier is to sense the bit line and bitline-bar for proper observing action. It improves the read and write speed of the SRAM memory cell. Another job is to achieve the low power consumption operation in memory design. The sense amplifiers primary utilized to amplification of the voltage difference is being produced on the bit line and bitlinebar at the time of operation. As we know that in SRAM operation we didn't do refresh of the memory

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for the further process, as the each segment has one sense amplifier for the single output. So, it can get proper use of the sense amplifier in the designing circuit. These is the various parameters of a sense amplifier are

Gain A =Vout/Vin

Sensitivity S is Vin min-least noticeable signal. Rise time t-rise, fall time t-fall -10% to 90%.

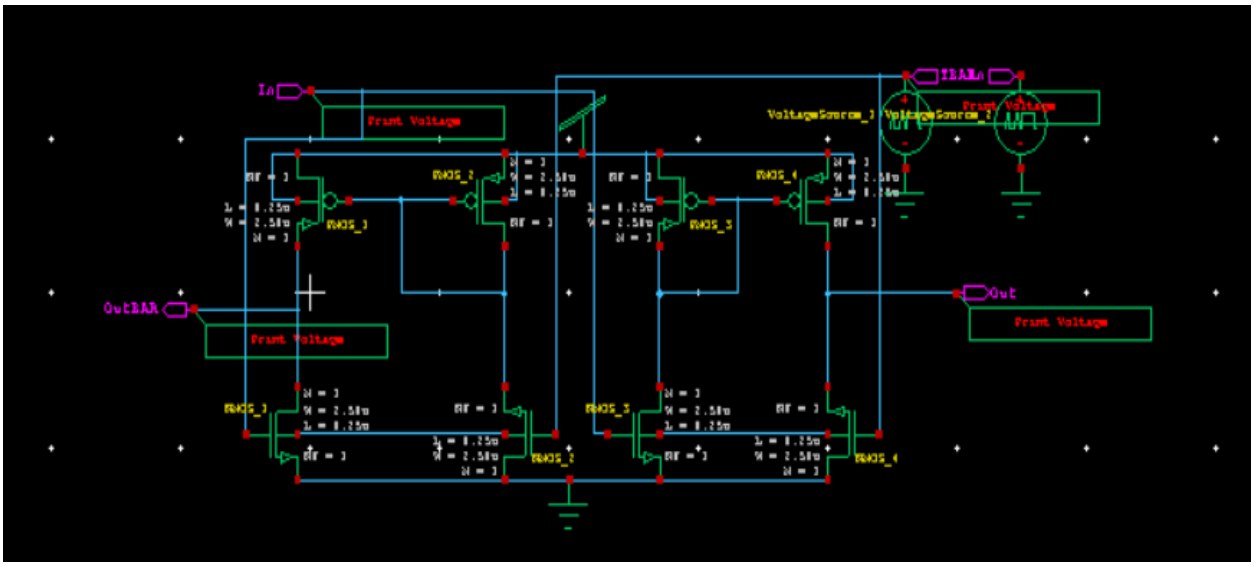

Fig: Schematic of Sense Amplifier

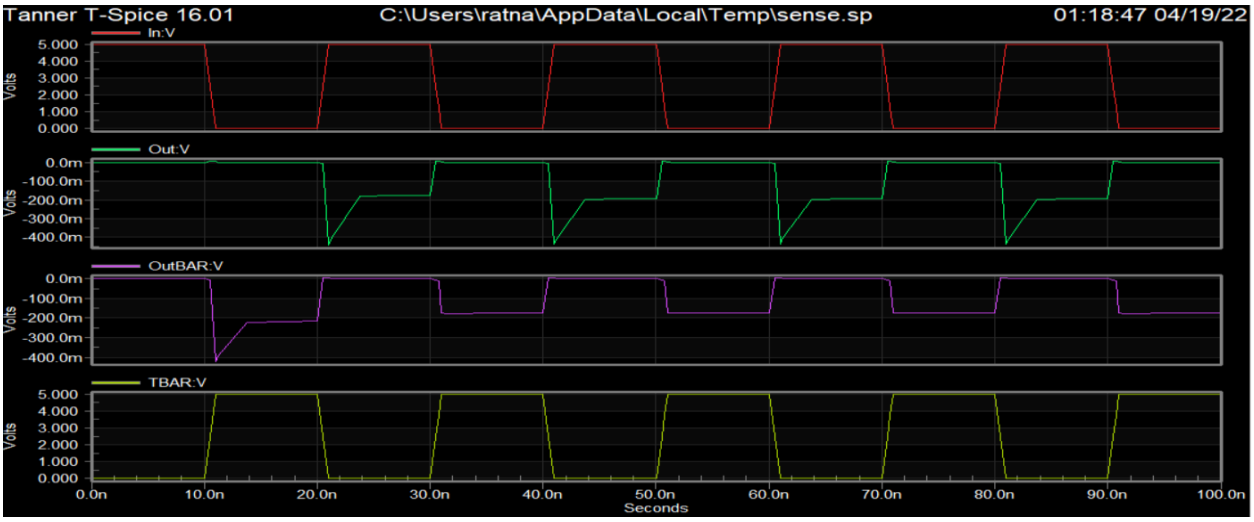

Fig: Transient response of sense amplifier

DESIGN OF 8×8 SRAM ARRAY

The Transient response for the write 0 and write 1 operation is shown in Fig. 20. In the read operation, also here the WL7 and WL0 are activated in order to perform the required operations. The WL7 when it is high at a point the WL0 is low, resulting in write 1 operation at QA0 and write 0 operation at QB0. Therefore, the write 0 and write 1 operations are verified.

The transient response as shown in the above results, in read operation when both the inputs get low at that time data is being kept at the constant value. When WL7goes from high to low

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and WL0 goes from low to high with sense enable gets on it get confirmed for the read Operation of the memory cell.

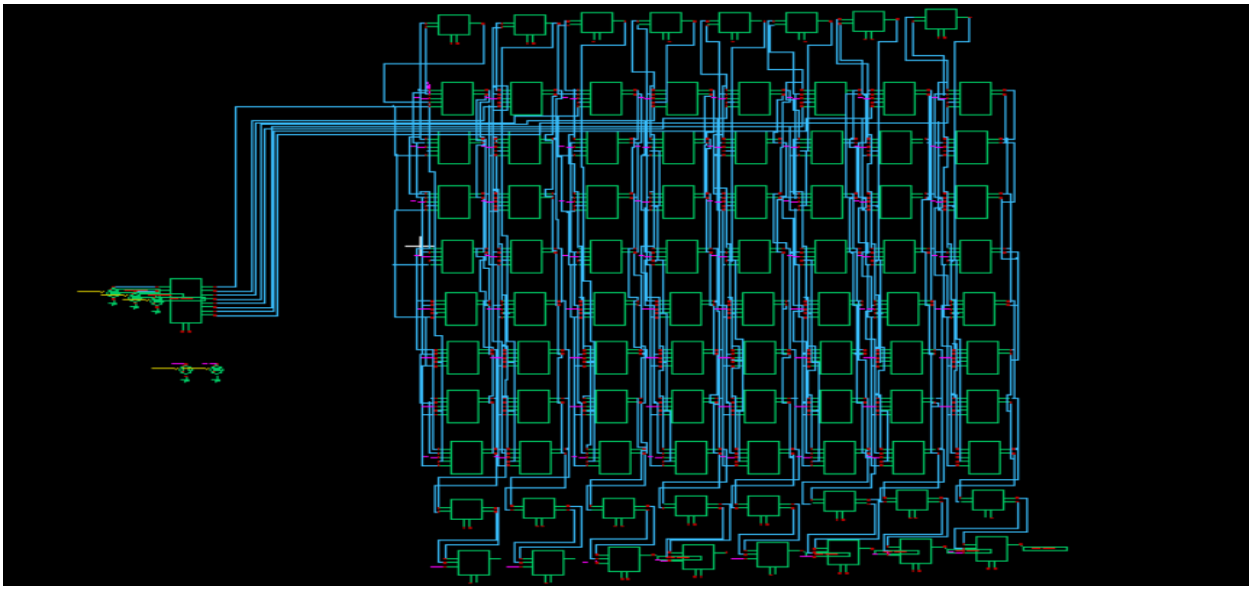

Fig: Schematic of 8×8 SRAM Array

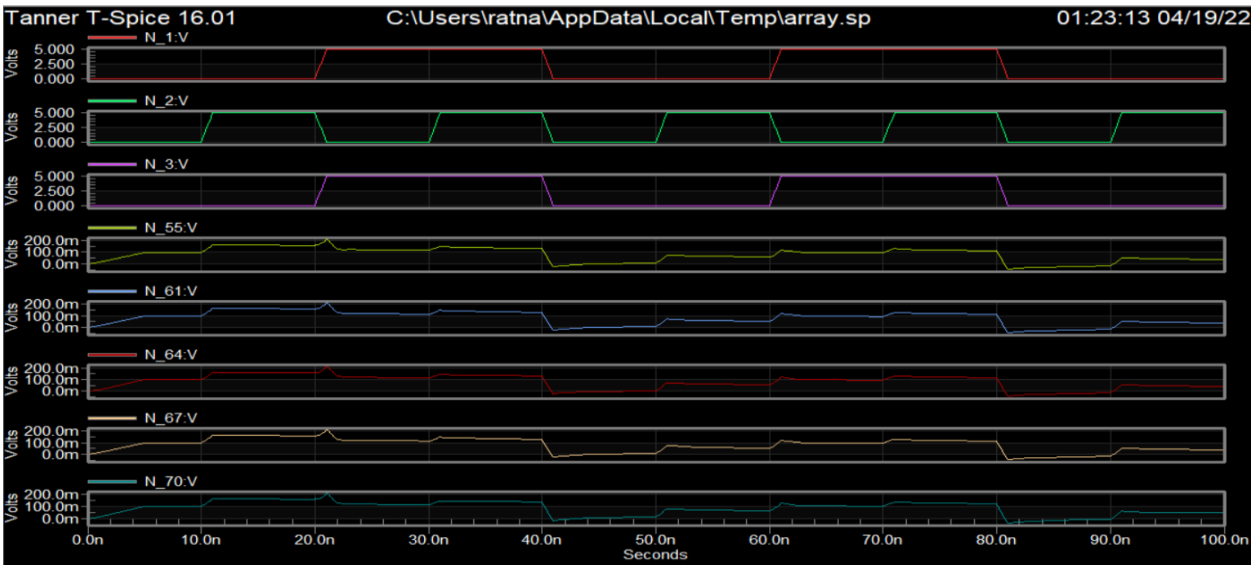

Fig: Transient response of 8*8 sram cell

CONCLUSION

A Low power 8X8 SRAM array is designed for storing 64 bits. Peripheral components such as 3 to 8 decoder, Pre charge circuit, write driver circuit, sense amplifier including and has been designed and assembled to form SRAM array. Differential type sense amplifier is used for noise reduction. Pulse input signal with a peak to peak voltage of 800.0mV (railrail) and Supply voltage of 800.0mV for SRAM cells and for 8×8 SRAM array the supply voltage is 1.8V is considered Transient responses for read and write operations for both logic-1 and logic-0 have been analyzed. Investigated the low power techniques Among two techniques better results got in MTCMOS Technique. In this Technique reducing the power

consumption to 57% as compared to conventional 8T symmetrical SRAM cell. SRAM array and SRAM cells and peripheral components are designed in Tanner eda.

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Virtual MIMO Antenna Design using Microstrip Antenna in Wireless Sensor Network

Shailendra Kumar Rawat
Research scholars
Amity institute of information technology, Amity University, Uttar Pradesh, India
rawat.nokia@gmail.com

Dr. S. K Singh
Professor, Amity institute of information technology, Amity University, Uttar Pradesh, India
sksingh1@amity.edu

Dr. Ajay Kumar Bharti
Professor, Babu Banarasi Das university, Lucknow, Uttar Pradesh India
ajay_bharti@hotmail.com

Abstract: These "virtual MIMO" techniques are used in wireless sensor networks to make communication more efficient, and they work just like real MIMO. A lot of people now use wireless sensor networks that run on battery power. Because they need to be energy efficient and last a long time, this means they must be good at these things as a way to solve this, a new architectural method called Virtual MIMO was made. To make an energy efficient network, this method is very important. It helps you figure out how and where it should be used. You can use MIMO technology in a single antenna system by taking advantage of the cooperative concept and its energy-saving method with virtual MIMO. This survey paper mostly talks about how to do this. To make a wireless sensor network last longer with the least amount of energy, this shows how Virtual MIMO techniques can be used to do that A wireless communication system with multiple in and multiple out antennas, as well as different S-parameters, are all simulated. Return Loss in dB is also shown for different frequencies, like S21, S22, S11, and S12. These frequencies have different Return Loss in dB. A lot of people now use wireless sensor networks that run on battery power. Because they need to be energy efficient and last a long time, this means they must be good at these things as a way to solve this, a new architectural method called Virtual MIMO was made. To make an energy efficient network, this method is very important. It helps you figure out how and where it should be used.

Keywords: MIMO (Multiple Input Multiple Output), Single Input Single Output (SISO), Wireless Sensor Network (WSN), Radio Frequency (RF), Microstrip Antenna (MSA).

1. Introduction

It is possible to make a wireless sensor network (WSN) by placing sensors in different parts of the environment. The sensors can then collect data about how things are in that area and send it to a central location. Temperature, sound pollution, humidity and wind are all things that they can measure [1]. They send sensor data to each other through "wireless ad-hoc networks,"whichare networks that form on their own. WSNs keep an eye on things like temperature, sound, and pressure in the environment. Modern networks are both collecting data and letting people decide what sensors can do. This is why these networks were made.

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They could be used for things like monitoring the battlefield. This thing has "nodes," which can be few or many [2]. There are sensors in each node that connect to other sensors, and there are sensors in each node that make up each node. Usually, each of these nodes has a radio transmitter and a microcontroller, as well as an electronic circuit for connecting to the sensors and an energy source. These can be batteries or a built-in way to get energy from the ground. It's not yet possible to make sensor nodes that are smaller than a grain of dust. Sensor node prices are also a little different from one company to the next. If the node is complicated, the price can go up or down a lot, depending on how much money it costs [3]. Having a limited amount of space and money makes it hard to get things to work. This means that resources like energy and memory can't be used to get things to work. There are a lot of different ways to set up a WSN, from a simple star network to a more complicated wireless mesh network.

There are a lot of people who think wireless sensor networks are going to be a big thing in the future [4]. In the last few years, this field has been getting more attention from business. A wireless sensor network is made up of a lot of sensor nodes that work together to make sure that everything works. These sensors are small, so there isn't a lot of energy in them, and it's very hard to get them back up and running again. One big problem in the design process is that wireless sensor networks need to use less energy, so this is a big one. When we cut down on the amount of energy wireless sensor networks use, we make them last longer [5].

1.1 Multiple Input Multiple Output (MIMO) Antenna

At both the source (transmitter) and the destination (receiver), two antennas each are used. This is called MIMO, which stands for "multiple input, multiple output" (receiver). There are two antennas at each end of the communications circuit that work together to reduce errors, speed up data, and increase radio transmission capacity by allowing data to travel over many signal paths at the same time [6].When radio frequency (RF) systems can handle more information at the same time, MIMO makes connections more stable and less crowded.Figure:1 shows MIMO antenna.

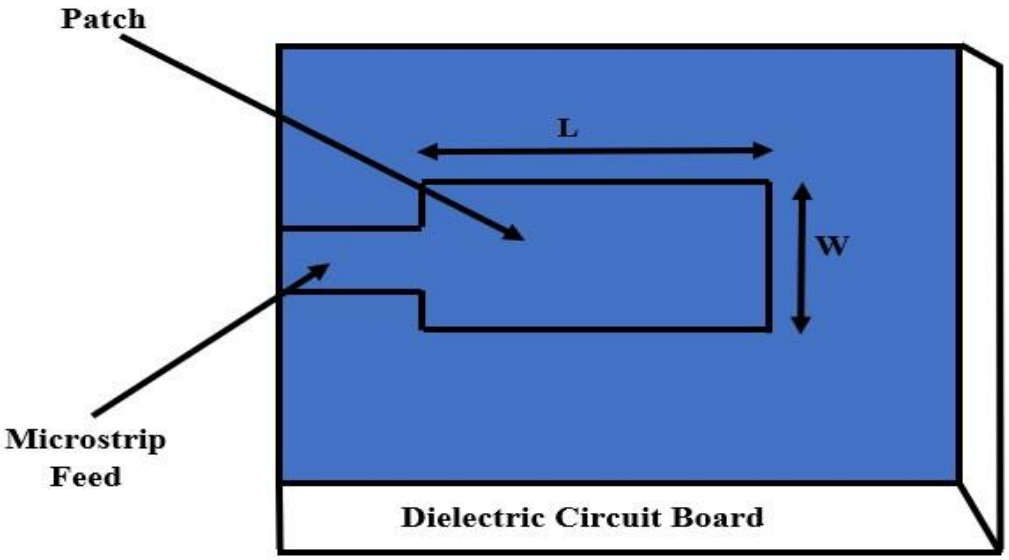

Figure:1 MIMO Antenna [7]

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1.2 Microstrip Antenna

The size of the antenna is usually chosen so that the antenna resonates at the operating frequency. This gives the antenna real impedance, which makes the antenna work better. There must be about half a wavelength of dielectric space in order to make rectangular microstrip antennas that can pick up radio waves there must be about half a wavelength of space between the antenna and the ground [8]. One more thing that affects how much impedance there is in the antenna is how wide it is. Because there are open sidewalls, the radiation comes from fringing fields that pass through them and make it happen. However, the structure is mostly a resonant cavity, with only a small amount of radiation coming from the edges of the structure [9]. This means that the frequency range of the radiation isn't the same as the frequency range of the antenna's researchers talked about in the first place. Small bandwidth, on the other hand, is good for a lot of different types of communication. Figure:2 shows microstrip antenna

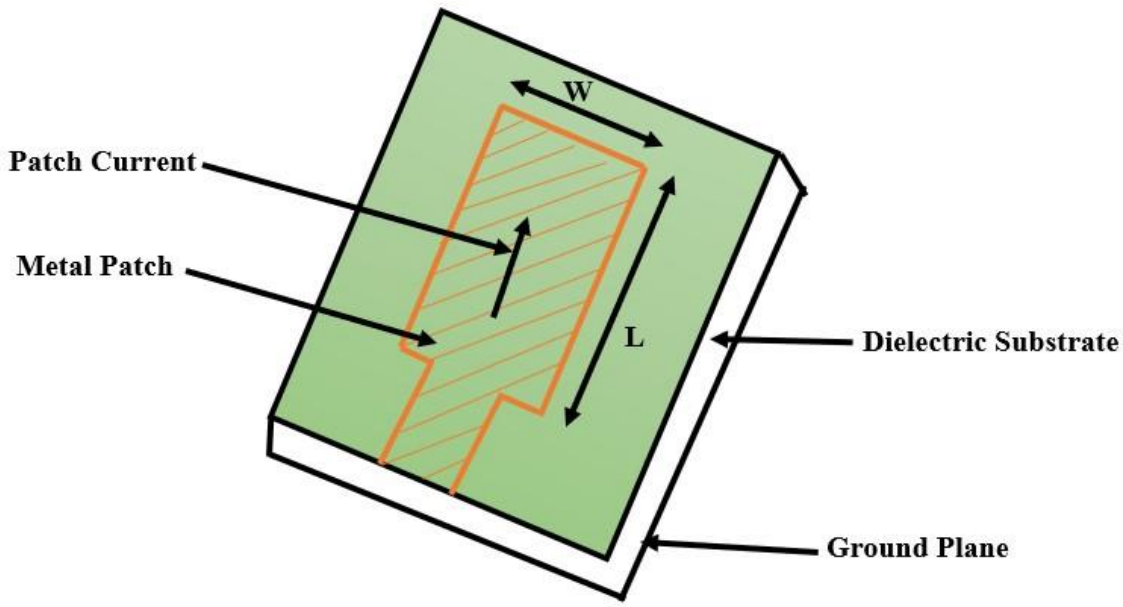

Figure:2 Microstrip Antenna [10]

2. Literature Review

Chan Hwang, et al. [11] A new printed diversity monopole antenna is shown that can be used for WiFi and WiMAX, among other things. In this antenna, there are two crescent-shaped radiators that are both placed symmetrically with respect to a ground plane that has been broken. In order to make sure that the antenna has good impedance matching and low coupling, a neutralisation line is put between them. This shows that the proposed antenna is a good choice for multiple-input multiple-output portable or mobile devices because of these things.

Jobs, Magnus, et al. [12] A lot of attention is paid to antenna design, adaptive antenna control, and how antennas can make small wireless nodes work better by adding more antennas. In order for wireless nodes to be able to compete on the market, they need to be small and have good performance. The main part of this thesis talks about how to do this

through techniques. In a wireless node, the use of discrete phase sweep diversity has been tried and found to be a big help. An echo chamber and an office were both used to test how well a discrete phase sweep diversity system worked.

Xu, Lei, et al. [13] For Space Wireless Sensor Networks, we take a look at the working frequency and wireless transmission technology, as well as antenna design and anti-jamming technology, to come up with a set of complete and feasible secure communication solutions. These solutions are both safe and secure (SWSN). There is a way to make sure that high-speed nodes can talk to each other safely and quickly. All kinds of information will be exchanged automatically, in accordance with the rules of the message format that you're going to use.

Shigeo Kawasaki et al. [14]There is a new, small MIMO antenna system that can be used in many different ways. It has a UWB sensor antenna and can be used in many different ways. For cognitive radio applications, the model that was made can be used as a whole antenna platform for all of them. Different ways are used to change the antenna system so it can work with different types of wireless systems. Multi-band reconfigurable MIMO antennas and a UWB sensor antenna for cognitive radio applications make up the whole system shown in a very small package.

Wang, Ren, et al. [15] People have thought of making a small antenna that can be turned so that it can point in four different directions. This is how the antenna works: It has a main radiator and four other parts that are printed on a dielectric surface. Because diodes that are soldered to the parasitic elements can be turned on and off, the antenna can make four directional waves and one omnidirectional wave. A lot of the main beam directions of all four modes are almost in line with each other. This mode is called "omnidirectional," and it uses four directional beams to cover a wide area in this mode.

Sharawi, Mohammad S. et al. [16] During the last six years or so, there has been a big rise in the number of scientific articles and conference papers that talk about possible solutions for antenna systems that have more than one input and one output (MIMO). Recently, a lot of the most important conferences on antennas and how they work have talked a lot about MIMO antennas and how they can be used. There are a lot of wireless devices and gadgets that use these antenna systems now, and this trend is going to keep going because 4G and 5G wireless standards use a lot of MIMO technology, which is why these antenna systems are so important.

Galajda, Pavol, et al. [17] A new field of study and engineering called underwater wireless communication is becoming more important. The acoustic channel used to send underwater data from the transmitter to the receiver had a lot of problems, such as slow data transmission, a set bandwidth, a different transmission delay, and more. This is what the channel was used for. To make things worse, this caused multipath fading and the Doppler effect to happen. In the water, there is a network of wireless sensor nodes that pick up acoustic waves. They talk to each other through an acoustic link that goes from one node to the next.

Janhunen, Janne, et al. [18] The number of IoT (Internet of Things) devices is expected to rise dramatically over the next few years. People are paying a lot of attention to how these devices are made and how they work, as well as how they affect the environment and the

economy, as well. There are ways to deal with both of these issues at the same time. One way is to use energy-neutral systems, which get their energy from the environment. Wireless power transfer (WPT) is the main problem with this system, which is that it doesn't work very well. In this paper, we build and study a system that is only powered by WPT over a radio frequency (RF) channel.

G. Goswami. et al. [19] The cognitive radio (CR) gives people new ways to use frequencies that aren't being used. This is called spectrum sharing. Using software-defined radio to solve the problem of channel congestion in cognitive radio networks is a good way to deal with it (CRN). Using a software-defined radio (SDR), users can change the frequencies and transmission properties between a licenced primary user (PU) and an unlicensed secondary user (SU). This is done by manipulating a wide range of frequencies (SU). For extra-large band scanning, this is a must because a common radiating antenna makes this possible. New, small antenna: This paper proposes a new antenna that can sense a wide range of frequencies in order to take advantage of empty channels in a wireless cognitive radio sensor network. It's small and easy to use (WCRSN).

Malarvizhi Subramani et al. [20] In this case, the CR radio and UWB Multiple Input Multiple Output (MIMO) systems work together to send short-range HD video and CR wireless sensor networks (CR-WSN). People who want to make this kind of integrated antenna system want to get around the problems of an antenna system that can change the frequency of UWB and Narrow Band (NB) radio waves. The CR antenna and the UWB MIMO antenna system are both part of the whole system, so they work together.

3. Applications of Wireless Sensor Network

There are groups of sensor nodes that communicate wirelessly to get information about the environment around them [21]. Wireless sensor networks (WSNs) are groups of nodes that communicate with each other. They have low power and are spread out in an ad hoc way. The fact that WSNs have become very popular doesn't mean they are safe. They have limited memory, computing power, battery life, and bandwidth, which makes it hard to keep them safe. If you want to keep your information private, you could be the target of a wide range of attacks [22].

Area monitoring -Use WSNs all the time to keep an eye on something. It is called area monitoring when the WSN is spread out over a certain area that needs to be watched for something. In the military, sensors are used to see if an enemy is near [23]. The geo-fencing of gas or oil pipelines is an example of this.

Health care monitoring -The sensors can be implanted, worn, or integrated into the environment. It is possible to put medical devices inside of the body. It can be on the surface of a person's body, and it can also be near the person who is using it. These systems use sensors that are found in the environment.

Threat detection - WATS is supposed to be able to find a nuclear "briefcase bomb" that goes off on the ground when it does. If WATS was built, it would have wireless gamma and neutron detectors that talk to each other through a network of wires [24]. Sensors pick up data that goes through "data fusion." This is the most important part of the system.

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4. Multiple Input Multiple Output Antenna for Wireless Communication System

"MIMO" used to be a term in wireless that meant using multiple antennas at both the sender and receiver. This is no longer the case, though [25]. Multipath propagation makes it possible to send and receive multiple data signals at the same time over the same radio channel at the same time. This is called "MIMO." When orthogonal frequency division multiplexing is used to encode each channel, the storage capacity goes up. "Multipath" may be interesting, but this "multipath" is not the reason. MIMO is very different from smart antenna techniques like beamforming and diversity, which are used to improve the performance of a single data signal [26]. MIMO is not the same as smart antenna techniques like beamforming and diversity.

Lots of people think that the term MIMO comes from research papers written in the 70's about digital transmission systems that had multiple channels and cross talk between wire pairs in a cable bundle [27]. The math used to deal with mutual interference helped make MIMO possible. Even though these aren't examples of using multipath propagation to send multiple information streams, the math used to deal with mutual interference helped make it possible [28].

SDMA is a way to communicate with people who are in different places near the same base station at the same time. It has antennas that are directional or smart [29]. In this case, the base station has "a lot of receiving antennas," and there are "a lot of people who are far away."

5. Multiple Input Multiple Output Antenna Functions for Wireless Sensor Network

People who use MIMO can break it down into three main groups: pre-coding, spatial multiplexing or SM, and diversity coding [30-32].

Precoding -One signal is sent out by each transmit antenna with different phase and gain weightings, so that the signal power at the receiver is at its highest point. This is how it works: When it comes to cell networks, beams aren't the best way to think about them. Cellular networks are made up of many different paths. It can't keep the signal level high at every antenna at the same time when the receiver has a lot of them. Many times, it's good to pre-code with multiple streams in mind.

Spatial multiplexing -To separate these streams into (almost) parallel channels at the receiver, there must be a big enough difference in how these signals look in space. The receiver must be able to figure out what it is. Spatial multiplexing is a very good way to add more channels at a better signal-to-noise ratio by adding more channels (SNR).

Diversity Coding -It is used when the transmitter doesn't know which channel it is on. It is different from spatial multiplexing when only one stream is sent. Use space-time coding to make the signal more clear. Almost all of the transmit antennas have orthogonal coding that is full or almost full for each of them. There are many antennas that send and receive signals, and each one fades at its own rate. This makes the signal more stable. It doesn't work this way because there is no way to know which channels are being used.

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6. Enhancing the network bandwidth in mines

Positioning an antenna near the ceiling's centre or on one of the side walls may increase excitation power by using the total coupling efficiency of antenna-radiated power. Both close and distant field areas may be improved by optimising the antenna's polarisation and position. In order to validate the grid-based test system, systematic measurements were made in an underground coal mine tunnel. Experimentation and the underlying assumptions are in great accord. Additionally, EM interference caused by mine infrastructure was measured and compared to the signal received by antennas in different places. Some cables, such as power and communication, may be overlooked in the study because of their long-term, stable demands.

7. Applications of Multiple Output Multiple Input Antenna

Base stations in the 3rd Generation can use space-time transmission diversity schemes with beamforming to send more data at the same time (CDMA and UMTS). Fourth Generation (4G) LTE and LTE Advanced are very advanced air interfaces that use MIMO a lot. These air interfaces are very high-tech [33]. A lot of attention is paid to single-link MIMO with Spatial Multiplexing and space-time coding in LTE, but multi-user MIMO is added in LTE-Advanced, which makes it even more complicated. A lot of people use spatial multiplexing to make the receivers more difficult to use, so they usually use Orthogonal frequency-division multiplexing (OFDM) or Orthogonal Frequency Division Multiple Access (OFDMA) modulation instead. MIMO wireless architectures and processing techniques can be used to solve problems with sensing, and they can help. The study of this is done in the field of radar known as MIMO radar. It is possible to use MIMO technology in systems that don't communicate with each other by wireless means [34].

7.1 Significance of MIMO for users

It was added to Release 8 of the Mobile Broadband Standard by the 3rd Generation Partnership Project, which is also called the 3GPP. There has never been a time when MIMO has been used in this way [35]. If you want to connect to Wi-Fi networks and cell phones, this is what you need. You can also use it for things like law enforcement, broadcast TV production, and the government. If you want to communicate with a lot of data, you might use MIMO. This is because it's very important not to have microwave or RF systems interfere with these kinds of communications, which are very important.

7.2 LTE applications of MIMO

Most people use MIMO, which is a type of wireless that works well. In the development of LTE and wireless broadband technology, it played a big role. Speeds go up with LTE because it uses MIMO and orthogonal frequency-division multiplexing to send and receive data faster. In LTE, MIMO makes it easier for data to be sent more reliably and faster than before [36]. In order to send it, it splits the data up into several different streams. Sending information through the air to someone who already knows about it is called transmission. This helps the receiver figure out the best way to get a signal, so it can get the best signal.

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7.3 MIMO and 5G massive systems

There are a lot of new ways to use MIMO, and the wireless industry is always trying to fit more antennas, networks, and devices into the same space, which makes MIMO better and better over time. There are a lot of examples of this, but one of the most well-known is the use of the 5G network [37]. Use a lot of small antennas to give more bandwidth to users than 3G and 4G cell phones. They can also have a lot more users on each antenna. You can't use 4G MIMO, which uses a frequency division duplex (FDD) system to support multiple devices. This is not the same thing. Instead, 5G massive MIMO has a different setup called time division duplex.

8. Microstrip Antenna

An antenna called a microstrip antenna is usually made on a printed circuit board by using photolithography techniques to print an antenna that is small enough to be seen but not so small that it can't be seen by the naked eye. PCBs (printed circuit boards) have a layer of metal foil in different shapes on the surface of them. This layer is called a "pattern antenna." Metal foil is used to make a ground plane [38]. If you buy a lot of microstrip antennas, they usually have a lot of patches in a 2-D pattern. In most cases, a transmission line made of foil microstrip transmission lines is used to send or receive radio waves. An antenna sends radio frequency current between its antenna and the ground plane, which makes it possible for you to listen to radio waves. They have become very popular in the last few decades because they are very thin and flat. Printed circuit techniques can be used to make them for things like consumer goods, planes, and missiles, and they can be used to make them as well. They can also be made with active devices, such as microwave integrated circuits, to make active antennas that are more powerful [39].

This is the most common type of microstrip antenna. If you look at the antenna, the name is a patch antenna. In addition, it is possible to make antennas that use patches to make up the parts of a group of antennas. This is how a patch antenna is made: The antenna elements are etched into the surface of a metal trace that is attached to an insulating dielectric substrate, like a printed circuit board. This is how a patch antenna is made: To make a ground plane, a metal layer is then glued to the other side of the substrate. Some common shapes of microstrip antennas are square and rectangular, but they can also be made into any shape that you want. If you build a patch antenna, some of them don't use a dielectric base. In place of that, they are made of a metal patch on top of a ground plane with dielectric spacers in between. Less durable: It has a wider range of frequencies but isn't as strong. If you want to put these antennas on the outside of planes and spaceships, they have a very low profile and are very durable. They can also be shaped to fit the curving skin of a vehicle.

8.1 Advantages

They are easy to make and design because they have a two-dimensional shape that is simple to make and design. To understand why they are used at high frequencies, you need to know how long the antenna is at its resonant frequency. This is why they are used at UHF and above. When you use lithography, you can print a lot of different patches on one piece of

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paper at once. As many patches as possible can make you more money than if you only had one patch.

8.2 Rectangular Patch, Specifications and Other Types

An antenna made of air has a length that is about one-half of a wave in the air. With a dielectric as its base, the antenna's length gets shorter when it has a higher relative dielectric constant than it did when it was not filled with anything. To explain why, think about the "fringing fields" that surround your radio. These fields make the antenna's electrical length a little longer. An early model of the microstrip antenna is a piece of microstrip transmission line with equal loads on both ends. This shows how radiation is lost when it comes from both ends. The dielectric loading of a microstrip antenna has an effect on both its radiation pattern and its impedance range, so it's important to pay attention to what you do. two things happen when a substrate has a high dielectric constant, and both of them happen at the same time. The range of impedance gets smaller. These slots make up an array and have the best directivity when the antenna is made of air. Directivity goes down when this dielectric is replaced with a dielectric substrate that has a higher relative permittivity than the old one.Figure:3 shows MSA design.

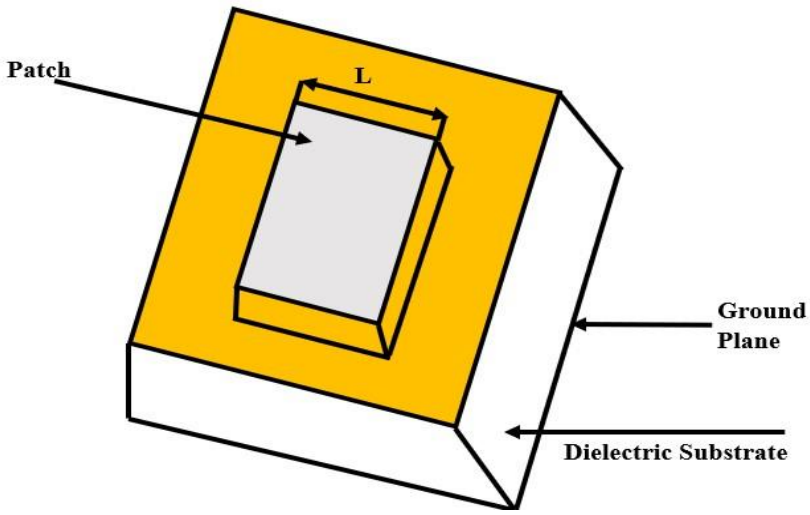

Figure:3Microstrip Antenna Design and Performance [40]

9. Simulated Results and Discussion

The term "antenna techniques" refers to the process that antennas go through to make sure they meet or define the criteria. Here, we talk about all of the antenna parameters, which are called S-Parameters and Return Loss. These are called S-Parameters and Return Loss.

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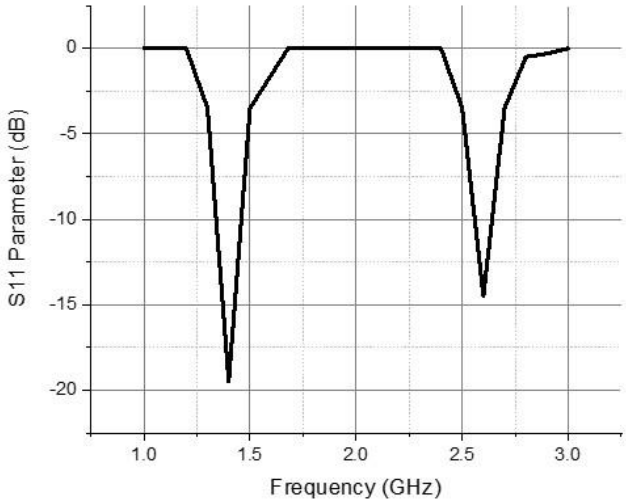

Figure: 4Plotted Frequency Response of the MIMO Antenna S_{11} Parameter

It will show the frequency response of the MIMO antenna in figure: 4, figure: 5, figure: 6, figure: 7, and figure: 8. The return loss will be shown in figure: 8. S-Parameter measurements are made to find out how much of the prototype is lost and how isolated it is. Because of its MIMO antennas, the S-Parameter can measure the power of the antenna. The lower return loss means that the prototype is more efficient. The resonant frequency of the prototype is calculated at the place where the return loss is the lowest.

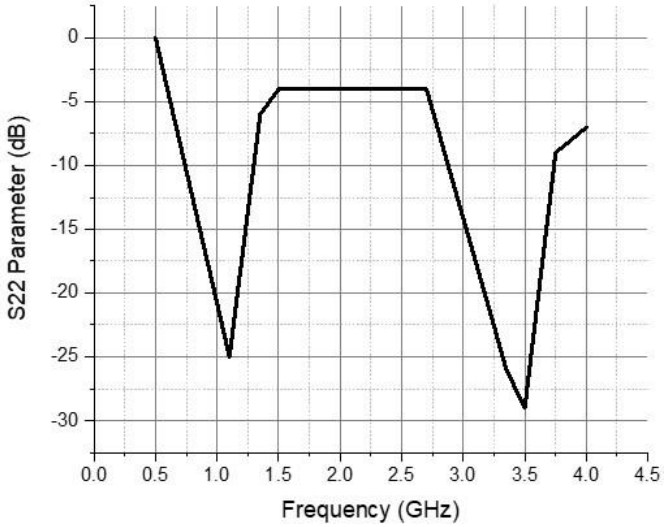

Figure: 5Plotted Frequency Response of the MIMO Antenna S_{22} Parameter

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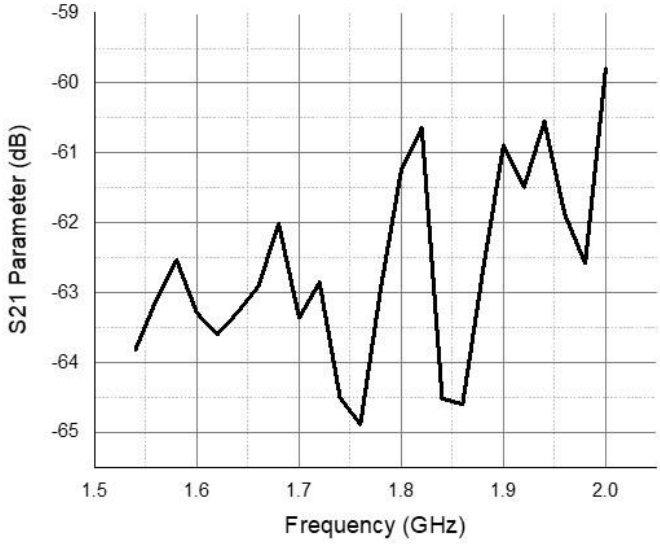

Figure: 6Plotted frequency response of the MIMO Antenna S_{21} parameter

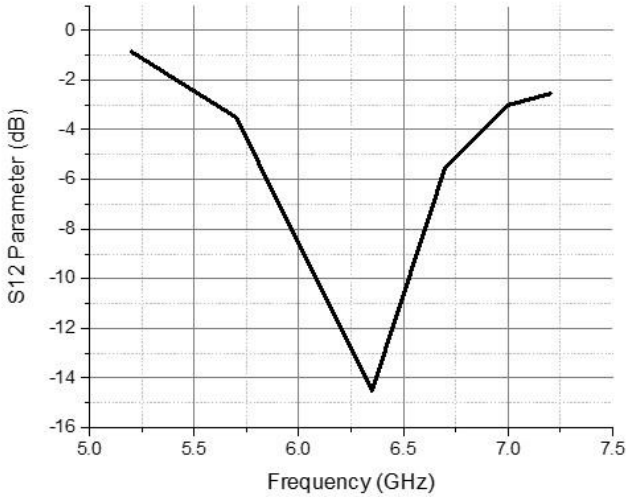

Figure: 7Plotted frequency response of the MIMO Antenna S_{12} parameter

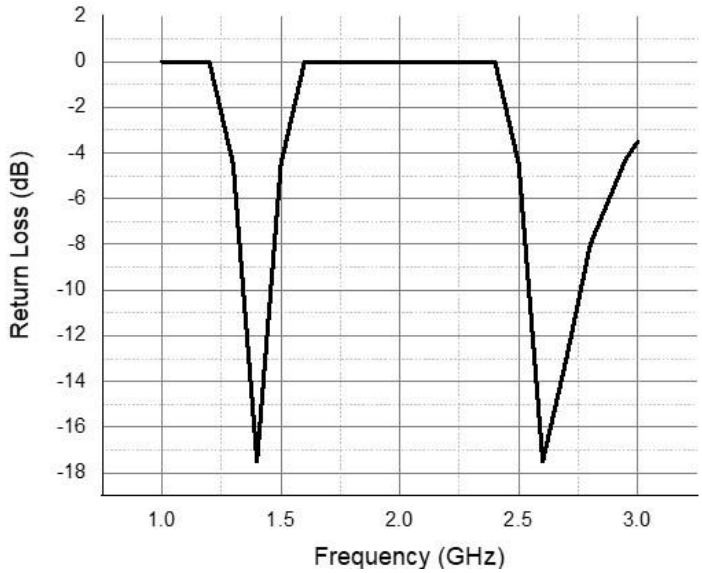

Figure: 8Plotted Frequency Response of the MIMO Antenna Return Loss Parameter

10. Conclusion

These "virtual MIMO" techniques are used in wireless sensor networks to make communication more efficient, and they work just like real MIMO. We look into virtual MIMO at both fixed and variable prices. This is what we do. When we used virtual MIMO, we came up with a way to use less energy and save money. Data were measured in an underground mining mine tunnel to verify the wire test system's results. Coal mines could use this deployment approach because the theoretical and experimental values results were in good accord, proving its efficacy.Wireless sensor networks are becoming more and more popular because they can sense, compute, and send. Isn't that why it has a lot of little sensor nodes that run on small batteries? It takes less energy to send the same number of bits with the efficient modulation schemes and transmission schemes. To learn about MIMO and its energy model, read this paper. You will learn how different MIMO schemes use energy, and how MIMO schemes are different. If you want to save energy, there are many different ways. The method of multiple input multiple output saves the most energy.

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Positive and Negative Impact of Social Media on Our School Students

Haya Mohammad Arif
Al-Maysoon Al- Dimashqiyah Basic School for Girls.
Directorate of Education –Kasbah Irbid, Jordan

Abstract
During the last several years, the usage of social media has increased dramatically. It is not just utilised by working people, but it is also being used by students, or what we can call the training society. As technology progresses, people are clearly attached to such gadgets on a regular basis. Everyone's daily routine now includes social media. People's attitudes to different disciplines are all different. As a result of social media, college students' collaboration has skyrocketed. The influence of social media on society has been enormous. With the help of the Internet, all social websites and other packages are easily accessible, allowing people to communicate and connect with one another.Produce, alter, and exchange new sorts of textual, visual, and audio content material with one another. It has a huge influence on our lives since it allows us to participate in so many aspects of life, including politics, money, and education. SEven if friends no longer meet in person, they develop longer-term connections by remaining in touch online.

Keywords: Social media, technology, students, Facebook and twitter.

1.Introduction

The term "social media" refers to a group of online communication platforms dedicated to network-based entrance, engagement, content sharing, and collaboration. It is a talent to have knowledge. We've all heard this expression, yet few realise the transformative potential of social media. Social media empowers everyone on the internet by providing an unrestricted flow of information to add to their knowledge bank. It is undeniable that social media has a big impact on our culture, financial system, and overall worldview in today's society. People use social media to communicate ideas, connect with, relate to, and mobilise for a cause, as well as seek and receive advice. Conversational barriers have vanished thanks to social media, which has created decentralised communication channels. Allow everyone to participate.Even individuals living in authoritarian countries have a voice and may participate in democratic processes. This medium enables for a wide range of spontaneous, formal, informal, academic, and non-scholarly works to develop. Outside of class, it allows students and other groups with similar interests to work on collaborative group projects. It promotes collaboration and creativity among a broad group of commentators on a wide range of topics, including education, the economy, politics, racism, health, and relationships, among others. Although social media offers numerous advantages, such as allowing us to readily contact with friends and family all around the world and breaking down international and cultural barriers, it has also come at a cost. Our lives are being harmed by the Internet of Things.since our way of life has been challenged by a combination of isolation and global accomplishment. With virtual connection, social media is robbing us of the trust and luxury we previously put in one another, changing the human fellowship, physical and emotional aid we formerly gained from one another. It takes away our mental strength and ability to think

for ourselves, instead making us trusting enough to join any organisation that spreads warped thoughts that tickle our ears and titillate our senses without considering the implications. Social media, ironically, is driving us to become one of the most delinquent generations in history. We prefer texting to phone calls, online chat to in-person meetings, and many have abandoned human interaction in favour of convenient platforms like Facebook, Twitter, and Instagram.as well as Instagram "Each step forward in social media has made it less complex, just a bit, to evade the emotional strain of being gift, to supply knowledge instead of humanity," Jonathan Safran Foer wrote in his column "How Not to Be Alone." With each passing day, these emotions become more and more real. The goal of this article is to present data from a variety of research that have been done with the help of many students in a one-of-a-kind setting, revealing the negative effects of social media in three key areas. To begin with, social media fosters a false sense of online "connections" and weak friendships, which can lead to emotional and psychological problems. The second problem of social media is that it has the potential to become addictive very rapidly.depleting one's personal and family time while also diminishing interpersonal abilities, leading to delinquent behaviour Finally, criminals, predators, and terrorists have turned to social media as a tool for carrying out illicit acts. The final assessment will demonstrate the link between psychological issues induced by social media and illicit sports participation.

People produce knowledge, share it, bookmark it, and network at an alarming rate on social media, which has flourished as a sort of online discourse. Social media is quickly affecting public discourse in society and defining trends and timetables in topics ranging from the environment and politics to technology and the entertainment industry[1] due to its ease of use, speed, and reach. Lusk articulated the concept of social media. In his opinion,Facebook, blogs, Twitter, MySpace, and LinkedIn are examples of social media sites where people may converse and share photos and videos. However, for the sake of this study, social media is defined as internet usage via Facebook, Whatsapp, Twitter, Skype, MySpace, and other similar sites. Users use Yahoo Messenger to chat, discuss ideas, and share photos and videos. The increased use of social networking websites has become a global phenomenon in recent years. What began as a computer-literate individual's hobby has become a social norm and way of life for people all over the world. Teenagers and young adults have mostly utilised social media to communicate with their peers, exchange facts, rewrite their identities, and advertise their social lives.In recent years, social networking websites have become widespread, giving young people a new method to connect with one another and communicate with the business. Between 2004 and 2006, social networking grew widespread after Facebook, and My Space was founded. Facebook, for example, has over 500 million users and is continually increasing, with 85 percent of undergraduate students using the social media platform. As the number of Facebook users grows, these estimates are projected to rise. This isn't only true for Facebook users; YouTube statistics are also extensively watched [5]. People can use social networking websites to interact, share information, and build new relationships. Our social connections are being affected by the rising popularity of social networking services.when we react to our increasingly computerised surroundings in more than one way The manner in which internet users interact and communicate with one another has evolved and continues to evolve. These users now socialise over the internet, which is

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displacing conventional individual socialisation. The way we meet face-to-face, how we obtain information, and the dynamics of our social enterprises and friendships have all changed as a result of social networking websites. Interacting over the internet and social networking websites differs significantly from interacting in person. Clients use tools like instant messaging (IM) and chatting, as well as popularity or Twitter updates, to interact with friends and express themselves when they use such services. Kaitlin is also a firm believer in social networking.Sites influence how we obtain data and information. Websites create fantastic portals via which we may access knowledge and produce more diversified information warehouses. The majority of the study on college students' use of social networking websites and their influence on educational outcomes and general performance was undertaken by Choney, San Miguel, Enriquez, Karpinski, and Khan, who focused on advanced worldwide students.

1. Impact of Social Media on Education

90 percent of university college students, according to previous surveys, use social media. We may utilise these tiny communication devices to obtain access to social networks at any time and from any location, since these devices include pocket computers, laptops, iPads, or even simple mobile telephones (that enable internet) and many more. For instructional objectives, social media has been used in a novel way. Students must be taught how to utilise technology more effectively, with media in instructional classrooms being used for texting or messaging rather than learning how to use them properly. For college students, social networking has improved the amount of contented and collaborative students. With the use of social media,Students may instantly communicate or share information with one another using social media platforms such as Facebook, Orkut, and Instagram, among others. In addition to paper artwork, it is necessary for students to do some practical work. They can also use blogs to enrich their knowledge, both for teachers and for themselves. Students' knowledge is expanded through the use of social networking platforms and online assessments.

Fig.A"usageofsocialmediaon education"*[15]*

PurposeofInternetUsage	
User	Percentage
Mail	33
Surfing	26.8
Chatting	18.7
SocialNetworking	17
Other	4.5
Total	100

Table A shows that the majority of respondents (33 percent and 26 percent, respectively) use the internet for mailing and browsing. The two most prevalent reasons for utilising the Internet are for email and browsing. Social networking websites are fast gaining popularity in India, despite the fact that they have yet to match global expectations. Only 17% said their major motivation for utilising the Internet was to use social networking sites. Alternative

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replies included downloading internet content, purchasing online things, and studying and reading e-books.

Fig.Membershipinsocialnetworkingsitesforeducation*[15]*

Membershipinsocialnetworkingsites	
MemberofSNS	Percentage
Yes	95.7
No	4.3
Total	100

95.7 percent of Indian teenagers use social media. These figures are increasing by the day. Only 4.3 percent of members are not on social media, in comparison.

Positive Effect of Social Mediaon Education

a.Social networking enables students to interact successfully with one another concerning creative endeavours, group projects, and homework assistance.

b.Google and education: Google's innovations have aided the education of over 20 million kids.

c. Spending so much time working with new technology allows students to gain more familiarity with computers and other electronic devices.

d.By putting a larger focus on technology in education and business, students will be able to build skills that will serve them for the rest of their life.

e.By using social media to educate the public about their issues, many of the youngsters were able to increase awareness and help solve numerous problems.

f.The ease with which a student may customise their profile increases their understanding of basic design and layout ideas that are rarely taught in school.g.Many students who lack a persistent interest in elegance may assume that they may easily express themselves on social media.

h. Students who were skilled at programming had their names out there quickly, and students who were good at music got their videos out there and distributed, which lead them to their goals.

i.Teachers may communicate information about elegance activities, faculty activities, and homework assignments on social media if they feel it would be beneficial to their students.

j. It is undeniable that social media advertising and marketing is growing in popularity as a career choice. As a result of social media advertising, younger employees are more prepared to become successful entrepreneurs.

k.Because of the widespread use of social media, educators may now teach students about digital citizenship and how to protect themselves online.Use of the Internet for Workplace Productivity

Negative effect of Social Media on Education

a. When considering the negative effect, the first thing that comes to mind is the sort of distraction thatexists in the classroom. Teachers were no longer able to tell who in the

classroom was paying attention.
b. The widespread use of social media, as well as the rapidity with which information is disseminated, has resulted in a disdain for proper spelling and grammar. This reduces a student's ability to write effectively without using a computer's spell check feature.
c. To get answers, many students rely on the readily available material on social media and the internet. That means there will be less focus on learning and retaining information.
d. The extent to which personal information is accessible over the internet, as well as the seeming ease with which it may be accessed. Because of the anonymity given by the internet, students have neglected to filter the material they provide. Before granting admission or conducting interviews, many universities and possible employers look into an applicant's social networking profiles. The majority of students do not regularly compare the material they publish online, which might have devastating effects months or years later.
e.The problem of privacy, such as revealing personal information on web sites, is one of the most serious social media breaches in education.
f.There were multiple improper records uploaded in several of the cases, which may have led the students astray.
g.As a result of social media, students are losing their ability to engage in face-to-face discussion.
h.We have become accustomed to Because of the ease with which we can get information on social media, our ability to preserve records has dwindled, as has our motivation to spend more time investigating and gathering accurate data.
i. Students who attempt to multitask by accessing social networking sites while analysing fare lower academically. Distractions such as YouTube, Facebook, and Twitter severely limit their ability to focus on the work at hand.
j. On social media, many bloggers and authors broadcast false facts, causing the education device to fail.
k. Students spend less time connecting in person the more time they spend on social media. Because they lack framing signals and other nonverbal signs like tone and intonation, social networking sites are not a suitable substitute for face-to-face conversation.. Students who spend a lot of time on social media are far less likely to be able to communicate effectively in person.

Conclusion

We have a better grasp of the numerous beneficial and bad effects of social media on education and students as a result of the previous assessment. It may be essential to get beyond this roadblock. How can a mother and father balance the harmful sides of social media with the positive outcomes? Limiting their access to social media is a smart idea. The majority of the disadvantages may be minimised by limiting the amount of time spent on social media sites. Paying attention to their educational development and fixing any concerns will go a long way toward averting social media's negative impacts on their academics. Make time for face-to-face social engagement by arranging a few social occasions.Having friends and relatives over for a get-together, imparting enjoyable, face-to-face social engagement with loved ones, or having your own family enjoy time in which you discuss their academics

in a calm environment All of this allows us to avoid the harmful effects of social media on students while still allowing us to teach our children about technology.

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Maximal Overlap Discrete Wavelet Packet Transform Based Characteristic waves detection in Electrocardiogram of Cardiovascular Diseases

L Alekhya[1], and P Rajesh Kumar[2]

[1]Electronics and Communication Department, AUCE (A), Visakhapatnam,

[2] Professor and Head of the Electronics and Communication Department, AUCE (A), Visakhapatnam, India.

Abstract

In recent scenario, investigation of Electrocardiogram (ECG) signal is predominantly used for the diagnosis of various cardiovascular diseases. Any alterations in the characteristic waves of ECG signal show typical heart diseases. Hence the proposed work focus on detecting the characteristic waves which are P, QRS complex and T waves of ECG signal for three kinds of cardiovascular diseases i.e., Arrhythmias, Congestive heart failure and Atrial fibrillation along with Norrmal sinus rhythm which is an unaltered ECG signal, using Maximal Overlap Discrete Wavelet Packet Transform (MODWPT), a category of wavelet packet transform (WPT) where down sampling is not performed. The WPT is a similar kind of the discrete wavelet transform (DWT) where the decomposition of the signal happens on both approximate and detailed coefficients recursively depending on the levels chosen. A four level undecimated decomposition by MODWPT with symlet wavelet is performed in the proposed characteristic wave detection algorithm. The characteristic waves of considered ECG signals are detected and their positions and amplitudes are tabulated. The energy preserved by reconstructing the decomposed signal and the reconstruction error obtained shows the benefits of using MODWPT for the proposed characteristic wave detection algorithm. .

Keywords: Arrhythmias, Atrial Fibrillation, Congestive Heart Failure, Maximal Overlap Discrete Wavelet packet Transform, symlet.

1 Introduction

As per the analysis on Cardiovascular diseases (CVDs) given by World Health Organization (WHO) states that CVDs are the major source of deaths globally, taking an estimated 31% of deaths worldwide [1]. The Electrocardiogram (ECG) signal is the pattern of the heart function recorded electrically which on analysis determine these diseases. It provides the information regarding functioning of the heart, indicates the abnormalities in the heart activity and depicts some anomalies such as the congestive heart failure, atrial fibrillation, cardiac arrhythmia, myocardial infarction and ischemia [2].

The ventricular depolarization of the heart activity is given by QRS wave in the ECG signal. It is the major section of the electrocardiogram signal which is characterized by its peak amplitude called R-wave, a high frequency component [3] with a steeper slope compared to other ECG waves. Henceforth, the detection of this section is the leading process in an automatic ECG wave's depiction algorithm [4]. A conventional method which was proposed by Pan Tompkins [5] for QRS detection uses a high-pass filter which is a derivative of ECG to depict the precipitous slope of the R wave. One widely proposed technique is the discrete wavelet transforms [6] which is well reconciled to time variant QRS complex wave

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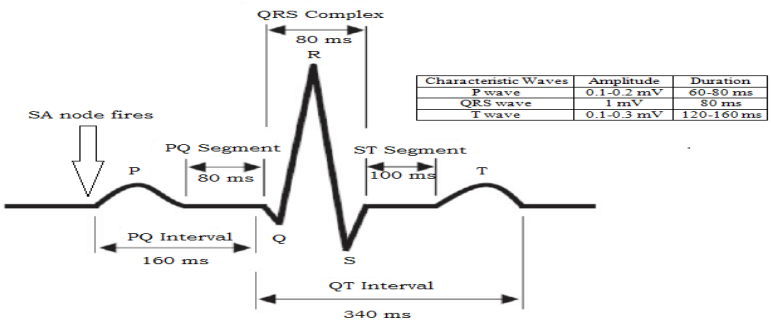
morphology and removes power line interference [7].
A wavelet packet decomposition algorithm for QRS detection has been given by Singh et al [8]. The modified version of discrete wavelet transform (DWT) is wavelet packet transform (WPT) [9], where the decomposition happens recursively for both approximate and detailed coefficients using the high and low pass filtering and techniques of down sampling same as that of DWT decomposition. The proposed work discusses about an undecimated wavelet packet based characteristic waves detection algorithm which is further used in the feature extraction of the signal for various machine learning algorithms.
The framework of this paper is given as: Section II discusses about ECG, Heart activity and various cardiovascular diseases considered for the study in this paper. The Section III encapsulates the theory of wavelets briefly and gives an outline on the wavelet packet transform and the maximal overlap discrete wavelet packet transform (MODWPT). Section IV discuss about different stages of the proposed algorithm. Section V discusses and summarizes the obtained results when testing the proposed algorithm on the MIT-BIH Arrhythmia Database, BIDMC Congestive Heart Failure Database ECG signals, MIT-BIH Atrial Fibrillation Database and MIT-BIH Normal Sinus Rhythm Database [10]. At the end, Section VI consists of conclusions that encapsulate the different points obtained in this paper.

2 The Electrocardiogram (ECG)

The ECG is recorded pattern of the heart events electrically with surface electrodes placed on the limbs and chest [2]. In practical scenario, a standard 12-lead ECG is placed at twelve positions on the human body at limbs and chest. The ECG machine records the heart activity in the form of a graph so that it can be easily interpreted by a doctor when test is completed.

2.1 The Heart activity and Characteristic waves

Electrical events coordinated to a specialized conduction system distinctive to the heart play major role in determining rhythmic contractile activity of the heart. The cardiac rhythm or heart rate (HR) is controlled by natural pacemaker cells that construct the sinoatrial (SA) node which initiates its own set of action potentials. This promulgate through the rest of the heart resulting a pattern of contraction and excitation. This pattern of ECG signal with amplitude, durations and segments of characteristic waves i.e., P, T waves and QRS complex is shown in Figure 1.



Characteristic Waves	Amplitude	Duration
P wave	0.1-0.2 mV	60-80 ms
QRS wave	1 mV	80 ms
T wave	0.1-0.3 mV	120-160 ms

Figure 1: Characteristic waves and segments with duration and amplitude of ECG signal.

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2.2 Cardiovascular Diseases

Cardiac Arrhythmia, Atrial Fibrillation and Congestive heart failure are the three cardiovascular diseases considered for the study along with normal sinus rhythm signals.

Cardiac Arrhythmiais a problem with the irregularities in rate or rhythm of the heartbeat. Electrocardiographic abnormalities found in arrhythmias include merging of P waves with T waves due to fast rate or shape of P waves is abnormal with abnormal PR intervals or complete absence of P waves or the presence of an enigmatic sixth wave popularly called as U wave.

Atrial Fibrillationis a special case of arrhythmias which occurs when the two atria of heart beat violently and unevenly out of coordination with the two ventricles that result in irregular heart rate. Uneven ventricular rate (QRS complexes), P waves replaced by uneven violent F waves, abnormally conducted beats of irregular R-R cycles and rate of the heart typically 110-140 beats/min and rarely 160-170 beats/min or more are some of the findings of the disease with respect to electrocardiogram (ECG) signal.

Congestive Heart Failureexclusively indicates the stage in which fluid buildup within the heart and causes the two ventricles of the heart to inefficiently pump blood volume to the body. Several ECG findings like enlarged P wave, abnormality in QRS complex, negative amplitude of R wave and a decrease in inconsistency of the RR intervals has been observed in cases with heart failure.

3 Wavelet Packet Decomposition

A waveform of limited duration which has a zero average value is called wavelet, given below

$$\psi_{a,b}(t) = \frac{1}{\sqrt{a}}\psi\left(\frac{t-b}{a}\right) \quad where\ a, b \in R, a > 0 \qquad (1)$$

Here a and b are called Dilation (Scale) and Translation (Position) parameters respectively.

3.1 Wavelet Transform

The Continuous wavelet transform Wx(a,b) is the inner product of a time varying signal x(t) and the set of wavelets $\psi_{a,b}(t)$ which is given by [11]

$$Wx(a,b) = < x, \psi_{a,b} > = \frac{1}{\sqrt{a}}\int x(t)\psi^*\left(\frac{t-b}{a}\right)dt \qquad (2)$$

If scales (a) and positions (b) are chosen to be discrete then analysis will be much easier and does not generate the huge data. Setting the scale and shift value as:a = 2^m and b = k.2^m which is called dyadic scales and positions is a common discretization of the CWT where analysis becomes much more resourceful and accurate. This gives discrete wavelet transform with wavelet function;

$$\psi_{m,k}(n) = 2^{-m/2}\psi(2^{-m}n - k) \quad \text{where m, k} \in \text{Z} \qquad (3)$$

For a given function f(n) the discrete wavelet transform is given as,

$$DWT(m,k) = < f, \psi_{m,k} > = 2^{-m/2}\sum_{n=-\infty}^{\infty} f(n).\psi^*(2^{-m}n - k) \qquad (4)$$

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3.2 Wavelet Packet Decomposition

The wavelet packet decomposition (WPD) which is also called as Optimal sub-band tree structuring, is identified as the augmentation of the DWT, in which the high frequency components that is detailed coefficients at each level are also decomposed along with approximation coefficients which are low frequency components. Consequently, WPD produces an improved frequency resolution for a decomposed signal.

Maximal Overlap Discrete wavelet packet transforms

In critically sampled wavelet packet transform the outputs of the band pass filters are down sampled by two, which is eliminated in case of undecimated wavelet packet transform which is called Maximal Overlap Dicrete Wavelet Packet Transform (MODWPT).

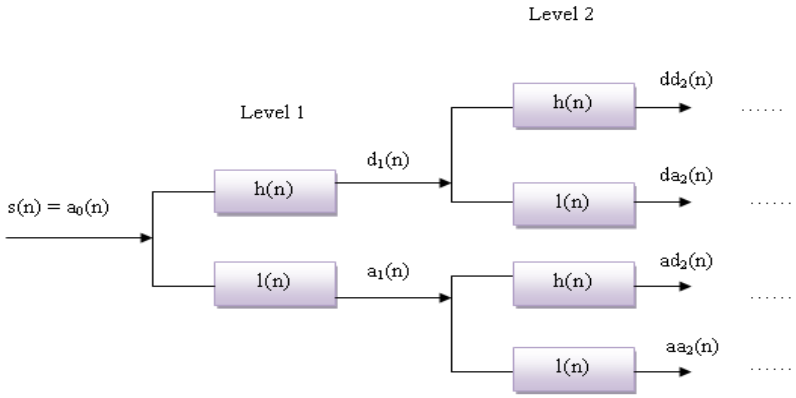

Figure 2: A 2 level decomposition of Discrete Wavelet Packet Transform

The Figure 2 illustrates the MODWPT decomposition of level 2, where after filtering the signal s(n) with high pass h(n) and low pass l(n) filters the down sampling is terminated and signal is divided into detailed and approximate coefficients $d_1(n)$ and $a_1(n)$ respectively at level 1. This process continues recursively upto specified levels.

Using MODWPT, the decomposed signal can be perfectly reconstructed with minimum reconstruction error and energy of the signal is preserved which is the main advantage along with that it prevents the loss of time resolution as well.

4 Proposed Methodology for Characteristic waves Detection

The various stages involved in the proposed methodology for characteristic wave detection algorithm of an ECG signal is shown in Figure 3 below. The operation happening at each stage is given as

Butterworth Band pass FIR filter: At this initial stage, an unfiltered ECG signal downloaded from MIT-BIH physionet database is applied to butterworth band pass FIR filters with cut off frequency 5 to 15 Hz to eliminate baseline wander and high frequency noises.

Maximal Overlap Discrete Wavelet Packet Transform: The filtered ECG signal fromprevious stage is applied to this stage, which further decomposes the filtered ECG signal into its components. A four level symlet wavelet with four vanishing moments is used in MODWPT. Since its four level we get $2^4 = 16$ coefficients of the signal.

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Reconstruction of Decomposed Signal stage: Out of the 16 coefficients obtained in the previous stage first four coefficients are extracted for reconstruction of the signal using inverse transform of MODWPT.
Calculating Threshold value: Once the signal is reconstructed, at this stage a threshold or average value is calculated by taking mean of magnitude square of the reconstructed signal.

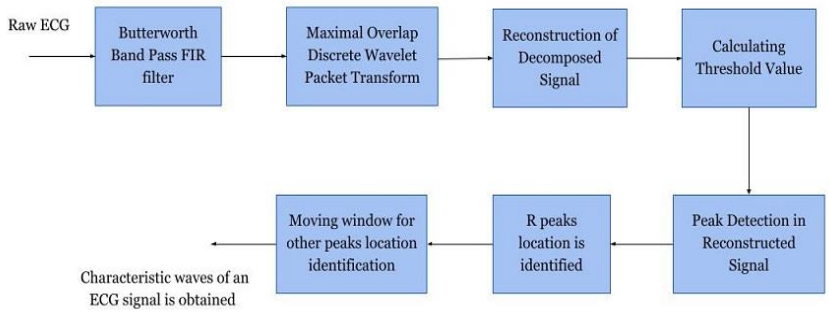

Figure 3: Stages of Proposed Characteristic wave detection algorithm

Peak Detection in Reconstructed Signal: After calculating the threshold value in previous stage location of peaks are detected with four times threshold value as an argument.
R peaks location is identified: The detected peak locations in reconstructed signal from previous step gives R wave locations in the original signal.
Moving window for other peaks location identification: Once the R peaks are located in the original signal, a moving window of lengths (see figure 1) standard to the normal ECG signal is applied with respect to the location of R wave for the detection of other characteristic waves i.e., P, Q, S, T waves. Consequently, the characteristic waves of an ECG signal have been identified with the proposed methodology.

5 Results

All The proposed algorithm is implemented with the data from Physionet repository [10] considering a signal from each database and the results are as shown below.
MIT-BIH Arrhythmia Database: It consists of 48 recorded signals of arrhythmia patients with two leads collected from Boston's Beth Israel Hospital. The 100m.mat recording was considered for the proposed work which is digitized at the rate of 360 samples per second.
BIDMC Congestive Heart Failure Database: It includes ECG signals recorded from 15 patients with two leads collected from Boston's Beth Israel Hospital. These signals were digitized at the rate 250 samples per second, out of these chf03m.mat recording was considered for the proposed work.
MIT-BIH Atrial Fibrillation Database: It includes 25 signals of ECG recorded from subjects with atrial fibrillation with two leads. These recordings were digitized at the rate of 250 samples per second, out of these 04043m.mat recording was considered for the proposed work.
MIT-BIH Normal Sinus Rhythm Database: It includes 18 ECG recordings of human subjects who were found to have had no significant arrhythmias, and it includes the data of two leads.

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These recordings were sampled at the rate of 128 samples per second, out of these 16786m.mat recording was considered for the proposed work.

The Lead I data with length 4120 samples of each signal from above four databases were considered and applied to the proposed algorithm, shown in Figure 3 to detect various characteristic waves. The plot of ECG signal, filtered ECG signal, MODWPT coefficients obtained and detected R peaks and the plot of characteristic waves detected in ECG of four database signals are shown in the figures.

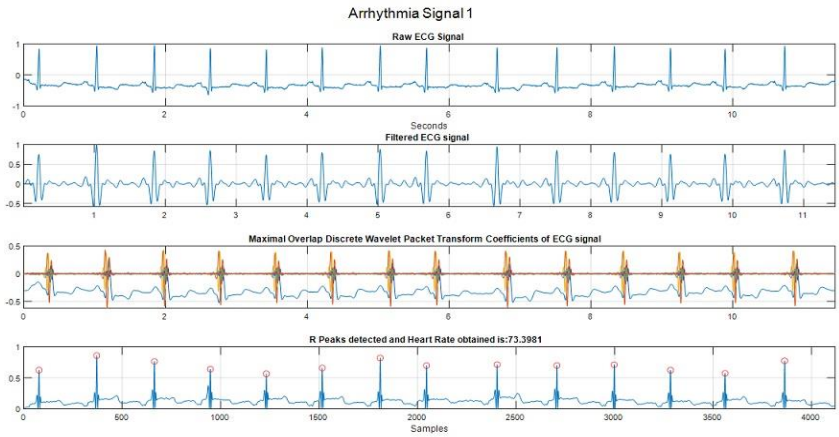

Figure 4 : Plot of Raw ECG, Filtered ECG, MODWPT coefficients and Detected R peaks of Arrhythmias (100m.mat) with Heart rate 73.3981 bpm.

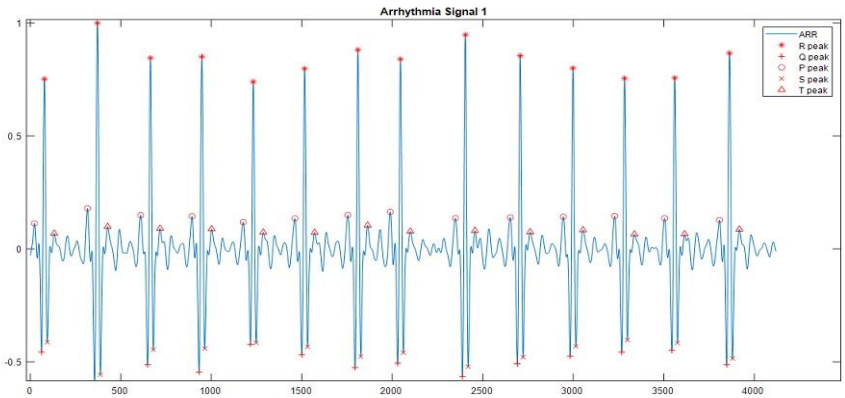

Figure 5: Characteristic waves detected in the ECG signal of Arrhythmia (100m.mat).

From Figure 5 it is clearly observed that there is an abnormality in the shape of P wave and T wave with a small spike in the PQ and ST segments. Also, between T wave to next P wave we can find a typical signal prominently called U wave. If the amplitude of this wave is 25% or more than that of T wave, the signal belongs to the category of arrhythmias.

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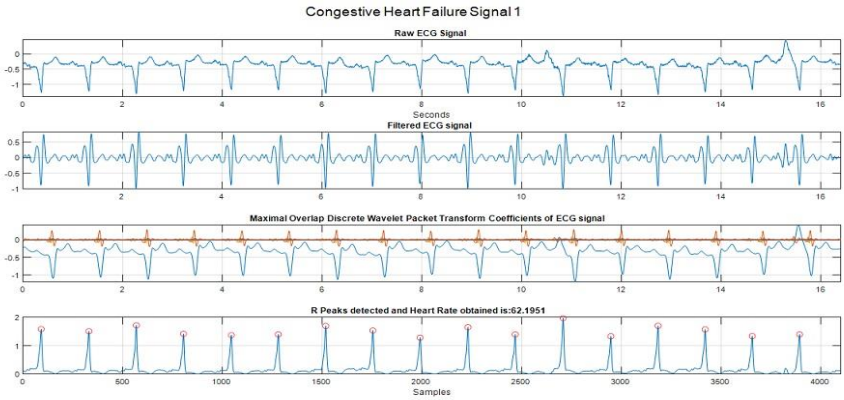

Figure 6 : Plot of Raw ECG, Filtered ECG, MODWPT coefficients and Detected R peaks of Congestive Heart Failure (chf03m.mat) with Heart rate 62.1951 bpm.

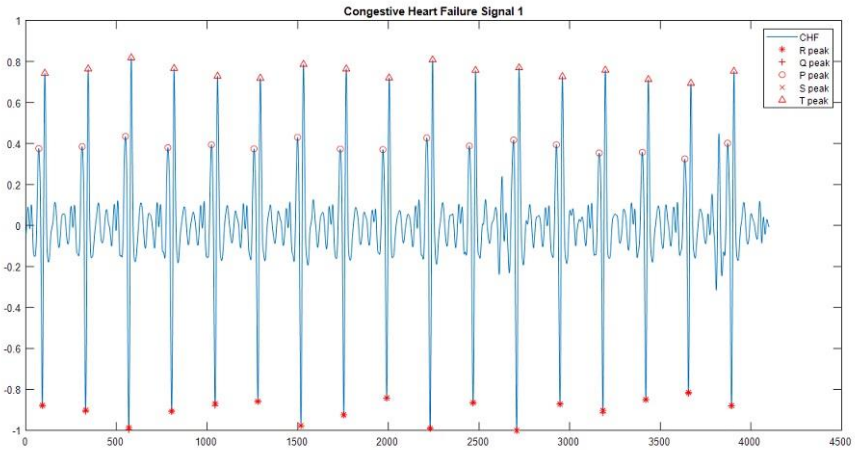

Figure 7: Characteristic waves detected in the ECG signal of Congestive Heart Failure (chf03m.mat).

In Figure 7 it is clearly observed that R peaks amplitudes are negative and Q,S waves coincide with the R wave and there is sharp increase in P and T waves. This can be considered as one of the medical observations for Congestive heart failure in ECG signal.

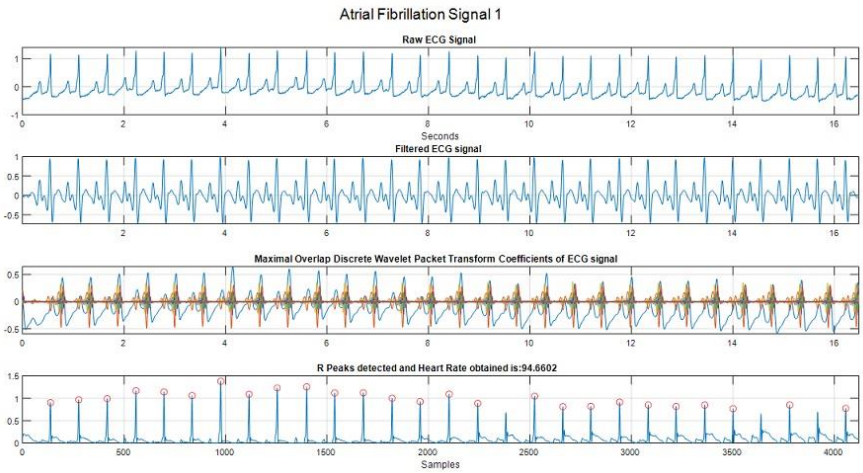

Figure 8 : Plot of Raw ECG, Filtered ECG, MODWPT coefficients and Detected R peaks of Atrial Fibrillation (04043m.mat) with Heart rate 94.6602 bpm

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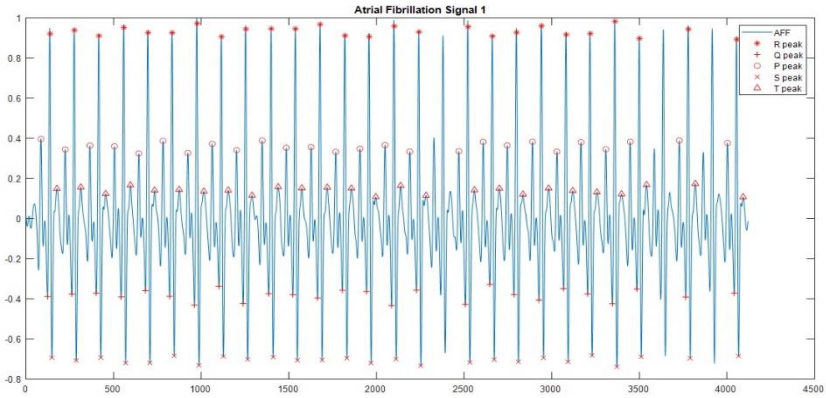

Figure 9: Characteristic waves detected in the ECG signal of Atrial Fibrillation (04043m.mat).

In Figure 8 the R peaks were detected and the heart rate obtained is 94.6602 bpm which is high when compared to other signals. This happens due to irregular ventricular depolarization. Also from Figure 9 we can observe that P wave are replaced with irregular violent F waves as it has more amplitude when compared to typical P wave.

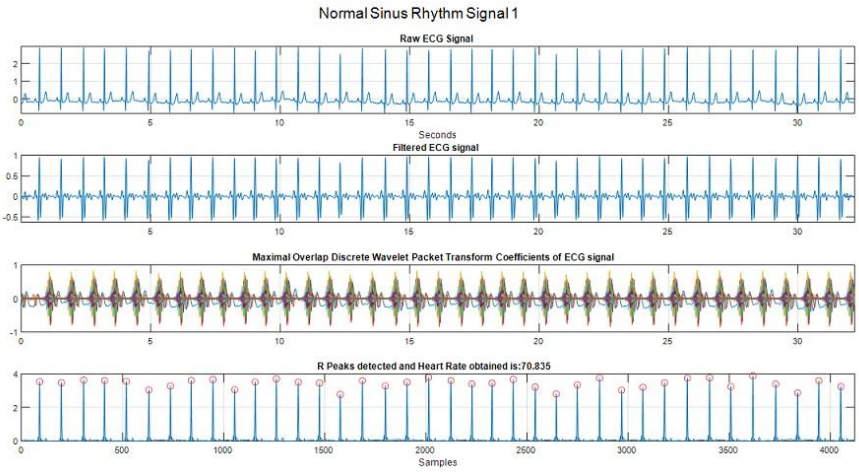

Figure 10 : Plot of Raw ECG, Filtered ECG, MODWPT coefficients and Detected R peaks of Normal Sinus Rhythm (16786m.mat) with Heart rate 70.835 bpm.

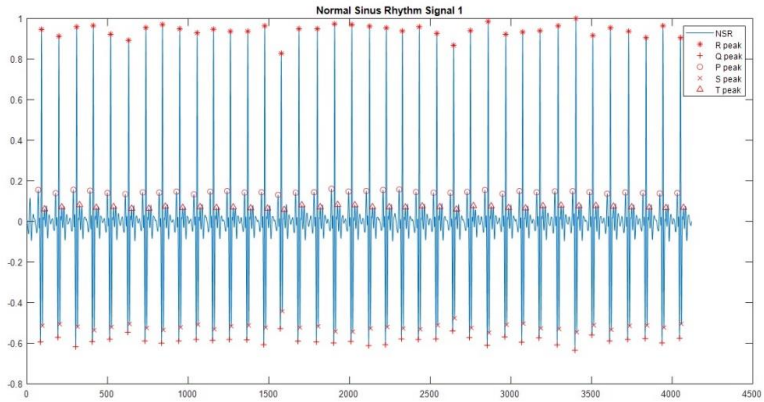

Figure 11: Characteristic waves detected in the ECG signal of Normal Sinus Rhythm (16786m.mat).

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From the plot shown in Figure 11, characteristic waves are detected for a normal sinus rhythm ECG signal which is free from any kind of abnormalities in the shape of the waves and heart rate obtained is 70.835 bpm which is the typical value of heart rate.
The Table 1 below gives the various parameters calculated for single ECG signal belonging to four databases after detecting the characteristic waves. Mean RR interval gives the mean of distance between two successive peaks of R wave given in seconds which is detected using the proposed algorithm. Heart Rate gives the measure of number of R waves per minute over entire length of the sample considered.
Reconstruction error is obtained by difference of original signal and sum of all coefficients of MODWPT applied signal. The very low value of reconstruction error shows signal can be perfectly reconstructed after decomposing with MODWPT. Energy error is the difference of energy of MODWPT applied signal to the energy of original signal. This value is also very low which implies that energy of the signal is preserved by using MODWPT which is an advantage.

Table 1: Parameters calculated from detected waves in ECG of four categories

ECG Signal	*Mean RR interval (s)*	*Heart Rate (beats/m)*	*Reconstruction error*	*Energy error*
Arrhythmia (100m.mat)	*0.8088*	*73.3981*	$1.1635x10^{-11}$	$1.2881x10^{-10}$
Congestive Heart Failure (chf03m.mat)	*0.9503*	*62.1951*	$1.7081x10^{-11}$	$6.9349x10^{-11}$
Atrial Fibrillation (04043m.mat)	*0.6269*	*94.6602*	$1.6840x10^{-11}$	$2.8399x10^{-10}$
Normal Sinus Rhythm (16786m.mat)	*0.8366*	*70.8350*	$3.5917x10^{-11}$	$1.6140x10^{-09}$

Henceforth, we can observe that reconstruction error or loss of signal is very less in powers of 10^{-11} and energy conservation error is also less in powers of 10^{-09} or so. This shows that with MODWPT the signal can be reconstructed with minimum signal loss and energy conservation is also achieved.

6. Conclusion

The proposed work hence detected the characteristic waves which are P, QRS complex and T waves of ECG signal for three kinds of cardiovascular diseases Arrhythmias, Congestive heart failure and Atrial fibrillation along with Norrmal sinus rhythm using Maximal Overlap Discrete Wavelet Packet Transform (MODWPT). These detected waves are plotted and the calculated parameters of each signal are tabulated. The reconstruction error parameter shows a very low value which indicates that the signal is more accurately reconstructed using

inverse MODWPT and the energy error parameter with low value shows that the energy of the signal is preserved. These detected peaks and positions can be used for features extraction of the signal. Once required features are extracted they can be given for various machine learning classifiers which can be an extension to this work. Hence we can say that a Maximal Overlap Discrete Wavelet Packet Transform (MODWPT) is used for feature extraction stage of ECG signals classification for which energy is preserved with minimum reconstruction error.

Acknowledgement
For the implementation of the proposed work the related data has been obtained from open access online database physionet.org MIT-BIH arrhythmia, atrial fibrillation, congestive heart failure and normal sinus rhythm database.The authors do not have any conflict of interest.

Ethical Statements
There are no ethical permissions are required as the proposed work conducted on publicly available database.

Conflict of Interest
Authors do not have any conflict of interest.

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Commodification of Female Body: A Critical Study of Male Deodorants

Atifa Binth e Zia
Lecturer, University of Management and Technology

Anila Akbar
Lecturer, University of Management and Technology, Lahore

Dr. Zafar Iqbal Bhatti
Assistant Professor
University of Management and Technology, Lahore

Abstract
This paper analyses the sexual overtones in the advertisements of male deodorants. By applying Gunther Kress's theory of multimodality (2010) this paper contends that the female body in the advertisement of male deodorants is objectified to increase the sale of the male specified products.Perfumes and deodorants are considered as a tool to entice women. For this purpose advertisers manipulate the sexual orientation of men consumers and sell their perfumes as sex items.

Keywords: Female objectification; multimodal; commodification; male deodorants.

Introduction:

This paper analyses the sexual overtones in the advertisements of male deodorants. By applying the theory of Gunther Kress's theory of multimodality (2010) this paper contends that the female body in the advertisement of male deodorants is objectified to increase the sale of the male specified products.Perfumes and deodorants are considered as a tool to entice women. For this purpose advertisers manipulate the sexual orientation of men consumers and sell their perfumes as sex items.

Since centuries women are considered a commodity. Not only their historical subordination is celebrated but also they are "culturally prepared for powerlessness" (Lips 90). They are victim of marginalization. Their only purpose is to satiate male needs. Women are defined in terms of their sexuality as Jamaica Kincaid said "Woman? Very simple, say the fanciers of simple formulas: she is a womb, an ovary; she is a female—this word is sufficient to define her" (Kincaid 132).

In the powerlessness of women their body plays an important role. "The identification of women with their physical bodies is the root cause of their oppression in a patriarchal culture and society" (Mathur 54). Mathur argues "Women are denied rights over their own body and sexuality. They do not have control and autonomy over their sexuality and cannot decide freely on matters related to their sexuality" (59). Media becomes one of the yardstick to reinforce this idea. Women bodies in the advertisements of male deodorants, are objectified to increase the sale of the male specified product. They are used as a commodity to satiate male gaze.

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Literature Review

Robert Goldman says "a commodity sign designates the joining together of a named material entity (a good, product or service) as signifier with a meaningful image as signified" (Goldman 691). He further argues that it is not the product but its sign that the user consume. "Contemporary advertising teaches us to consume, not the product, but its sign. What it stands for is more important than what it is" (Goldman 694). Zia Argues in her paper that "Gender and its relation with power is a social and cultural discourse which is shaped on the binary of man and woman" (Zia 218). This debate of binary gives birth to signifier and signified. This paper argues that for the signifier product (Deodorant) the signified image is sex drive. For this purpose female body is used as a commodity. According to Jean Kilbourne "Most of us know by now that advertising often turns people into objects. Women's bodies, and men's bodies too these days, are dismembered, packaged, and used to sell everything from chain saws to chewing gum. But many people do not fully realize that there are terrible consequences when people become things. Self-image is deeply affected. The self-esteem of girls plummets as they reach adolescence partly because they cannot possibly escape the message that their bodies are objects, and imperfect objects at that" (26-27). Such advertisements also reinforce the image of ideal women as Jean Kilbourne says in her article entitled "The More You Subtract the More You Add: Cutting Girls Down to Size". She says "Girls of all ages get the message that they must be flawlessly beautiful and, above all these days, they must be thin" (Kilbourne, 105).

These advertisements laid the foundation of the myth of beauty and chalk out the rules and categories by fulfilling which women can be beautiful. "The glossy images of flawlessly beautiful and extremely thin women that surround us would not have the impact that they do if we did not live in a culture that encourages women to believe that they can and should remake their bodies into perfect commodities" (Kilbourne, 105). But interestingly these myths are created by men to satiate male gaze as Naomi Wolf says "The beauty myth is not about women at all. It is about men's institutions and institutional power" (Wolf 13). Simon De Beauvoir has also taken up this issue of "beauty myth" in her book *The Second Sex:*

It (Myths) projects into the realm of Platonic ideas a reality that is directly experienced or is conceptualized on a basis of experience; in place of fact, value, significance, knowledge, empirical law, it substitutes a transcendental Idea, timeless, unchangeable, necessary. This idea is indisputable because it is beyond the given: it is endowed with absolute truth. Thus, as against the dispersed, contingent, and multiple existences of actual women, mythical though opposes the Eternal Feminine, unique and changeless. (Beauvoir 1407).

The "eternal feminine" is a psychological archetype or philosophical principle that idealizes an immutable concept of "woman".

This argument is further developed by Pyke who relates these cultural stereotypes with power discourse. He argues that "male dominance and female submission are constructed as natural in body language […] in this manner power dynamics often are obscure and legitimated as essential and natural" (530). Female sexuality is considered a property of male as Das says "gender equality is still a far cry for the women in our patriarchal society which is characterized by exclusive male dominance by way of male control of female sexuality" (203). Other than cultural stereotypes, cultural habitat is one of the corner stone to explore the relation of a person with his surroundings. Zia says in her

article, "The cultural relationship among humans and their surroundings varies in keeping with human's perception of the landscape" (Zia 9).So where a person lives also forms an attitude towards that person. Moreover media plays its role in forming these sexual behaviors as Lanis says "media portrayals of women can influence sexual attitudes and beliefs" (Lanis 646). Muren also comments on this approach "In the media women's bodies are more likely to be shown to advertise products and there is often a focus on parts of the body rather than the whole body which emphasizes the view of woman as an object" (Muren 427).

In 1979 a survey was conducted to see the trajectory of portraying women as sex objects. "Content analyses of advertisements portraying women as sex objects indicate that the popularity of this device has grown in the last decade. Prior to 1969, it was estimated that upwards of 30% of all advertising used sex appeal and sexual expressions while in the period 1969-71, Venkatesan and Losco report that slightly over 65%o of advertisement portrayed women as sexual objects while 13% showed her as being sexy" (Kerin 39).

Research Methodology

The present research investigate the sexual overtones in the advertisements of male deodorants. For this purpose five advertisements were taken as a primary text. Correlational design was used. Purposive strategy was used for sampling because the choice of sample was dependent upon the availability and consent of the participants. The sample was consistent of (N= 100) males. The participants were chosen from different universities. The age group of 18-25 was selected. In the inclusion criteria married males were excluded from the sample. Five advertisements of male deodorants were employed. The name of the products and prices were intentionally removed and a fake tag was edited in the video under the heading of deodorant A, deodorant B, deodorant C, deodorant D and deodorant E respectively. For this survey self-developed open ended scale was used in which one statement of ranking was employed and the sample was asked to rank the ads ranging from 1 to 5 according to their preference. The results were further developed in percentages and were shown through linear graphical representation and pie-charts.

Five designs were used in these advertisements. Ad one was without any model. Ad two was consisted of only men models. Third ad was of a dark, night club party. In the fourth ad a female bride was introduced and in the fifth ad a *mehndi* function was in the back drop

Data was collected by indoor and outdoor interviews. All ads were shown to the sample individually. The participants were asked to grade the ads according to their choice. The condition which was applied to consider all the deodorants of same brand and of same price. The consent was taken from the participants and they were allowed to withdraw themselves at any point in time. The participants were make sure that their information will be kept confidential and will be used only for this research purpose. After data collection statistical analysis was carried out to analyze the result and demographic information was also accessed to made final result. To analyze the advertisements Kress' multi modal was used. Within that modal the concept of "mode" was employed. "Within social semiotics, a mode is understood as an outcome of the cultural shaping of a material through its use in the daily social interaction of people. The semiotic resources of a mode come to display regularities through the ways in which people use them and can be thought of as the

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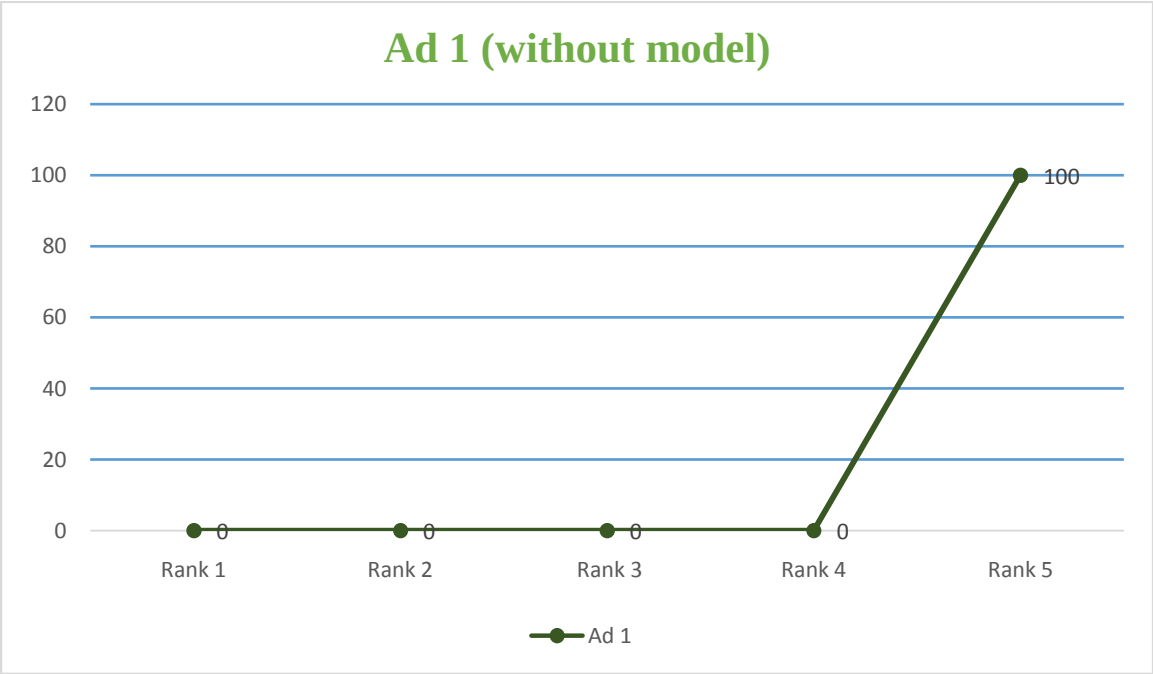
connection between representational resources and what people do with them" (Kress 2010). Within this framework the aspects that were analyzed were gaze and posture as Kress says "This has included contributions to mapping the semiotic resources of visual communication and colour, gesture and movement, gaze, voice and music, to name a few" (Kress 2010).

The result shows that there is an inclination in the young males towards the product in which female figure is more objectified. All the ads were analyzed individually and then collectively for the comparative study. For all the ads, ranks 1, 2, 3, 4 and 5 were placed on x axis while variables/ sample's response was placed on y axis ranging from 1-100.

Result and Discussion

The first ad was without a male or female model. By placing the deodorant on the table the product was presented by itself. In the other four advertisements models were introduced. For the first ad, the result was astonishing. Not even a single subject gave it first, second, third or even fourth position. Hence the sample ranked it on number 5 which shows that the absentia of models from the ad does not prove fruitful for the sale. A few of the subject sample were asked for the reason of their ranking. They replied that only models can attract the buyers in the consumer society and there is no model in the ad so the ranked it on the lowest position. The ranking percentage for this ad was rank 1, 0%, rank 2, 0%, rank 3 0%, rank 4, 0% and rank 5, 100%. Graphical representation is given below.



In the second ad four shirt less male models were represented on a cruise. This ad was particular chosen to confirm the absentia of female body and to analyze its result on the sale of the product. Second ad contained no female models, only male models were introduced in this ad. The ranking percentage for this ad was: rank 1, 7%, rank 2, 4%, rank 3, 16% rank 4, 73% and rank 5, 0%. Those of the subject sample who gave this ad first position in ranking were asked for the reason. They replied that they really like the atmosphere of the ad, four male friends on a cruise is like a dream for them. Moreover the representation of men in this

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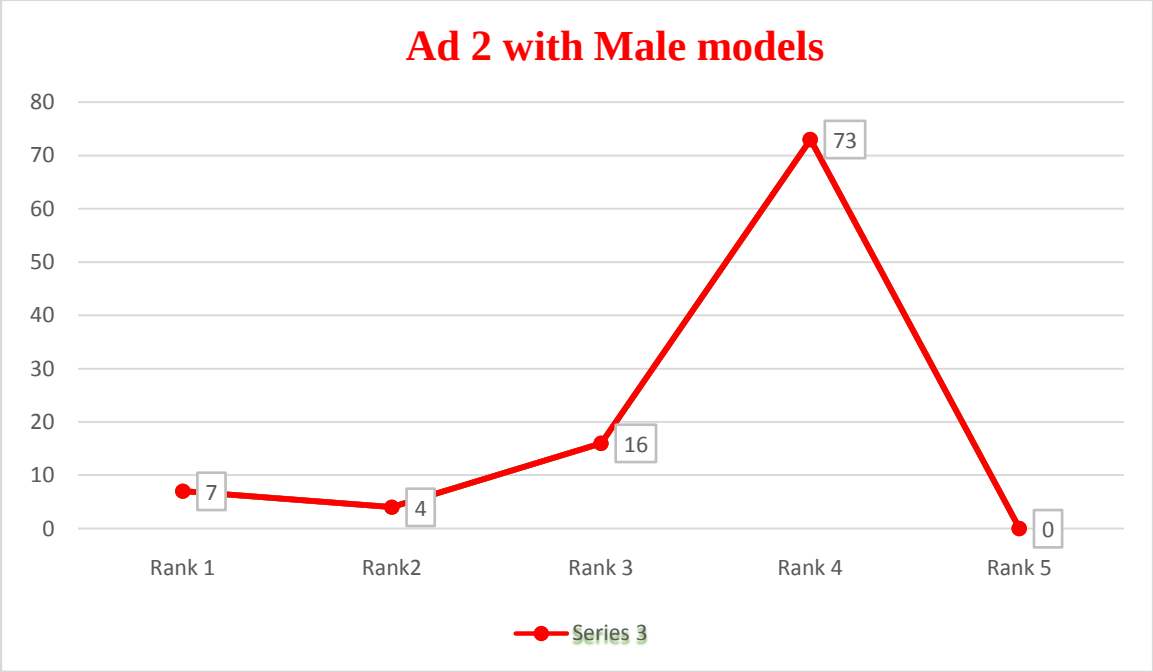
ad was very close to their "ideal" image of man; clean shave, no hair on chest and displayable biceps and triceps. 73% percent of the sample gave it 4th position. Those who gave it the lowest rank were also asked for the reason and they replied since there is no women in the ad hence they will not buy this product. Graphical representation of the result is given below.



Ad 3 was a bit different from the rest. The scene was of night club party in which many women dance in some frenzy caused probably by the effect of the male deodorant. Although females were objectified in this ad but since it was a night club party in the ad so, due to darkness, female bodies were not much exposed. The ranking percentage for this ad was: rank 1, 8%, rank 2, 19%, rank 3, 68%, rank 4, 5% and rank 5, 0%. One interpretation of the result is, that since female body is less objectified in this ad and also there is no complete absentia of women in this ad so it got an average response from the sample. Graphical representation of the result is given below.

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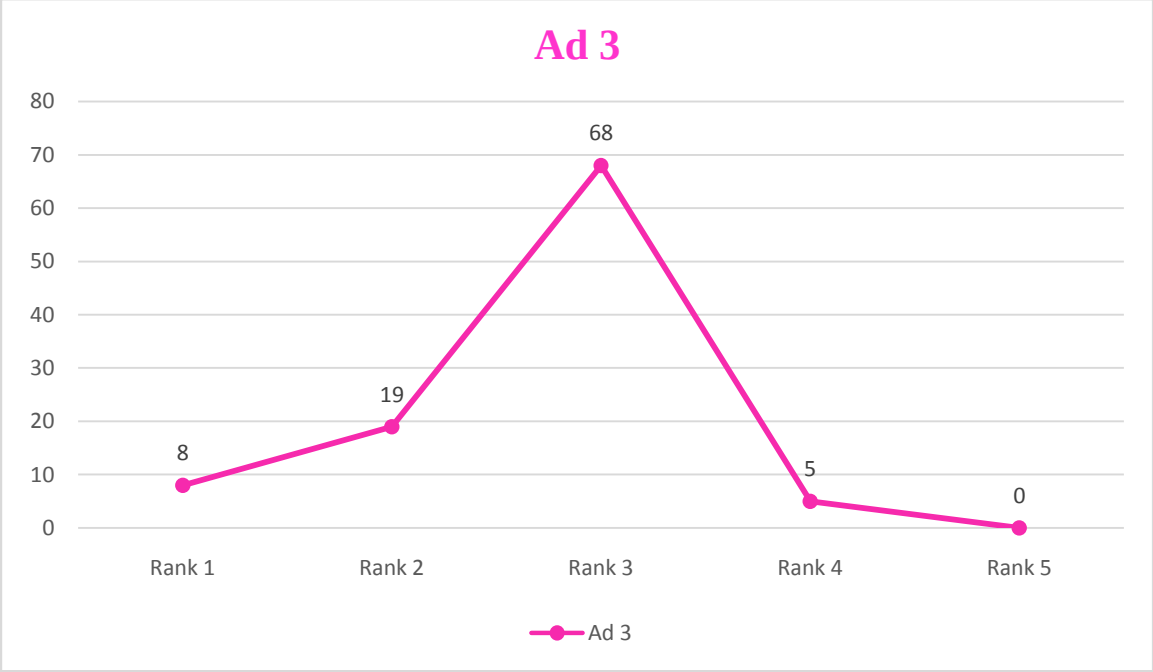
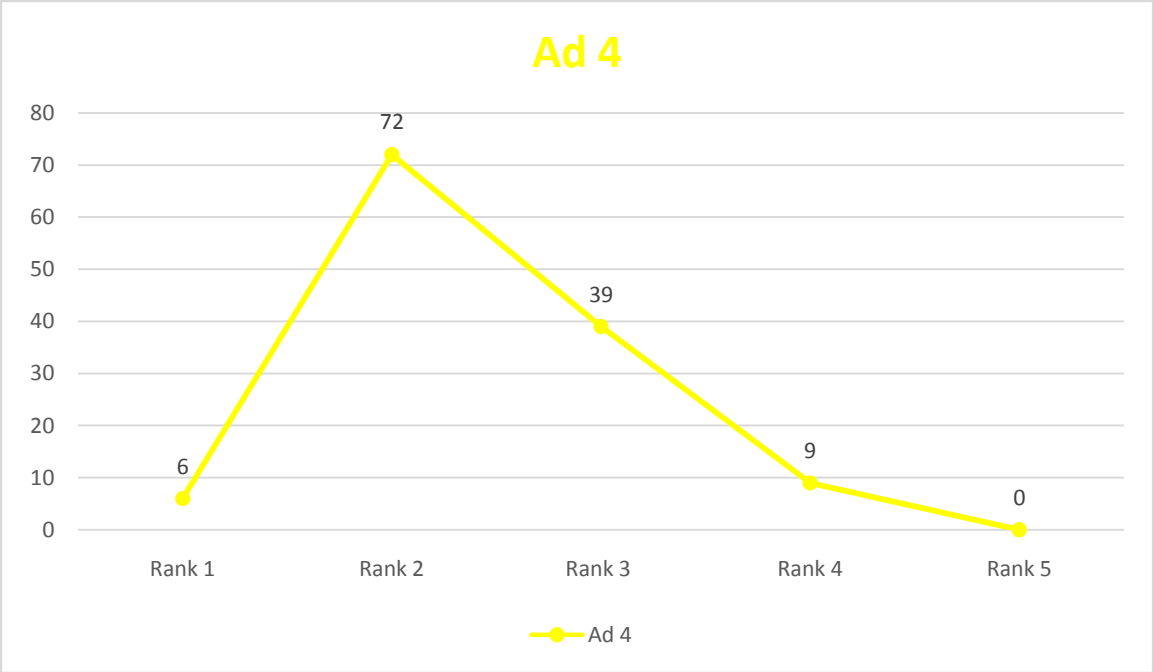


In the fourth ad a female bride was used as a model who throws her jewelry, her wedding ring and her head cover off under the influence of the smell of her neighbor's deodorant. She is exposed in the ad with her deep cleavage and is shown stripping her down for the male next door. The ranking percentage for this ad was: rank 1, 6%, rank 2, 72%, rank 3, 13%, rank 4, 9%, rank 5, 0%. Graphical representation of the result is given below.



In the fifth ad the function of *Mehndi* is going on and the bride is called by her jewelry designer. The bride is dressed in a short blouse, exposing her deep neck, her back less shirt, her cleavage, her midriff and her belly to the fullest. She is enticed by the fragrance of the jeweler and her expression turns the whole scene into a sex appeal. The ranking

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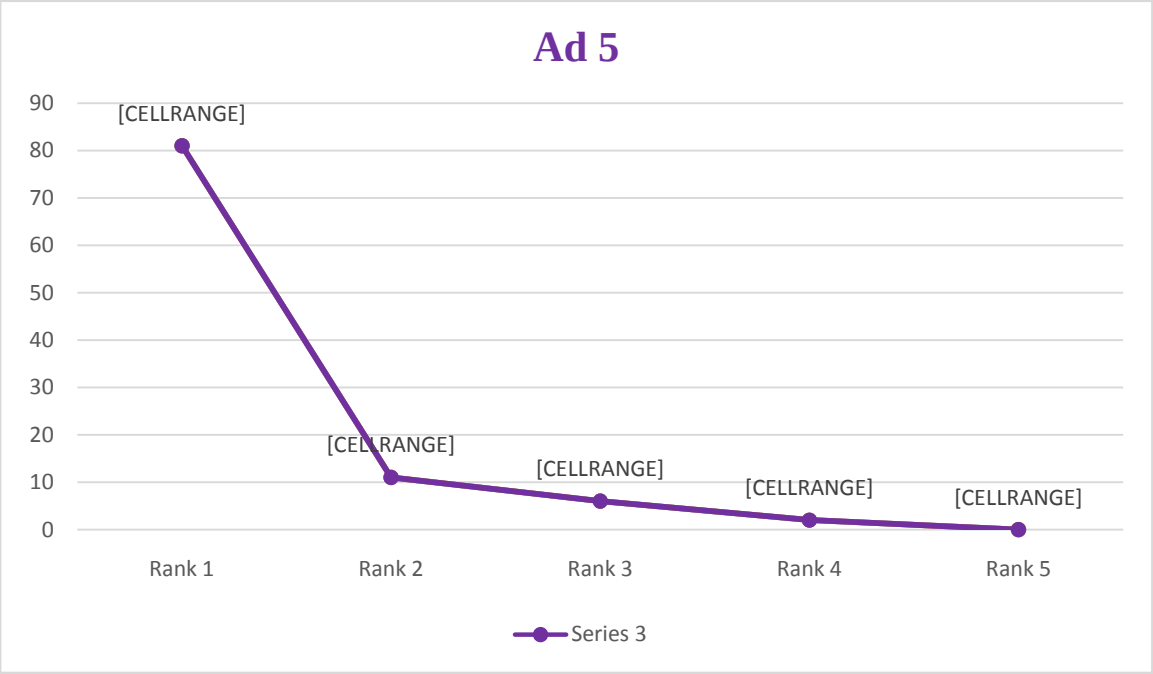
percentage for this ad was rank 1, 81%, rank 2, 11%, rank 3, 6%, rank 4, 2% and rank 5, 0%. When the subject sample was asked for this preference sample said the girl in the ad is beautiful. By applying Kress' concept of "Mode" it can be interpreted that since the female model is not only exposed but also her body parts are captured in a close up in this ad when the jeweler puts the jewelry on her so, 81% of the subject sample gave it first rank in the preference list. Thus made it the most wanted product. The graphical representation is given below.



From all the ads 81% of the sample gave first rank to the ad five. 8% of the sample gave first rank to the ad three. 7% of the sample gave first rank to the ad two. 6% of the sample gave first ad to the ad four and 0% of the sample gave first rank to the ad one. Pie-chart demonstration is given below.

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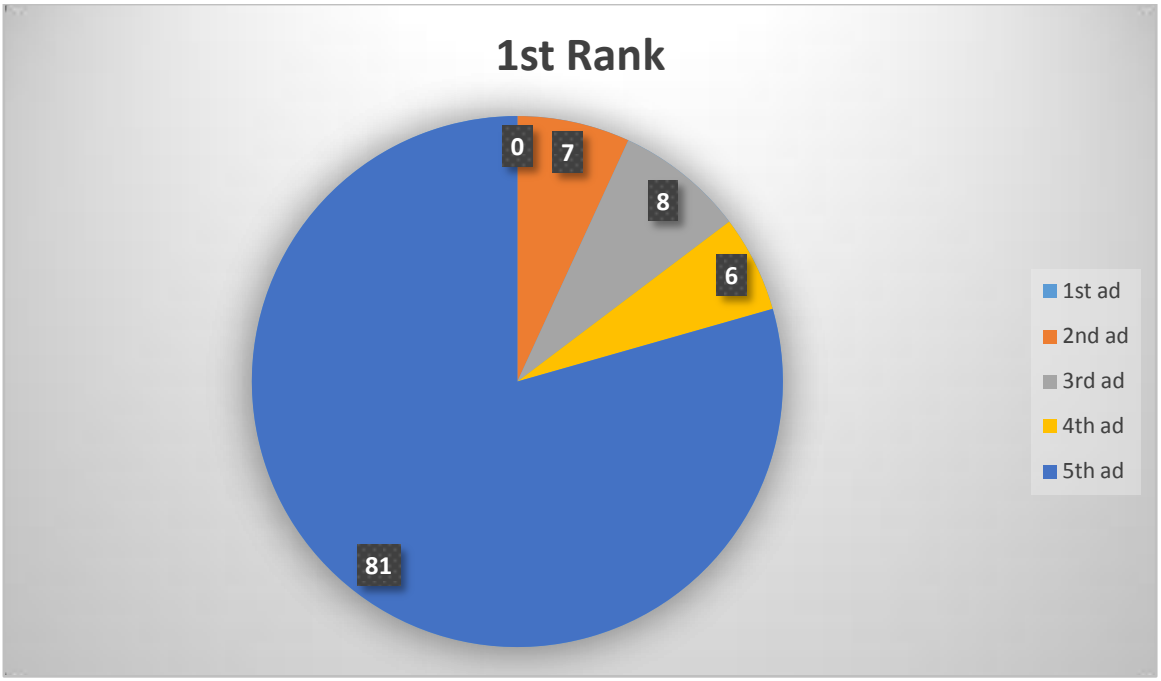
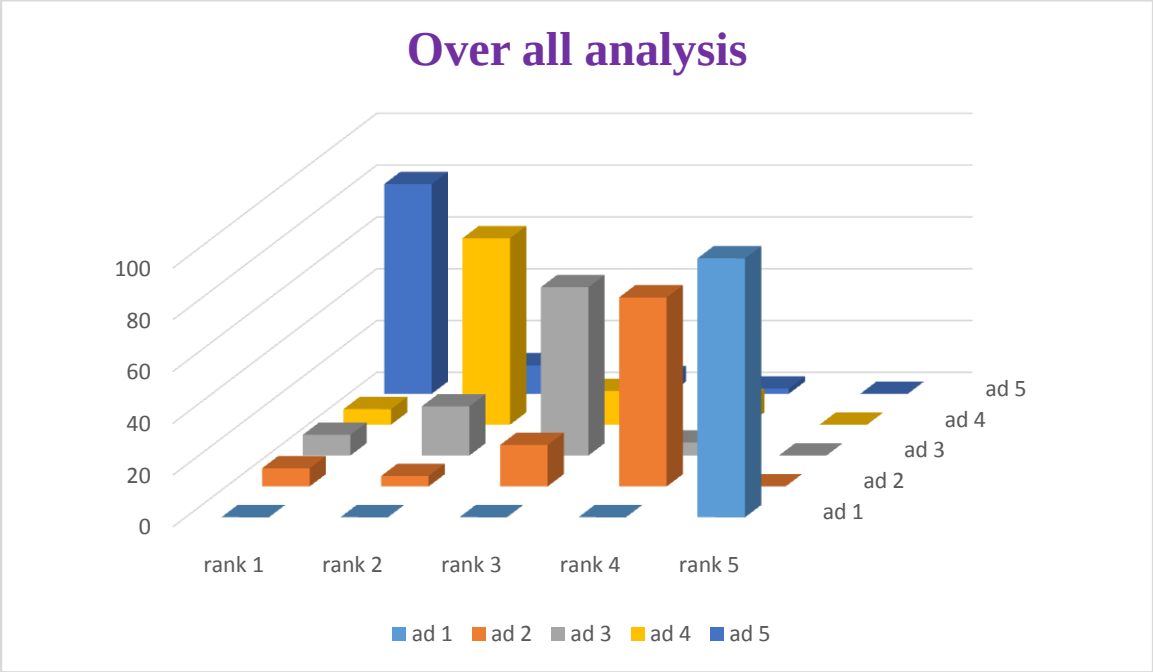


Below is the graphical representation of the overall comparative analysis.



Conclusion

The overall result shows that that the female body in the advertisement of male deodorants is objectified to increase the sale of the male specified products.Perfumes and deodorants are considered as a tool to entice women. For this purpose advertisers manipulate the sexual orientation of men consumers and sell their perfumes as sex items. As the criteria of the sample was single young man, whose ages are ranging from 18 to 25, so one interpretation of the result is, that other than patriarchy, repressed sexuality is the reason behind such attitude

of male buyers. Their emotions are repressed. In such a situation media tries to satiate their male gaze and tries to provide a solace to balance their emotions. But in this process female body becomes the victim of objectification.

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Technology and Innovation: Changing Concept of Rural Tourism–A Systematic Review

Anuradha Gautam[1], Dr. Trupti Singh[2]

Reseach Scholar, Department of Management,
Maharishi University of Information & Technology
Professor, Department of Management,
Maharishi University of Information & Technology

Abstract:
The purpose of this research is to conduct a comprehensive evaluation of the literature on the influence of technology in the tourist sector and its application in rural tourism research to serve the goal of socioeconomic development. Journals indexed in Scopus, Web of Science, or on the Australian Business Deans Council or University Grants Commission – Consortium for Academic & Research Ethics list was used to identify research publications. This study gives a simplified conclusion of research trends in the rural tourisms field, while also identifying the topics and areas that the tourism industry might address. This research attempts to establish a relationship between the usage of technology and the growth of rural tourism industry. It also says that the use of technology has changed the way rural tourism may be performed. Furthermore, it has opened up possibilities for using rural tourism to address current socioeconomic difficulties in society. This study is novel, and it undoubtedly contributes to the worth of academics and academicians working in this field by presenting them with research topics to consider.

Keywords: Ruraltourism, Technology, Length of stay, Nichetourism

1 Introduction

Rural tourism is a well-researched topic with a plethora of literature on its conceptualization, relevance, limits, and interferences in its global spread. There is a change in policymakers' attitudes about tourism. Tourism has developed from a leisure pastime for the middle or upper classes to a vehicle for economic growth. There is a link between industrialization and rural socioeconomic development. Rural tourism offers an alternative to traditional development through the manufacturing sector. It has the potential to help a country get out of poverty. It is critical to comprehend the many evolving trends in tourist industry research and their relevance to the rural tourism business. As a result, most of the study in this field involvesfavourable to the development of rural tourism as a product. Due to limited resources, there has always been a trade-off in terms of accelerating tourist goods and associated research. Technology is regarded as one such instrument. Although technology is employed in the tourist business, its usage is confined to marketing. Furthermore, there is a scarcity of information on how to make the most use of technology in rural tourism industry. This research looks at the intersection between technology and rural tourism. The ideal method to implement technology in rural tourism is in a way that benefits all stakeholders in the tourist sector, from rural peers to the user.

However, advancement comes at a cost. Rural tourism is not immune to negative externalities. Concerns about its long-term viability are regarded as significant. Concerns have been raised concerning the potential contamination or loss of local culture as rural

tourism develops. The fundamental issue in the growth of rural tourism has been, on the one hand, to expand its appeal while, on the other hand, preventing it from being commercialised a mass tourist industry The tourist business has emerged as a topic of debate at a number of international and national forums. As a result, it is critical to comprehend the many evolving trends in tourist industry research and their relevance to the rural tourism business. Furthermore, tourism has never been viewed as a sector capable of addressing socioeconomic challenges society. Given the deficiencies noted above, this study focuses on incorporating technology into the conduct and practise of rural tourism in order to enhance rural development. This study identified a few untapped locations that have the potential to significantly modify India's rural environment.

A systematic study of the literature was conducted in order to conduct an in-depth analysis of the patterns. A review of the relevant literature is one technique to gain a better grasp of the notion while also learning about the themes and patterns of research that have been undertaken on the subject. It is also critical to understand the research work that has been completed as well as the research gaps.

Data source

This section has been separated into subsections in order to conduct a thorough literature review:

• Rural tourism, as well as sustainable rural tourism
• Technology and tourism

Each part delves into several studies that have been published in prestigious national and international publications. Sources for research papers and publications include:

• Journals included on the Australian Business Deans Council's list
• Journals indexed by Scopus
• Journals indexed in Web of Science
• Journals listed by the University Grants Commission – Consortium for Academic & Research Ethics
• Journals with peer-review

Data tools and techniques

The research articles in both categories were run via the Nvivo programme, which performed a word count frequency analysis to reveal the paper's underlying themes and patterns. To that end, the top 100 words from each category's papers were chosen. Each word's weighted proportion is determined, and the words with the highest percentages are chosen. The weighted proportion is computed by dividing the total appearance of each word in all the papers addressed by the total appearance of all the words in the paper. Common terms with a high proportion of occurrence are discarded, and words that describe the topic of the papers are then chosen. Each part gives an in-depth overview of previous work and identifies significant findings main topics and sub-themes, as well as the primary findings from the research At the end of each section, a conclusion is reached based on the significant research gap that still exists in the field, as well as the necessity to bridge the research gap. Following an in-depth analysis of each segment, a holistic overview of the literature review is offered,

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emphasising the need for this study and how this study bridges the research gap that exists in prior and concurrent investigations.

2 Results and discussion

Rural tourism papers

Rural tourism is roughly defined as any tourist activity that occurs in a rural setting. However, scholars have often questioned the definition of a rural region. According to the literature, some common features of rural regions include agriculture as a major source of income, a low level of population density, and the presence of real culture and social practises.

Importance of rural tourism

Lone investigated the significance of agriculture in rural development as well as the role of diversification in the growth of the agricultural sector itself. Indolia and Prasoon presented many initiatives of the government of India's department of rural development, state governments, and other involved departments. Singh and Bhowmick envisioned innovation in rural India's tourist business. The study's major goal was to uncover the drivers of rural innovation and enumerate the variables of rural innovation by evaluating empirical data. Bhatia and Kiran sought to identify the many ways in which government e-governance programmes and activities have contributed to India's rural development. According to the findings of this study, electronic government (e-Governance) is one of the most popular forms of government important methods for bridging the digital gap in emerging countries such as India Samanta researched the influence of rural road infrastructure development on the socioeconomic situations of the rural people, as well as the total contribution to the nation, by analysing various previous patterns and current practises linked to rural transport in India. According to Reddy et al., rural tourism has a direct positive influence on rural development.

The development of an entrepreneurial mindset, the establishment of micro, small, and medium-sized businesses, and the development of infrastructure will all lead to the growth of the rural region. This is also evident in research undertaken in the field of rural development.

Garjola and Singh evaluated the difficulties in villages and the nondeveloped items in villages in order to tackle all of the big and small problems of the rural region, and they proposed that rising population is the major impediment to rural development. To slow population increase, the government must educate rural residents about family planning regulations and practises. Vanitha and Vezhaventhan examined rural development and policy implementation in rural regions and proposed that, for future rural development, The government should increase Internet access in rural regions so that the essential promotion of initiatives can be carried out.

According to the research, rural development offers various potential benefits for the region's economic and social growth. To develop a rural region, certain measures must be implemented that allow for the establishment of a business, the development of infrastructure, the use of technology in operation, and so on. Rural tourism supports all of the aforementioned aims in the following ways:

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• Provides work opportunities - rural areas are known for having a low employment rate. The main feature of such locations is that there is a relatively limited range of work prospects in such locales. Since employment has been a source of concern for the government in recent years, rural tourism may provide a chance to bridge the employment gap. Some of the government programmes and efforts that might benefit the rural tourist industry include the Scheme for Promotion of Innovation, Rural Industry and Entrepreneurship, and the Scheme for Skill Strengthening for Industrial Value Enhancement.
• Offers alternate sources of income — Rural people rely heavily on farming and nonfarming activities for a living livelihood. As a result, rural tourism may prove to be an alternate source of income. The government plan of Skill Acquisition and Knowledge Awareness for Livelihood Promotion, which aims to increase people's earning potential, might be utilised to convey necessary knowledge to stakeholders.
• Balanced regional economic growth - Rural tourist development might be a stepping stone for regions lacking resources to flourish economically and socially. Because growth through the manufacturing sector is impossible in the lack of resources such as raw materials, rural tourism may be used as an alternative business to improve rural areas.
• A tool for social inclusion - Rural tourism may also be utilised to educate people about a region's cultures and traditions. It may also be used as a tool to teach locals about the lifestyle of the general people who live beyond their usual zone. People from metropolitan areas who are uninformed of the different culture will be able to experience it through fairs and exhibitions if they travel to rural areas. Learning via experience will be far more effective in increasing social inclusion.
• A way of overcoming social ills - Rural tourism may also be utilised to overcome social problems that exist in a society. A point to considerA respondent in our survey discusses how rural tourism might be utilised to provide relief to youngsters in orphanages and elderly persons in nursing homes who want for the affection of their loved ones.
• Transfer the strain away from tiring places — Several tourism locations in India have grown exhausted, and the natural resources at their disposal have been significantly reduced. As a result, rural tourism development might give an opportunity to shift the flow of tourists to locations with lower footfall and greater resources, allowing tiring areas to rest.

Trends in rural tourism research

Rural tourism research in India and throughout the world has grown rapidly in the last decade or two. There is a wealth of relevant material on the topic of rural tourism and associated possibilities. An analysis of word count on 50 rural tourism research papers conducted using the Nvivo software reveals that significant themes and patterns revolve around conceptualization, different types of niche tourism (rural tourism, dark tourism, community tourism, wine tourism, and heritage tourism), marketing of rural tourism, and the economic importance of rural tourism. The topics collected from the research publications are listed in Table 1.

Figure 1 is a diagrammatic depiction of the top 100 terms identified from existing literature on rural tourism in India or globally.

A substantial amount of literature is devoted to the significance and conception of rural

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tourism.

Table1: Trendsidentifiedfromresearchpapersonruraltourism

Word	Count	Weightedpercentage	Paperscoveringtheword
Tourism	10,417	2.96	Aall[19],Suneeletal.[20]andQian etal.[21]
Dark	1,980	0.56	Bittner[22],DarandReshi[23] andFonseca etal.[24]
Rural	1,804	0.51	BhatiaandKiran[14],Bilalietal.[25]andBerjanetal.[26]
Development	1,659	0.47	BhatiaandKiran[14],Bilalietal.[25],Reddy&Shilpa[27]and Mann[28]
India	1,411	0.40	BhatiaandKiran[14]andChavanandBhola[29]
Community	1,283	0.36	Hamzahetal. [30] andImran andNguyen[31]
Local	967	0.27	NaSongkhlaandSomboonsuke[32]andVermaetal.[33]
Death	744	0.21	Bittner[22],DarandReshi[23] andFonseca etal.[24]
Management	742	0.21	BerryandLadkin[34],Choo[35]andDeshwal[36]
Length	735	0.21	Laletal.[37]
Niche	712	0.21	Kumaretal. [38]

Source: Author's compilation from several published literature.

Figure1:Trends in rural tourism research (top100words).
Source: author's compilation from several published literature.

Wilson et al. used focus group study to uncover variables for rural tourism success from the local community, businesses, and groups. Good communication, local government assistance, proper finance, coordination and collaboration among entrepreneurs, and extensive community support were identified as important driving elements for rural tourism. Pesonen et al. investigated if there is a link between push and pull motives for rural locations, and whether the reasons differ for two rural tourism sites in Austria. Thus, based on motivation, tourists may be divided into groups and marketing campaigns can be developed

appropriately. Ghaderi and Henderson explored the subject of sustainability while also discussing theTourism development in a specific Iranian hamlet The study discussed the unfavourable attitude that has arisen among residents over the exploitation of scarce resources by entering visitors, emphasising that present policies have failed to solve the concerns of tourists, and therefore a new systematic strategy is required for the same. Kaurav et al. focused on the potential of rural tourism for India, noting that while it offers several opportunities, it also has both upside and disadvantage. The involvement of commercial actors can aid in the efficient use of resources and boost India's share in rural tourism. Berjan et al. examined the political, legal, and regulatory frameworks, as well as rural tourism governance in the Srpska Republika The research stated that there is a lack of coordination among the parties involved, resulting in ineffective growth of the rural tourist business, and it advised that there is opportunity for improvement, particularly in governance and marketing Tax regimes for rural hospitality. Bilali et al. examined villagers', service providers', and rural tourism structure managers' perceptions of the potential for rural tourist growth in Bosnia and concluded that locals have accepted tourism as an alternative source of income. Tourist feedback is also useful in the formulation of tourism policies. According to the study, there is a need to provide financial assistance to the villages in order to keep them engaged in tourist activities. Tiwari clarified the definition of rural tourism, its function, and its significance in the development of sustainable development, as well as the contribution of tourism to the development of rural tourism using a case study method of Ranakpur, a hamlet in Rajasthan Rajasthan is a state in the Indian state of Rajasthan. Environmental attitude, according to Fernández-Hernández et al., is a significant element explaining the market segmentation of rural tourism in the Canary Islands. Although the author discovers a huge diverse and unconnected market group, they hypothesise environmental attitude as one aspect having a greater economic influence and visitor pleasure. Kach- niewska openly inserts her into the rustic position the role of tourism in the improvement of overall quality of life To determine the influence, a complete study design was used, together with qualitative and quantitative research approaches. It was discovered that planning had an important impact in shaping people's perceptions of rural tourism. Other characteristics identified in the study that have a significant impact on tourism include social and technological infrastructure, environment, and lifestyle. Orsolya's study tried to follow trends in the field of rural tourism research during the last 15 years by examining papers published in international tourism publications. This study aids in identifying the themes and patterns related with rural tourism research being conducted throughout the world, as well as identifying topics that remain unanswered. Pagdhare researched theThere is potential for the development of sustainable rural tourism in Maharashtra, a state in India, due to factors such as pristine beaches, monuments, antiquities, and a long legacy of fairs and festivals; hence, there is potential for rural tourist growth in the state. Singh et al. highlighted the needs, scope, and challenges of rural tourism in India, where the majority of people still live in rural areas and practise traditional ways of life. Rural tourism can not only act as an alternative to their existing income portfolio, but it can also enhance the vitality of rural areas by preventing migration and preserving the rural touch. Farmakievaluated tourists' experiences with activities and travel motivations when visiting a rural destination The study was supported by an

exploratory research approach, which indicated that rural tourism experiences are widely scattered, impacted by service provisioning, tourist travel objectives, and area features. Kapur used case study approaches to emphasise the prospects for the development of rural tourism in various parts of India. The research proposed numerous promotional tactics that would be appropriate for rural tourism, as well as the challenges associated with implementing them. Before developing rural tourism, Singh et al. underlined the importance of understanding the notion of the rural setting, social-ecological environment, local attitudes, and values related to rural regions, as well as the necessity, scope, and importance of marketing strategy for rural tourism.

Wang and Lalrinawma investigated the meaning of rural tourism and its associated terms using a variety of definitions and concluded that timely and accurate planning with information dissemination, proper planning with controlling, and effective policy implementation are required for the long-term development of rural tourism. Gabor conducted a content analysis of 12 well-known worldwide periodicals' articles on rural tourism research. The analysis identified potential research topics that require the attention of researchers. Chin et al. observed the growing presence of rural tourism and increased competitiveness in the region, and the study looked into it the significance of services in competitiveness growth Osti and Cicero investigate visitors' perceptions of a variety of settings by categorising tourists based on their sensitivity to specific landscape elements. Based on the quantitative analysis of the responses acquired via structured questionnaires, A–K mean cluster analysis was used to categorise tourists. Xue and Kerstetter investigated the movement of rural inhabitants from only relying on agriculture for a living to the adaption of rural tourist providers. According to the findings, adaptation is a continual process requiring negotiation, adjustment, and interactions. Masood and Nguyen investigated the growth of homestays in Uttrakhand, India, as well as the willingness of locals to welcome visitor’s development of the homestay idea the study determined that tourism has not provided the expected economic benefits to indigenous since they had little involvement in tourist development. As a result, the study recommends incorporating residents' perspectives into decisions.

Sanagustin-Fons et al. investigated societal perceptions of rural tourist effect in the Cinco Villas region of Aragon, Spain, examining its evolution and influence on the territory.

How to make rural tourism sustainable?

A significant dilemma that occurs while growing rural tourism is that on the one hand, one speaks of over tourism in particular areas while on the other, one speaks of sustainability. As a result, extensive study has been performed to determine how to make rural tourism sustainable. Sustainable tourism has been defined as a method of carrying out tourism operations while respecting the demands of present and future visitors and other stakeholders, without sacrificing the overall satisfaction of existing tourists. As a result, sustainable rural tourism may be defined as rural tourism that is done without overburdening rural tourism sites in terms of resource utilisation or causing loss of satisfaction among present rural visitors. The majority of Limiting the number of tourists at a site is a popular sustainability technique in tourism. This strategy, however, has been condemned as anti-

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stakeholder. As a result, business has attempted to use a variety of additional techniques in order to include sustainability into tourism. One strategy is to enhance the average length of visitor stay, regardless of tourist type. Furthermore, some are establishing new tourist pathways, such as a specialty tourism offering. The following section discusses various methods for making tourism more sustainable.

Increasing the average length of tourist stay

Increasing the average length of visitor stay is one method to make tourism more sustainable. Wurst investigated the complexities in calculating the duration of stay of visitors and proposed measuring tourist turnover as an effective technique for precisely determining the length of stay of tourists. The study also advised the researchers to use caution while dealing with such a big volume of data. Menezes et al. investigated the factors that influence the duration of stay of visitors in the Azores, Portugal. The researchers investigated many sociodemographic characteristics and trip aspects, such as repeat visitation and flight type, and discovered a substantial association between them. It was discovered that marketing techniques focusing on cultural stay hurt the duration of stay, whilst methods focusing on economic stay aided the length of stay that focused on nature, remoteness, and scenery had a beneficial impact on duration of stay Barros and Machado discovered that socio demographic characteristics influenced the length of the tourist's stay. The qualities of the destination contributed to the length of stay being moderated. The research explored several approaches that may be used to extend the duration of stay of visitors based on age, nationality, education, budget, and spending. According to Thrane, the duration of stay of tourists is a significant factor for policymakers since it affects the overall amount of money spent by tourists. Using an econometric technique, the study examines the relationship between nationality and other characteristics and the length of stay of visitors. The study examines the link between foreign visitors' age, spending habits, nationality, and average duration of stay. The study's findings also have consequences for researchers and policymakers. Alejziak aimed to discover the influence of the strength of elements that raise people's aversion to tourism. Lack of money, spending holidays at home, household commitments, and a lack of time were identified as causes for nonparticipation in tourism by the survey. These problems impacted not just the length of stay but also any chance of tourism. The investigation was completed that there remains a wealth gap in tourist consumption, despite the fact that accessibility to places has improved over time Ganzon and Fillone used statistical methods such as regression analysis, variable cross-classification, and descriptive analysis to draw conclusions on the length of stay of visitors. Factors such as civil The duration of stay was shown to be affected by status, work status, budget, frequency of vacations in a year, purpose of the trip, and average spending. The study offered a framework for future research in the field by determining that single international visitors generate greater foreign exchange revenues than family vacations. Marin et al. investigated the drivers of arrivals from various countries to a Croatian destination, focusing on the interaction effect of individual characteristics of origin countries and relative pricing on duration of stay and other comparable variables. The major causes for international visitor arrival in the country were overcrowding and destination congestion. Rodrguez et al. investigated the factors that

influence the duration of stay of visitors by categorising them guests and tourists that arrive on the same day The findings were analysed using the five different Heckman selection models. According to the survey, same-day visitors who are under the age of 35 remain for a shorter period of time, but international tourists who come for business generally stay for a longer period of time. The ramifications for policymakers are then examined in light of the findings. Using the interpretative structural modelling (ISM) technique, Lal et al. evaluated the elements that influence the average length of tourist stay and built a hierarchical connection. According to the study, promoting and incentivizing longer stays would enhance the average length of a tourist's stay.

Develop emerging tourism avenues and change in policies

According to several research, establishing new avenues, or better yet, developing nonexistent avenues at new places, would aid in the long-term development of the tourist business. Stoddard et al. advocated that tourist development groups use the Triple Bottom Line strategy to improve their sustainability. The authorities might build models that would not only promote growth but would also lead to the entire development of the destinations by including environmental and social elements into their strategic decisions. They concentrated on the potential benefits of implementing the policy and suggested that a trustworthy instrument be developed to monitor the environmental and social performance of the tourist sector. Edward and George addressed the entrepreneurial challenges that the company faces Kerala's specialised tourist operator Typically, during the expansion stage, entrepreneurs focus on continually inventing the product and its quality delivery, coordinating with the supplier, and financial limits. Ali-Knight concentrated on developing key positioning of niche tourism products for the tourist by understanding the tourist's perceptions and motivations, raising awareness by portraying niche tourism as a distinct market segment, and emphasising the importance of niche tourism in developing destination image branding.

Parmar investigated the growing features of tourism in Himachal Pradesh. According to the study, tourism has numerous economic benefits, thus developing new routes will result in a rise in such benefits. The research concentrated on the influence of tourism services and amenities, as well as the impact of These are based on visitor behaviour, such as length of stay. Rathore proposes that rural tourism play a role in bringing about economic and social development. The research advised that the government encourage private groups to promote rural tourism and that the government better understand socio demographic variables in order to properly execute rural tourism policies. Nwafor investigated specialist industries in South Africa's Western Cape area, as well as the potential contribution and function of medical tourism in the tourist industry. The study indicated that proper market knowledge, understanding of motivating elements, up-to-date market information, complementary tourism offerings, greater awareness, training, and inspection can aid in better planning and offering of niche items. Prabakaran and Pan- chanatham investigatedthe different niche tourist goods available in India, as well as their presentation as a distinct offering to customers It was determined that niche tourism plays a critical role in reinventing and positioning, so opening up a whole new window of opportunity, and that the promotion of niche markets may aid in the development of India's strength. Nag looked at important

environmental and ecological issues in Himachal Pradesh. The author identified two major ways around which the notion of eco-tourism revolves, one in which the environment is exploited for marketing and the other in which the focus is on protecting the ecosystem so that tourism may exist for a longer period of time. He came to the conclusion that these techniques should be combined. By publicising the interestOne might try to inspire individuals to safeguard their very essence in the presence of people in the surroundings. Jaykumar and Fukey identified the role of wine tourism as a specialised product in South Indian cities. The owners and government are quite optimistic about promoting the specialised market. However, the sector has considerable challenges in offering the unique product due to the high tax system, tight while confusing standards, and unequal benefits. Ursache predicted that, with changing spending habits, niche tourism might justify and significantly contribute to the economic growth of the European Union's eastern periphery. It allows its periphery areas to take advantage of the unique offering and offer it as a different product by reinventing and innovating The research also recommended actions to ensure its long-term viability. In India, Gupta identified the scope and tendencies of a specialised tourism market known as Reality Tourism. The study addressed the possible advantages and disadvantages of increasing reality tourism in India. The author evaluated several criteria that influence the satisfaction level of reality tourists and estimated the satisfaction level of such tourists by establishing an appropriate scale. The study revealed that reality tourism has a good impact on slum inhabitants and contributes to their socioeconomic development.

Tran did research on the possibility for long-term tourist growth on Vietnamese islands. determining the degree of tourism and comprehending the potentialThe researcher employed models such as Tourism Area Life Cycle and Destination Analysis to promote sustainable tourism. He underlined the need of efficient and effective marketing for tourism promotion, as well as the use of technology in building an information system for visitors and local authorities to utilise. The study concluded by examining the role of various stakeholders, particularly policymakers, in promoting sustainable tourism in Vietnam through training, education programmes, and various environmental protection regulations. Wang and Lalrinawma stressed the need of incorporating environmental and social concerns into the concept of rural tourism. According to the report, policymakers in Assam have taken a cautious and responsible approach to building the tourist business. The investigation was completed that different types of rural tourism do not adhere to the concept of sustainability

Shukla determined that, however slowly, increased tourism in Himachal Pradesh is harming the state's natural attractiveness. It places a strain on infrastructure while also lowering citizens' quality of life. The number of visitors arriving exceeds the capacity of the locations. According to the study, the economic impact of such immigrants in terms of money production is quite little (around INR 600 per person). As a result, when weighed against the costs connected with them, this benefit is marginal. The investigation accelerated the unanticipated. The tourist development board's development method and advises a review of the industry's harm and benefits drawn. Thakur predicted that for Himachal Pradesh to become a top destination around the world, it must adopt the principle of sustainable development and identify the prospects of eco-tourism in the state, as well as create a parallel system of providing training to marginalised groups who are disassociated with the tourism

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sector. Tourism, according to Genc & Genc, should give additional opportunity for a more comprehensive approach to social inclusion. The study concentrated on social exclusion and explored the negative consequences of failing to incorporate societies with the goal of rural development. Hussain et al. investigated the influence of the tourist sector on the environment People in the research region have seen social and economic changes. The development of infrastructure in the transportation and technological sectors has paved the way for social inclusion. Kunz and Ratliff created a technique to find the specialised segment in the tourism business and the right group of visitors, allowing entrepreneurs to produce products by determining the most feasible economic opportunity. Kumar et al. investigated the growing trends and state of niche tourism in India, highlighting the numerous forms of niche tourism that have recently gained popularity. The study also demonstrated how specialised tourism locations might construct an image for themselves using the destination band imaging method.

Technology and tourism

Technology is defined as the practical application of scientific knowledge, particularly in industry. In the last century, technology has advanced by leaps and bounds. Technology has an influence on every element of one's life. Whether it be improvement in computer technology or procedures and processes, technological advancement has both benefited and harmed society. Every industry in the market is affected by technology. It is not an exception in the tourism industry.

Importance of technology in tourism development

Tourism has become a more engaging and efficient sector as a result of technological advancements. Technology has improved a tourist's entire experience by making previously unthinkable things feasible. A tourist employs technology in the management of his or her journey. When it comes to tour planning, technology supports in efficient tour planning by keeping a record of locations, providing information about the climate and significant attractions of a region, and also assisting in tour scheduling. The availability of high-end electronics such as cellphones, smartwatches, and heads-up displays necessitates reduced usage of photographers and tour guides, making a traveller self-sufficient. Technology also improves a tourist's security. Similarly, the availability of digital payments has made travel a painless experience on the other hand, Technology also helps other stakeholders promote to visitors more effectively and efficiently. Because of technological advancements, stakeholders' reach has expanded dramatically. Several things that were previously difficult to offer are now not only available, but are also adapted to the demands of visitors. Overall, technology has enabled tourist activities to be customised. As a result, tourism has evolved from a mass tourist activity to a specialist tourism activity. The application of technology in the tourist business has several intriguing advantages:

• New product development: numerous tourist items may have their origins in the usage of technology in the business. Only through the application of technology are niche tourist goods such as virtual tourism and space tourism conceivable.

• Improved security measures: technologies such as radio frequency identification tags have

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allowed authorities to track down cars travelling through toll plazas. In addition, the usage of a Global Positioning System offers travellers with assistance if they need to find their way in the dark or in an unfamiliar location.

• Travel convenience: advances in technology have made travel management more comfortable and hassle-free. From aiding with trip planning to booking tour itineraries and providing payment options all in one place,Tourism is becoming more enjoyable as a result of technological advancements.

• Ease of database management: Using technology, stakeholders may prepare a tourism database more affordably and simply. The programme was created with the necessity for hotel management in mind. Similarly, photographers may save their images in more efficient storage devices, and tour guides can utilise technology to provide visual tours to their audiences.

• Broadening the reach of stakeholders: The most important challenge for stakeholders is finding a means to publicise or market them.

Technology has enabled businesses to sell outside their geographical boundaries at a very low cost. Social media marketing allows a stakeholder to promote to potential visitors even before they visit a place or begin arranging their journey.

Trends in technology and tourism research

Rapid technological improvement has also had an impact on the tourist business. Due to increased digitization and technological innovation, research in India and throughout the globe on the issue of technology and tourism has seen remarkable growth over the last decade. There is a wealth of literature on the use of technology in the tourist business. An analysis of word count conducted using the Nvivo software on 50 research papers on the use of technology in tourism reveals major themes and patterns that the literature revolves around the concept of the use of technology in tourism such as marketing, travel management, and other technological applications. The other identified topic is the significance and benefits ofIn the tourist business, technology delivers benefits such as ease of information dissemination. According to the report, a significant amount of research in this field was undertaken between 2008 and 2014. Table 2 summarises patterns gleaned from study publications.

Figure 2 shows a snapshot of the top 100 terms linked with technology and tourism research.

A review of the literature on the subject reveals the many dimensions of technology in tourism. Heart et al. discovered the absence of an integrated application suite for IT in the hospitality industry in Israeli hotels. According to the findings of the study, a more affordable way of acquiring information technology will aid in

IT's foundation will be expanded, allowing the sector to compete worldwide. Law and Jogaratnam provided a study of a survey undertaken to identify IT usage in Hong Kong hotels, concluding that hotels were adopting IT to improve customer service and operational effectiveness. However, there appeared to be a lack of expertise among hoteliers about the use of IT for the formulation of business plans. Shanker has conducted extensive research on the ramifications of ICT (Information and Communications Technology) in the tourism business. The benefits of ICT in the tourist business include faster information dissemination,

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shorter distances between nations, and more transparency. Hojeghan and Esfangareh investigated the effects of the digital economy on the tourist sector and emphasised the importance of Acceptance of technology in businesses such as airlines, hotels, auto rentals, tour and travel operators, and the resulting transformation in their business models According to the report, standards should be established for the effective adoption of digitalization in the sector. Jadhav and Mundhe reviewed tourism-related fields as well as different information technologies available to improve the tourist industry's present infrastructure.

Milovi emphasised the evolution of electronic customer relationships as a result of digitalization in the hospitality industry The research looked at the influence of websites, social media, and other electronic marketing activities on hotel promotion and company performance. Aramendia-Muneta and Ollo-Lopez investigated the influence of information and communication technology (ICT) on the productivity and competitiveness of a travel agency firm. The study showed that, while digitization has had less of an influence on competitiveness and productivity, it has transformed the market share of travel companies. Egger evaluated the opportunities, benefits, and constraints of near-field communications in the tourist business.

Table2:Trends identified from researchpapers on technology and tourism

Word	Count	Weightedpercentage	Paperscoveringtheword
Tourism	1,919	1.58	Atembe[82],BalasubramanianandSankar[83]
Technology	1,020	0.84	Caietal.[84],Egger[85]
Information	933	0.77	PhandeeandPornpatchara[86]andWerthnerandKlein[87]
Travel	683	0.56	Mamaghani[88]
Hotel	651	0.53	Jaremen[89]
Media	582	0.48	Hajli[90]
Mobile	451	0.37	AdeolaandEvans[91]andChangandJang[92]
Online	417	0.34	Farkhondehzadehetal.[93]
Hotels	415	0.34	Ayuso[94]

Source: Author' scompilation from several published literature.

Figure2:Trends in technology and tourism research (top100words).

Source: author's compilation from several publishedliterature.

The report recommended using consistent business models in conjunction with push and pull market strategies to facilitate technological diffusion in the sector. Leung et al. investigated

the function and use of social media in influencing visitors' and travellers' choices The research was an assessment of the literature on social media and its influence on consumers. The study emphasised the various viewpoints on social media usage among various stakeholders in the tourist sector. Mpiti investigated the possibilities of using ICT in agro-tourism for the development of the local community. The project aims to give farmers with various sorts of technology that are accessible and may be implemented into tourism, which will aid in their growth. Chang and Jang researched young people's use of mobile phones and literates to use smartphone booking services The study revealed that price level, relative advantage, and complexity all had a significant influence on smart-phone booking. Tsokota et al. investigated the present use and acceptance of information and communication technology in Zimbabwe's tourist sector. The research identified a lack of government policy, ICT laws, intermittent network supply, and organisational commitment as some of the barriers to technology adoption in the tourist business. The report recommended that a national plan be implemented to disseminate technology in the tourist sector. According to Bilghan and Nejad, the service sector has played an important role in the development of numerous industrialised economies. The study identified rising trends such as the notion of sharing economy because of digitization and innovation in the hotel sector The survey also reminds out that customers are increasingly seeking digitalisation. Jaremen spoke on the use of information and communication technology in the hospitality business, namely in the hotel industry. According to the survey, ICT is used in hotels to improve service quality. Furthermore, the capital required was discovered to be a significant impediment to integrating ICT in the hotel business. Atembe investigated the influence of wearable gadgets on the production of customer value.

In the tourist business, there is a high level of satisfaction. The study emphasised the issue of a lack of literature in the relevant field. The research offered an overall picture of theThe usefulness of wearables and their potential applications in tourism According to the study by Maráková and Medveová, a decrease in the number of tourists, length of stay, and sales has forced market players in Europe's tourism industry to innovate in terms of their products as well as the way they cater to their customers. The study finds that additional research on innovation in the tourist and hospitality industries is required. Furthermore, the rules should be created with a focus on medium- and small-scale firms in the tourist industry. Rajamohamed investigated the function and significance of ICT, as well as its influence on the tourist sector in particular. The study was carried out to ascertain how ICT affects the hotel sector andWhat are the managers' perspectives on the role of ICT in the tourist and hospitality industries? Wahab found that information and communication technologies aid in disseminating knowledge to a broader audience at a lower cost and in a shorter period of time. The increased volume of information to be shared with many stakeholders necessitates the use of ICT in the tourist business. Integration of ICT and tourism is critical for the growth of the tourism industry.

Alexis investigated the influence of digitization and automation in the tourist sector using a case study model. According to the report, instead of rejecting digitization, stakeholders should embrace it. This would assist to increase consumer satisfaction while also opening up future research opportunities in the field.

Dhingra investigated the influence of the digital revolution on the tourist sector through programmes such as Digital India and identified the benefits that digitization has offered to the business. Digitalization has altered the way people travel by giving benefits such as quicker payment services, more informed travel choices, and the development of new-age travel trends. Greenwood and Quinn investigated the impact of digital amnesia on future travellers. The study found that digitization has an impact on decision-making by visitors, the manner in which marketing messages are transmitted to them, and the manner in which the tourist experience might be memorised Härting et al. undertook an empirical research in Germany to determine the possible benefits of digitization for the tourist business. The survey also addressed how far the tourist sector has progressed in terms of digitization and how much more work need to be done. Using the structural equation modelling technique, the study also identified the main drivers of digitalization in the tourism industry. According to Kansakar et al., the hotel industry's embrace of ICT has transformed the way it provides services. The study indicated that there is a need for institutions delivering the services to update their technological backgrounds services to help them adapt to the industry's changing environment Matteo et al. investigated the influence of digital endowment and improving telecom infrastructure on Italian domestic tourist demand. According to the study, digital endowment has a good influence on domestic tourism inflow. Increased literacy and consumer income have a favourable effect on the domestic tourist business. Adeola and Evans investigated the effect of mobile phones and the Internet on tourist inflows to Africa. The study discovered a bidirectional causality relationship between Internet usage, squared Internet usage, and tourism, as well as a unidirectional causality relationship between mobile penetration and tourism and a bidirectional causality relationship between squared mobile penetration and tourism. Kumar and Kumar investigated the impact of ICT on tourism demand and concluded that destination income However; this has a short-term favourable influence on tourism demand. The study also showed that ICT has a causal influence on tourism demand. Khatri did a literature study of prior research on the role and value of technology in the hospitality business. According to the report, technology in the tourist business is mostly employed for information collecting and dissemination, developing innovation, and managing operations and processes. According to the report, the function of IT in creating customer value and building competitive advantage has yet to be investigated. Gonzalez et al. did a literature study on the usage ofThe use of information and communication technology (ICT) in the hotel business. The study suggested at a large potential for the use of ICT in hotels, as well as the scope of future research in this field. Brdar and Gaji identified differences in the degree and technique of use of IT by Serbian tourist agencies. The survey showed that, while businesses in Serbia employ IT in their operations, the degree of their skills and capacities varies greatly. Cai et al. did a study of the literature on the topic of tourism and technology use. The analysis identified a research vacuum in the existing literature and also indicated at potential research fields in the area.

3 Conclusion

Although there is literature on rural tourism, sustainable tourism, and sustainable rural tourism, it mostly focuses on the conception, importance, and significant impediments to its

growth. A significant conclusion that can be derived from the current research is that rural tourism offers numerous significant benefits that have the ability to alleviate several problems in the economy and tourist sector. There are issues with its development that have been well-documented in the literature, but the remedy is easily available. The literature, on the other hand, fails to reach key important findings. There are several gaps in the literature when it comes to developing strategic policies for rural tourist development. The literature is deafeningly silent on questions concerning the policy framework for rural tourism. First and foremost, the literature is deafeningly quiet onthe question of why a visitor would choose rural tourism. There is no discussion of the variables that would entice a visitor to visit a rural area. Second, the literature is mute on the fact that, while rural tourism has been on government programmes for a long time, it has failed to fulfil its full potential. The literature fails to provide a critique of the government of India's current rural initiatives tourism. Third, the literature does not examine the current situation of rural tourism in India, particularly in Himachal Pradesh, and fourth, the research does not highlight the negative effects of rural tourism for the state. The reason for choosing Himachal Pradesh as the state for rural tourism development is because rural areas cover 99.5 percent of the state's total land. Furthermore, according to the Himachal Pradesh government, the rural region accounts for around 90% of the state's overall population. Both of these factors bode well for the growth of rural tourism.

In addition, two conclusions may be derived immediately from the literature on tourism and technology:

(1) Technology has had a significant positive influence on the way tourism is performed in the modern day. Furthermore, it provides insight into how technology may one day alter the tourist business.

(2) Technology has offered several advantages to the tourist business.

Although there are certain disadvantages to using technology in tourism, the benefits far exceed the cons. As a result, the employment of technology in tourism is a positive move. Certain problems, however, must be answered, which cannot be done with the current literature. One such topic is whether technology in the tourist business can assist better achieving the goal of financial and social inclusion. Although the influence of technology on financial inclusion is recognised theoretically, the relationship between it with tourism and social inclusion as a whole must be explored. Also, the extent to which technology's influence on tourism remains beneficial must be addressed Third, in remote places with limited infrastructure and opportunities, Technical expertise, as well as how technology might be made more user-friendly in order to spread its usage, must be thoroughly examined.

In summary, the research identifies three significant opportunities for rural tourism through the use of technology. According to studies, the level of financial inclusion in Indian rural communities is low. The majority of the effort in this field has been done in developed areas, while the situation in less developed states is unacceptable. Furthermore, social inclusion is not a well-considered issue in Indian study. A significant issueThe problem is that policies promoting financial and social inclusiveness do not perform well in practise. Financial inclusion, together with social inclusion, must have the capacity to change a region's economic image. The preceding conclusion might be paraphrased as follows: Financial and social inclusion is critical for rural development. There is a lot of emphasis on the outcomes,

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such as opening a bank account, but less emphasis is placed on the procedures to reach those outcomes. Due to lesser criteria and restricted applications of these resources, rural individuals have fewer motives to register bank accounts and utilise financial services more frequently. The government should develop rules that allow them to sue financial resources more frequently freely, frequently, and conveniently similarly, social inclusion efforts are not working as well as they could.

Rural tourism has the potential to be a solution to the issues raised above. Financial convergence among rural populations might be accomplished by offering a way to apply financial resources, such as the acceptance of digital payments. Furthermore, by inviting society at large, there may be a reciprocal interchange of customs, knowledge, and traditions, which may aid in social inclusion more effectively than teaching about them in schools. So, bearing this in mindBased on the data, two basic issues may be posed, which the literature fails to address clearly. To begin, what is the greatest method to channel financial inclusion through the rural tourist industry? Second, which rural tourist product is most suited to fostering social inclusion? As a result, this study aims to provide the most effective strategies for tourism to promote financial inclusion, as well as the potential influence of rural tourism and its goods on social inclusion, therefore contributing to rural development. This study focuses on an intriguing observation. If developing patterns in several fields could be pooled and a study done, multiple desirable objectives may be met. The government's priorities include inclusion, financial and social sustainability, and rural development This researchdemonstrates that, while work is being done in this area, it is manufactured in nature. The government initiatives "Aj Purani Rahon Se," which promotes and develops cultural and historical tourism, and "Nai Rahein Nai Manzile," which explores the state's under-explored sites, have failed to produce the intended outcomes. To fully use the potential, there is a need to interact with efforts being made in many fields. Rural tourism has been identified as a potentially effective method for achieving the goal of financial and social inclusion in the literature. The key worry, however, is the policies and methods adopted for the growth of rural tourism. As a result, the ISM approach will be employed in tandem with other adaptable strategies to create a strategic crystal that will ensure the growth of the rural tourism industry Then there are the socioeconomic advantages of the rural tourist business. How successfully these benefits are extracted will determine how well the objective of financial and social inclusion is achieved. Rural development may be achieved through increasing inclusivity and cohesion in society, which will also have a favourable influence on the growth of the tourism industry. Nonetheless, sustainability is a major concern in the growth of rural tourism. Sustainability will determine how successfully all of the above-mentioned statements can be met. To ensure the long-term development of rural tourism, flexible solutions such as the ISM methodology should be used will be required. As can be seen, all of these sentences are linked in a circular loop. The completion of one goal will suffice to initiate the pursuit of another. When the second target is met, the influence of the first objective will be increased. This loop will enable the system to continue in the long term, as well as absorb difficulties that are not present in the present but might be troublesome in the future course of action.

4 Limitation of study

There are several drawbacks to the study as well. For the study, a small number of periodicals and research articles were chosen and referenced to. Furthermore, study is confined to investigating a few factors, including technology and sustainability. More regions may be traced and explored to discover its connection with other streams, revealing many aspects that deserve policymakers' and academics' attention. An detailed study may be conducted, documenting the many areas touched upon by researchers and the type of approach used to examine the specific target, paving the way for future research scope.

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Need for Reforms in Anti Defection Law –Critical Analysis of Indian Scenario

Dr. Amit M. Savadi
Asst.Professor, N.S.Soti Law College, Sangli, Maharashtra

Abstract-
Framers of our Constitution had contemplated the idea of " Service of the People" as the underlying principle of the Constitution. In this direction, political power should be used as a means to achieve the cherished ends of doing welfare of the people. But as its often said- Power corrupts and absolute power corrupts absolutely, tendency of considering political power as an end in itself had grown beyond proportion and no political party proved to be an exception to this. Defections and splits within parties were soon rampant to usurp power at any cost though it amounted to betrayal of faith of the voters. To reinstate this shaken faith, Anti- Defection Law was put in place vide 52nd Constitutional Amendment in the year 1985, however there are recent experiences which clarify that political parties have discovered means and devises which frustrate the noble objectives this law intended to achieve. Therefore now it is time to revisit the law in the light of contemporary developments and effect suitable amendments for reinstating the effective mechanism to curb this menace of defections.

Keywords-
Anti-defection**,** Law to regulate defections, Constitutional Morality

1. Introduction-

The tendency to usurp political power at any cost, epitomized by the example of Year 1967,when Haryana MLA Gaya Lal, who switched parties thrice within the same day, popularized the slogan- *"AAYA RAM, GAYA RAM'*, and betrayers got termed as "Defector" or "Fence Sitters" or "Turn Coats". Such efforts on part of political parties is nicknamed in India as " Horse- Trading" ,In U.K as "Floor Crossing" and in Nigeria as "Carpet Crossing." To curb the rampant Horse- Trading in 1985, Anti-Defection law was put into Indian Constitution, by inserting X th Schedule vide 52nd Amendment. Such an amendment was necessary[1] to combat the evil of political defections. Similar provisions exist in other countries as well. –

1. A member shall vacate his seat if he resigns from or votes against the directions given by his party. The dispute is referred by the Speaker to the Election Commission. [2]
2. A member who resigns from his party has to vacate his seat. The decision is by the Speaker, and the member may appeal to the High Court. [3]
3. A member must vacate his seat if he resigns, or is expelled from his party and Parliament

[1] The statement of objects and reasons -*"The evil of political defections has been a matter of national concern. If it is not combated, it is likely to undermine the very foundation of our democracy and the principles with sustain it."*
[2] Article 70 of the Bangladesh Constitution
[3] Section 40 of the Kenyan Constitution

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decides on any question relating to the disqualification of a member.[4]

4. A member loses membership of the Parliament if he ceases to be a member of the party that nominated him.[5]

It is now pertinent to examine whether the Anti-Defection Law in India has been effective in combating the menace of political defections in the wake of government formation process.

2. Salient Features of Anti-Defection Law in India-

Following are the salient features of Anti-Defection Law provisions-

[1] Grounds of disqualifications [6]-

1. If a member of a house belonging to a political party:
   a. Has voluntarily given up his membership of such political party, or
   b. Votes,or abstain from voting in such House, contrary to the direction of his political party.
   However, if the member has taken prior permission, or is condoned by the party within 15 days from such voting or abstention, the member shall not be disqualified.
2. If an independent candidate joins a political party after the election.
3. If a nominated member of a house joins any political party after the expiry of six months from the date when he becomes a member of the legislature.

[II] Exemption from disqualifications[7] i.e.:-

A member of the house shall not be disqualified where his original political party merges with another political party, and he and any other member of his political party have-

1. become members of other political party, or of a new political party formed by such merger
2. not accepted the merger and opted to function as a separate group.

An exception to the X th Schedule was thus carved out in paragraph 4, where a member of the house shall not be disqualified because the law allows a party to merge with or into another party provided that at least two-thirds of its legislators are in favor of the merger. Therefore, in such a case neither the members who decide to merge, nor the ones who stay with the original party will face disqualification.

The constitutional validity of rest of the provisions of Tenth Schedule was upheld by a majority judgment except Para 7 of the Tenth Schedule which barred the Jurisdiction of any Court in entertaining a decision against the final decision of Speaker. was struck down by the Supreme Court vide its landmark judgment in *Kihoto Hollohan vs. Zachillhu and Other*[8], thereby allowing judicial review of final decision of the Presiding Officer on grounds of-

1. Jurisdictional errors,
2. Violation of Constitutional Mandate,
3. Malafides,

[4] Article 46 of the Singapore Constitution
[5] Section 47 of the South African Constitution
[6] Rule 1 and 2
[7] Rule 4 and 5
[8] 1994 AIR 1558

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4. Non-Compliance with rules of Natural Justice,
5. Perversity.

In *Ravi S. Naik vs. Union of India,* Supreme Court held that the words '*Voluntarily gives up his membership'* have a wider connotation than *resignation*. A person may be said to do so even though he has not tendered his resignation from the membership of that party and an inference can be drawn from the conduct of a member that he has voluntarily given up his membership of a political party to which he belong like anti-party activities such as criticizing the party on the public forum. In *G.Vishanathan vs. Speaker Tamil Nadu Legislative Assembly, Madras and Another*[9], the Supreme Court held that "In view of the explanation to paragraph 2(1) of the Tenth Schedule, even if a member is thrown out or expelled from the party, for the purposes of the Tenth Schedule, he will not cease to be a member of the political party that had set him up as a candidate for the election. He will continue to belong to that political party even if he is treated as 'unattached'. However, if he joins another party he will be treated to have voluntarily given up his membership of the party by which he was set up as a candidate for the election.

The 91 st Constitutional amendment introduced Article 75 (1-B), 164 (1-B) and 361 (-B) in the Constitution of India for barring any person who is disqualified under the Tenth Schedule from being appointed as 'Minister' or from holding any 'Remunerative Political Post' from the date of disqualification till the date on which the term of his office would expire or if he re-elected to the legislation whichever is earlier. Interesting point of law which came to be tested in the Karnataka Assembly Case[10] was - **whether the Speaker has a power to disqualify members from contesting elections under the Xth Schedule**.? Justice N.V. Ramana answering this in *Shrimanth Balasaheb Patil case* [11]held that the X th Schedule doesn't specify the consequences of such disqualification. Article 191(2) dealing with disqualification either doesn't provide the period of disqualification or duration as such like the Tenth Schedule. Even the Representation of Peoples Act, 1951 doesn't deal with disqualification under the Tenth Schedule. Therefore, neither under the Constitution nor under the Statutory Scheme, a disqualification under the Tenth Schedule of Constitution would be a bar for contesting election nor Speaker doesn't have power to specify the period under the Tenth Schedule or bar from contesting elections after disqualification until the end of the term of the legislative assembly.

3. Loopholes in the Anti Defection law-

Scrutiny of provisions of Anti-Defection Law reveals that there are certain loopholes in the Anti-defection law which is needed to be overcome for systemic reforms.

(1) **Sweeping Powers to the Speaker who may not be able to adjudicate with neutrality**

As per Rule 6 of the schedule, the Speaker of the House or the Chairman has been given

[9] 1996 AIR 1060

[10] Operation Lotus Example (2018) in the state of Karnataka,- 'Operation Lotus' refers to mission of a political party BJP to come back to power and prove majority on the floor of house on the basis of reduced numbers after resignations of elected MLAs.

[11] *Shrimanth Balasaheb Patil vs Honble Speaker Karnataka* , (WRIT PETITION (CIVIL) NO. 992 OF 2019)

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wide and absolute powers to decide the case related to disqualification of the members on the grounds of defection. The Speaker / Chairman still being the member of the party which had nominated him/her may not be able to adjudicate with neutrality and objectivity. Two Speakers of the Lok Sabha, one being Mr. Rabi Ray in 1991 and another being Mr. Shivraj Patil in 1993 have themselves expressed doubts on their suitability to adjudicate upon the cases related to defections.

(2) **Bar on taking individual stand is violation of right to express dissent -**

Rule 2 puts the members of the party into a bracket of obedience in accordance with the rules and policies of the party , restricting the legislator's freedom to oppose the wrong acts of the party, bad policies, leaders and bills. A political party acts as a dictator for its members who are not allowed to dissent and therefore scholars have expressed concerns and expressed that this Act is death knell of Representative Democracy as it forces members to obey the high command.

(3) Inherent Problem with Merger provision -

Rule 4 of the Xth Schedule provide exception from disqualification of members in the cases relating to mergers and there is apparent loophole in the law. The provision safeguards the members of a political party where the original political party merges with another party subject if atleast two-third of the members of the legislature party concerned have agreed to such merger. It is irrational for the reason that the exception is based on the number of members rather than the rationale behind the defection. If defection by an individual member is not acceptable, it is irrational to conclude that the same would be valid in case of mergers only because a large number of people are involved.

4. Means devised by Political Parties for exploiting the shortcomings of Anti-defection Law- Operation Lotus[12] example of Karnataka[13]-

After legislative assembly elections to Karnataka State Legislative Assembly, the single largest party BJP had 105 MLAs but was falling short of 08 members to prove majority in the house of total 224. The other two opposition parties i.e. Congress and JD(S) got to power though they were not pre-poll allies. BJP, in order to regain the political power, devised the strategy (popularly described as the "Operation Lotus") and brought down the number of the house to 208 after being successful in promoting "resignations" of total 16 MLAs of opposition parties. 16 members defecting to BJP was not going to help because of the existing provisions of Anti-Defection Law. Strategy therefore was devised to give a way around to the provisions of Anti-defection law and the " Resignations" which are outside the preview of Anti-Defection Law were used to bring down the total strength of the house to 208, also bring down the number to prove the majority i.e. 105 (available with the BJP) in the floor test , which it did successfully and regained the political power without apperent violations of any provision of Anti-Defection Law.

[12] Supra Note 10

[13] Karnataka is a State in the Republic of India

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5. Conclusions and Suggestions for Reforms-

On the basis of foregoing discussion made, following conclusions may be drawn and suggestions may be given for systemic reforms-

1. Though there is a law to regulate defections within the party, it is proving ineffective as political parties have devised means like " Resignations " to give a go bye to the provisions of Anti-Defection Law provisions.
2. The power of the political party with regard to issuing of whip should be regulated because it amounts to abrogation of right to express dissent. Only when the members vote against the party manifesto, they should be subjected to disqualifications and not to be subjected to any disqualifications in case of their other expressions against their party. Such an amendment may ensure members to have individual expression on various issues of national and Constitutional importance..
3. The law must be suitably amended to regulate the " Resignations " by members in the wake of government formation process, otherwise it may be possible for political parties to achieve the same result of getting to position of political power without apparently violating the provisions of Anti-defection law (like in Operation Lotus example)
4. For ensuring meaningful democracy, the provision relating to "mergers" which gives exemption on the basis of " numbers " should be amended suitably to give exemption on the basis of " Rationale behind defection. "

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Comparative Analysis of Clustering Methods

Ms. Harpreet Kaur[1], Prof.(Dr.) R.K.Bathla[2]
[1]Ph.D Research Scholar in Computer Science & Applications
Desh Bhagat University
harpreet.hcl@gmail.com
[2]Department of Computer Science & Applications
Desh Bhagat University
Prof.bathla@gmail.com

Abstract

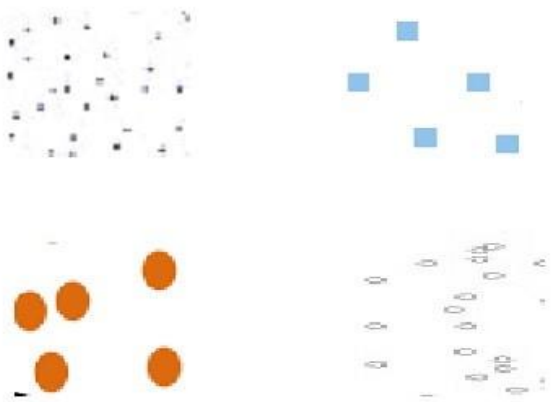
Cluster analysis is very useful term in various scientific researches, which play very significant role in machine learning, pattern recognition, bioinformatics, information retrieval and computer graphic. Today many Techniques and algorithms are used for the cluster analysis. But each clustering algorithm has its own pros and cons, due to huge volume and the complexity of information. This paper describes various clustering methods used in clustering analysis .Various clustering algorithms are also analyzed and discussed.

Keywords

Clustering, Clustering analysis, Clustering Methods, Clustering algorithm.

1. INTRODUCTION

Clustering is the Technique of grouping a set of objects which has similar properties to each other and other groups or clusters have different. It may be possible that a cluster contains the objects which have similarity between them and the objects belonging to other clusters have dissimilar. Today clustering analysis used in many fields like machine learning, pattern recognition, bioinformatics, information retrieval etc. Cluster analysis has two major advantages when the volume of database very high, first is fault tolerance and second load balancing.



Different types of Cluster

Fig. 1

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2. CLUSTERING METHODS

Different Categories of Clustering:

1. Partitioning Method-In This method suppose we have 'n' number of database objects. Let assume the 'k' partition of data formulates by this method. Each partition will entitle a cluster and denoted by $k \leq n$.

It means that there will k groups or partition of data and also satisfies the necessary conditions that each group or partition contains at least one object. Other condition is that each object must belong to exactly one group.

In this method first initial partitioning will generate and then other technique like iterative relocation implemented to enhanced the partitioning approach which is done by relocate objects from one cluster to other.

2. Hierarchical Method- This method generates a hierarchical subdivision of the given set of data objects. But in this approach, there should be need to perform careful analysis of object linkages at each hierarchical partitioning. There are two hierarchical decomposition approaches are formed as following:

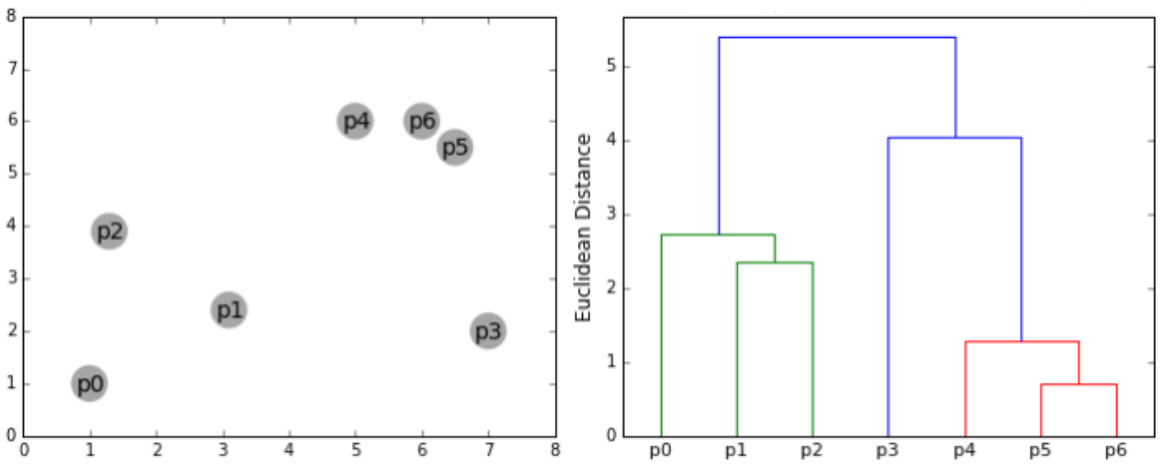

Fig. 2. Hierarchical Clustering Dandrogram [19]

2.1Agglomerative Approach

This approach is also known as the bottom-up approach. In this approach in the starting each object forms a separate group. It keeps on merging the objects or groups that are close to one another. It keeps on doing so until all of the groups are merged into one or until the termination condition holds.

In this approach for creating group objects into micro-clusters, first implement hierarchical agglomerative algorithm, and then for the better performance macro-clustering technique implements on these micro-clusters.

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```
Set of objects A= {a1,a2.....an}
Distance Function dist(d1,d2)
for  i=1 to n
di={ai}
end for
D={d1,d2.....dn}
K=n+1
While D.size>1 do
(dmin1,dmin2)=minimum dist(di,dj) for all di,dj in D
Remove dmin1 and dmin2 from D
add{ dmin1,dmin2} to D
K=K+1
end while
```

2.2Divisive Approach

This approach is opposite to agglomerative approach and also known as the top-down approach. In this approach beginning with all of the objects in the same cluster and continuous iteration till the cluster is subdivide into stub of clusters. This process remains continue until each object in one cluster or the termination condition holds. This method is rigid because once the integration or subdivision is done; it can never go to its previous stage.

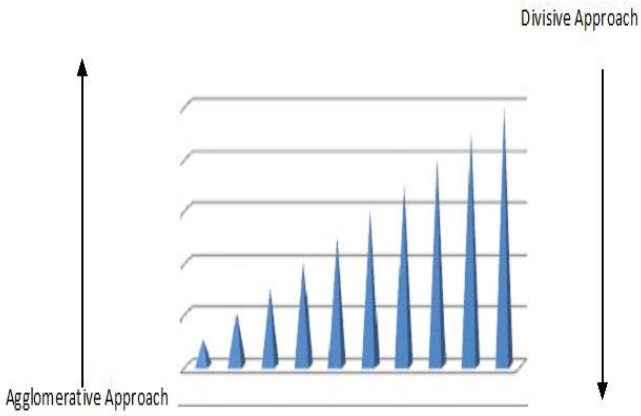

Fig. 3. Hierarchical Method (Divisive Approach)

3. Density-based Method

This method is based on the concept of density and the main idea is to continue producing the given cluster as long as the density in the region beyond some extent. For each data object within a given cluster, the radius of a given cluster has to include at least a minimum number of objects. This approach makes clusters of objects that are closely packed, indicating the outlier's objects that lie separate in low-density areas. In DBSCAN clustering algorithm which is one of the most common algorithm include the three types of objects like core, density-reachable and outliers, describes as follows:

1. Object *a* is a core object if at least minPts points are within distance ε (ε is the maximum radius of the locale from *a* also including *a*). These objects are known as directly reachable from *a*.

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2. Object b is reachable from a if there is a path $a_1,\ldots a_n$ with $a_1 = a$ and $a_n = b$, where each a_{i+1} is directly reachable from a_i (all the objects on the path must be core objects).
3. All objects which are not reachable from any other objects are outliers.

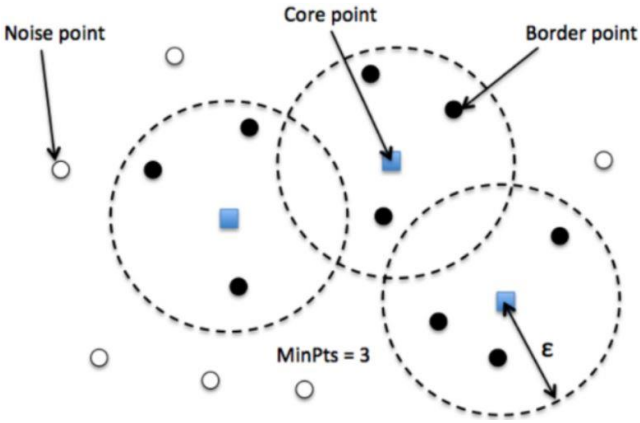

Fig 4 DBSCAN [14]

a is a core object and it forms a cluster by combining all other objects that are reachable from it. Each cluster contains at least one core object, may be non-core objects also, but they act as outside boundary and cannot be used to combine more objects. Because cluster follows the concept of mutually density-connection. Density-reachable object is part of cluster.

4. Grid-Based Method- In this approach, the objects collectively form a grid and the object space is quantized into fix number of cells to produce a grid structure. Its processing time is very fast. Grid based method is dependent only on the number of cells in each dimension in the quantized space. Most clustering algorithms computational complexity is least linearly proportional to the size of the data objects. But it is good aspect of grid-based clustering is that it reduces the computational complexity for very large data set objects. This approach is different from other methods because it deals with data objects as well as the value space the neighboring the data objects. Grid based clustering divide the data space into fix number of cells also calculate the cell density. After that sorting the cells by their densities. In the next step discover the cluster centers and traversal of neighbor cell includes.

5. Model-Based Method- In this method, a model is surmised for each cluster to find the best fit of data for a given model. This method finds out the clusters by clustering the density function. It displays spatial distribution of the data objects. This method uses standard statistics to facilitate a way to automatically determine the number of clusters, taking outlier or noise into account. Model based method is robust clustering approach.

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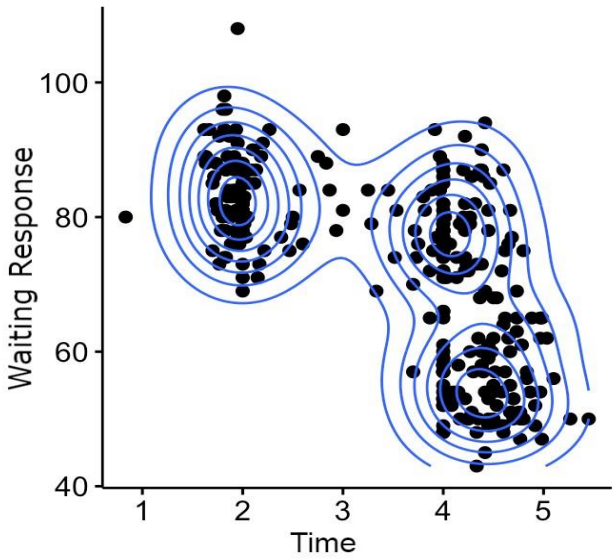

Fig 5 Homogeneous Covariance Matrices [17]

6. Constraint-based Method- In this method, the clustering is performed by applying user or application-oriented constraints. The purpose of a constraint contains user expectation or the properties to produce desired clustering results. Constraints are an interactive way of communication with the various clustering process.

Constraints can be implemented by the user or as per as the application need. It is categorize into a class of semi-supervised learning algorithms. Cannot-link constraint is used to find clusters in a data set which fulfill the specified must-link and cannot-link constraints will terminate if no such clustering exists.

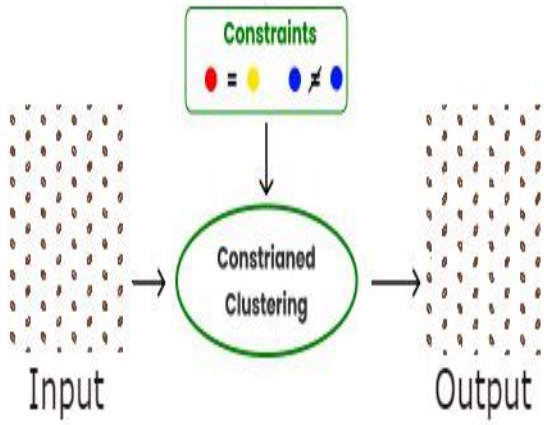

Fig 6 Domain Knowledge for Constraint [18]

3. Conclusion

Clustering methods are used in several fields including machine learning, statistics, pattern recognition, artificial intelligence, and database systems, for the analysis of large volumes of data due to rapid growth in information. There have been a large number of clustering methods are used for different cluster analysis tasks. I hope this paper can create interest to more researches in cluster analysis and their issues because there are a number of problems

are still remaining.

Table 1

Fig. 1	Different types of Cluster
Fig. 2	. Hierarchical Clustering Dandrogram [19]
Fig.3	Hierarchical Method
Fig. 4	DBSCAN [14]
Fig.5	Homogeneous Covariance Matrices [17]
Fig.6	Domain Knowledge for Constraint [18]

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About Author

Ms. Harpreet Kaur is Working as Asstt. Professor in GNKCW, Gujarkhan campus, Model Town, Ludhiana. She is Pursuing Ph.D in Computer Science & Applications from Desh Bhagat University, Punjab. She has Worked as Asstt. Professor in Arya College, Ludhiana.She has also Worked as faculty in GNIMT (Model Town), Ludhiana. She has More than ten year experience of performing duties as external examiner for practical projects/Viva voce in other colleges, Many times appointed as supervisory staff by P.U. Chandigarh during final examination. She is Acting as Academic In charge in GNIMT (Model Town), Ludhiana. She received course completion certificate on the topic "Succeeding in Web Development: Full Stack and Front End" on January 03, 2022 from Linkedin Learning. Moreover NPTEL Online certification is awarded for successfully completing 4 week course "Designing Learner-Centric MOOCs "(Jan-Feb 2021), Funded by ministry of HRD, Govt. of India. Certificate awarded by online course on May 25,2020 by UDEMY for successfully completed 5.5 total hours of "Master clustering Analysis for Data Science using Python.

Prof.(Dr.) R. K. Bathla is working as a Professor in Computer Science Department at Desh Bhagat University, Mandi Gobindgarh, Punjab, India. He is also Pursing D.Sc in Computer Science & Applications (Post Doctoral Fellow) from Desh Bhagat University, Punjab. He has 21 years experience in the field of Computer Science/Information Technology. He has published over 100 Research papers in SCI, Scopus, Springer and IEEE. He has 40 Patents Published and Granted in his name at National and International level. He has been guiding 08 Ph.D. scholars in his supervision, 06 have been awarded degree. In over 50s International journals, he is in editorial board or working as reviewer. He has been awarded India Top 100 Best Researcher Winner 2022 by India Prime Award and Awarded Cash Prize and appreciation certificate for Best Research paper from Hon'ble Chancellor of Desh Bhagat University, Punjab on the occasion of 05th Sep 2022.