



ROLE OF MARKETING STRATEGIES IN BUSINESS DEVELOPMENT

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Abstract:

Marketing strategy is a construct that lies at the conceptual heart of the field of strategic marketing and is central to the practice of marketing. It is also the area within which many of the most pressing current challenges identified by marketers and CMOs arise. We develop a new conceptualization of the domain and sub-domains of marketing strategy and use this lens to assess the current state of marketing however, we also uncover numerous opportunities for developing important and highly relevant new marketing strategy knowledge—the number and importance of unanswered marketing strategy questions and opportunities to impact practice has arguably never been greater. To guide such research, we develop a new research agenda that provides opportunities for researchers to develop new theory, establish clear relevance, and contribute to improving practice.

Keywords: Marketing, Research, Marketing mix, Investors, Strategy, Effect, Price.

Introduction:

A significant and essential component of the worldwide market is a company's marketing strategy [1]. From nation to nation, brand to brand, and company to company, marketing methods might differ. The marketing department within a company must keep in mind all of the various marketing mix strategies that can affect the overall result and the cumulative firm success in order to achieve a satisfactory and adequate marketing strategy that has a positive impact on global and overall firm success. Companies might alter the current marketing mix or utilise a conventional marketing mix when introducing a product into international markets in order to meet the needs of the nation in which they are conducting business. It is tricky and maybe influenced by other variables how standardization/adaptation and business performance are related. Though applying and building accurate marketing strategy that will effect organization reputation where we live in a dynamic environment and strong competition organizations straggle to keep clear, good, and positive reputation focusing in small and middle size organization.

Marketing Strategies:

The marketing mix strategy [2] is one of main concepts of marketing theory, business environment live in dynamic and changeable circumstances where it will effect organization situation in a positive or negative way. Through building an right marketing strategy by applying fit product, price, promotion, and place strategy to the right target market and through forecasting or studying the surrounding environment to gain competitive advantage over competitors. In our study



BUSINESS PLANS: WHAT YOU NEED TO KNOW

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Abstract:

The business plan is the result of a process of strategic planning or thinking. Lenders, potential investors, and colleagues inside your firm can then be informed of the strategic direction produced during that process in the form of a business plan. A crucial stage for your business is creating a strategic direction. It enables your company to make the most of the skills and knowledge of its management team, employees, and advisers to create a strategic direction for the firm that will give it the best chance of success. You have the chance to put your advisory team to use in this situation.

Keywords: Business Plan, Entrepreneur, Planning, Investors.

Introduction:

A business plan [1] is any straightforward strategy, not just the one for starting a corporation, that aids management in comprehending the existing state of the company (strengths, weaknesses, opportunities, and threats) and planning for the future. A startup plan is a business plan that includes the goal, vision, objectives, and action plans for the future of new companies. In contrast, a business plan created while a company is already operating is essential for managing the company successfully and securing new clients, partners, loans, and other types of funding.

According to Fiore (2005, 10) business plan is two things; an organizing tool to simplify and clarify your business goals and strategy, the second one is a selling document that sells a business idea and demonstrates that a product or service can make a profit and attract funding and company resources. By creating this business plan, a tycoon will have a better outlook of the business whether it could be profitable in Finland, and what steps need to be taken in order to make it profitable.

A business plan is a written summary of an entrepreneur's planned business scheme, its financial and effective details, its promotion opportunities, and strategy, and its leaders' skills and skills. Generating a business plan is important because an entrepreneur needs to a well-conceived exactly created business plan in order to increase the possibility of achievement.

According to Thomas Zimmerer and Scrabourough some common business plan details that can be upgraded when needed, as a title page and table of contents, managerial summary, company history, trade and industry profile, business policy, description of company's product or service,



CLOUD COMPUTING SERVICES

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Abstract:

Cloud computing is a computing model of providing IT resources, such as application, infrastructure, and platform in the form of service by using Internet. Cloud Computing provides infrastructure for computing and processing of all types of data resources and adopted to deal with the large amounts of data. This Internet based current technology has brought flexibility, capacity and power of processing. This technology has recognized service- oriented idea and has formed a new system in the computing world with its influence and benefits. The capabilities of Cloud computing have been able to move IT industry one step forward. Nowadays, huge and prominent enterprises have migrated to cloud computing and have relocated their processing and storage to it. In this paper, we provide an overall perception on cloud computing and draw attention to its services.

Keywords: Cloud Computing, Services, and Cloud providers.

Introduction:

The idea of cloud computing is not new; it was first implemented as a large-scale distributed computing system. Cloud computing, on the other hand, will be the quickly advancing revolution in the field of computer science and information technology that show the development trend in the IT sector is moving away from hardware and towards software, services, and centralized services. Another emerging trend in commercial computing is virtualization, or cloud computing. The idea of cloud computing is not new; it was first implemented as a large-scale distributed computing system. Cloud computing, on the other hand, will be the quickly advancing revolution in the field of computer science and information technology. That show the development trend in the IT sector is moving away from hardware and towards software, services, and centralized services. Another emerging trend in commercial computing is virtualization, or cloud computing.

Controversies in Cloud Computing Research:

Research on cloud computing highlights the difficulties in addressing the needs of the upcoming private, public, and hybrid cloud computing architectures, as well as the difficulties in enabling applications and development platforms to benefit from cloud computing. The study of cloud computing is still in its infancy. While many current problems remain unresolved, new difficulties



CHANCES AS WELL AS OBSTACLES IN INDIAN DIGITAL BANKING

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Abstract:

Due to the fact that it is the most affordable way to provide financial services, e-banking plays a crucial role. In addition, it aided in the quick transfer of money both within and across countries. Since it has no borders, its clients can conduct banking transactions whenever, whenever, and however they choose. One of the most lucrative online enterprises that help consumers and businesses save time and money is e-banking. Due to the fact that net banking is the most affordable method of delivering financial services, it is now more of a norm than an exception in many developed countries.

Keywords: E-banking, Opportunities, Challenges.

Introduction:

The term "e-banking," often referred to as "online banking," "virtual banking," or "internet banking," refers to a system that uses the internet to enable banking transactions remotely. It is one of the ad hoc services that financial institutions offer in addition to standard banking. E-banking services are divided into various categories or industries. Internet banking, SMS banking, ATMs, mobile banking, e-cheques, and debit/credit cards are the main services provided [1].

Electronic funds transmission can be used to:

- Request a direct deposit of your paycheck into your bank or credit union checking account.
- You can withdraw money whenever it's convenient, day or night, from an ATM using your personal identification number (PIN).
- Request that your bank or credit union set up automatic withdrawals from your accounts to pay specific monthly expenses, such as your mortgage or auto loan [2].

Benefits and possibilities of electronic financial services

A consumer can save a lot of time and money by using e-banking services. Additionally, these services increase the effectiveness of customer relationship management (CRM). From the perspective of bank customers, the key advantages are as follows:

- **Lower prices** – Accessing and using banking services are now less expensive.
- **Greater convenience and time savings** – transactions can be completed without a



AN ANALYSIS OF DIGITAL MARKETING

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Abstract:

Marketing professionals utilize digital marketing as a means of electronic communication to promote their products and services to potential customers. Digital marketing is the practice of using electronic media to advertise products and drive sales. Digital marketing can provide value in the forms of consumer time, attention, and advocacy. Utilizing the advantages and difficulties provided by the digital media, digital marketing techniques build upon and adapt the ideas of traditional marketing. The primary emphasis of this paper is on the conceptualization of digital marketing as well as how it helps contemporary enterprises.

Keywords: Media, Search Engines, Marketing.

Introduction:

All marketing initiatives that make use of technology or the internet fall under the category of digital marketing. To engage with present and potential customers, businesses use digital channels including search engines, social media, email, and their websites. 'Online marketing,' 'internet marketing,' or 'web marketing' are other terms for this. Utilizing a variety of digital strategies and platforms to connect with customers online, where they spend a significant amount of time is the definition of digital marketing. A wide range of strategies fall under the category of "digital marketing," including websites, email marketing, online brochures, and other online branding assets for businesses [1].

Digital marketing is created using a number of different factors. Electronic equipment is used to run all types. Below are some of the key components of digital marketing:

(i) Online Advertising: Online advertising is a very important part of digital marketing. It is also called internet advertising through which company can deliver the message about the products or services. Internet-based advertising provides the content and ads that best matches to consumer interests. Publishers put about their products or services on their websites so that consumers or users get free information. Advertisers should place more effective and relevant ads online. Through online advertising, company well controls its budget and it has full control on time.

(ii) Email Marketing: Email marketing is the practice of communicating with current or potential customers via email about products or services. Direct digital marketing is used to send adverts, create brand recognition, and cultivate brand and customer loyalty. Using this aspect of digital



MODERN MOBILE PHONES AND THEIR APPLICATIONS

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Abstract:

Mobile is an invention that fully changes the communication process. Instead of being tied to a landline phone, now we use smart phone for communication even during travelling through text messages, mails and video conferencing. A majority of people in the developed society have their own mobile phone. Mobile phones have some advantages as well as some disadvantages depend on the user and the usage. It is highly portable and affordable device that everyone can use this in daily life. If it is used in the right way like online shopping, education, GPRS tracking, mobile banking, office documentation, weather forecasting, for necessary communication, entertainment etc., then it is the blessing otherwise unnecessary excess use of mobile leads to several diseases, time wastage, social disruptive, loss of privacy, money wastage, addiction of games etc. and act as a curse. Advance technologies like block chain technology, neural networks, artificial intelligence, machine learning, data synchronization and 5G wireless technologies make this device as the most useful electronic device.

Keywords: Mobile, Technology, Machine Learning, Database Synchronization.

Introduction:

In the present technical era mobile phone is the most commonly used electronic gadgets. This has become important part of our education and personal lives. In these days from a child to an adult everyone uses the mobile phone. In the earlier days mobiles are used only for the purpose of calling, but now our lives totally revolve around the mobile. Mobiles are not presently used for communication like a voice call, video call, message and mails, but also used for surfing the internet, listening music, playing games, managing official documents, photo clicks, video recording and many more activities. At present our mobile phone is not only the phone, it is Smartphone. It acts like a computer and sometime its performance is better and faster than computer. The latest technologies like artificial Intelligence, Mobile phone banking, machine learning, cloud computing etc. bring revolution in the applications of mobile phone [5].

Purpose of the Review:

In the 21st century, technology and trends in mobile phones are updating very fast. It is the emerging technology that allows the users to access services and information electronically. The main objective of this topic is to highlight the new technologies like artificial intelligence, cloud



REVIEW ON THE LATEST MOBILE PHONE TECHNOLOGY AND TRENDS

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Abstract:

The mobile technology had exponentially extended its support for the past century with interactive user interface, investment, technology development and still in vigour. Internet Connectivity and regular Operating System update makes use of the latest trends in mobile technology to outstand among other technologies. Improvement in signal reception at remote areas, real time connectivity among business people, file sharing at any time, GPS, entertainment etc. all these make mobile technology advancement an important for today's business.

Keywords: Mobile Phone, Technology, Artificial intelligence, Security.

Introduction:

The whole world [1] is accepting and adopting the ways towards the advancement of technology. The youth is playing a vital role in this rapid pace. The mobile phone had been in existence for about a decade before young people really adopted this technology. More than just the latest electronic gadget, mobile phone has become integral parts of our education and personal lives. Global advances in mobile technology, smart phones have become a regular personal electronic device in daily life. The mobile devices and their supporting software applications promise of on-the-go information-seeking convenience are now backed by more robust industry infrastructure, sophisticated built input devices, and hundreds of thousands of downloadable applications.

Background:

Smartphone applications [3] for mental illnesses offer great potential, although the actual research base is still limited. Major depressive disorder and bipolar disorder are both common psychiatric illness for which smartphone application research has greatly expanded in the last two years. We review the literature on smartphone applications for major depressive and bipolar disorders in order to better understand the evidence base for their use, current research opportunities, and future clinical trends.

1. Artificial intelligence (AI):

In Today's world Machine Learning (ML) is the most powerful technology. It is an application of artificial Intelligence (AI) that focuses on the development of programs and can access data and use this data to learn it. It provides the ability for the system to learn automatically and improve the system from experience without being explicitly programmed [8]. Artificial intelligence [5] has penetrated our mobile world. While that day has yet to come, we are seeing advancements in



Exploring the Impact of RISC-V Architecture on Modern Computing Systems

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Abstract:

The RISC-V (Reduced Instruction Set Computer - Five) architecture has emerged as a disruptive force in the realm of computer architecture, offering an open and extensible instruction set architecture (ISA) for processors. This abstract explores the impact of RISC-V architecture on modern computing systems, delving into its advantages, challenges, and potential implications. The subsequent focuses on the advantages that arise from the adoption of RISC-V in modern computing systems. It explores the open nature of RISC-V, which fosters innovation, facilitates customization, and encourages collaboration among hardware and software developers. The modularity of RISC-V is also discussed, demonstrating how it enables rapid prototyping and simplifies system-on-chip (SoC) integration. In addition, the challenges associated with embracing RISC-V architecture are addressed. Considerations regarding software ecosystem maturity, toolchain support, and compatibility with existing legacy systems are explored. Hardware design implications are also examined, including performance optimization, memory management, and interconnectivity within RISC-V-based systems. It examines its relevance in embedded systems, Internet of Things (IoT) devices, edge computing, high-performance computing (HPC), and artificial intelligence (AI) accelerators.

Keywords:

RISC-V, Architecture, Modern computing systems, Open architecture, Instruction Set Architecture (ISA), Internet of Things (IoT), High-performance computing (HPC), Artificial intelligence (AI) accelerators

Introduction:

The field of computer architecture is constantly evolving, driven by the quest for improved performance, energy efficiency, and flexibility in computing systems. In recent years, the emergence of the RISC-V (Reduced Instruction Set Computer - Five) architecture has garnered significant attention and sparked a paradigm shift in the world of computer architecture. RISC-V offers an open and extensible instruction set architecture (ISA) that challenges traditional closed architectures and provides new opportunities for innovation and collaboration [1]. RISC-V architecture, with its roots in academia and research, aims to address the limitations and complexities associated with existing architectures such as x86 and ARM. Its fundamental principles of simplicity, modularity, and scalability have gained traction among hardware and software developers, as well as industry players seeking greater freedom and customization in their computing systems. One of the distinguishing features of RISC-V is its open nature. Unlike proprietary architectures, RISC-V is freely available and allows anyone to access and modify its



Concepts and Contributions of Edge Computing in Internet of Things (IoT): A Survey

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Abstract:

In recent years, the Edge computing paradigm has gained considerable popularity in academic and industrial circles. It serves as a key enabler for many future technologies like 5G, Internet of Things (IoT), augmented reality and vehicle-to-vehicle communications by connecting cloud computing facilities and services to the end users. The Edge computing paradigm provides low latency, mobility, and location awareness support to delay-sensitive applications. Significant research has been carried out in the area of Edge computing, which is reviewed in terms of latest developments such as Mobile Edge Computing, Cloudlet, and Fog computing, resulting in providing researchers with more insight into the existing solutions and future applications. This article is meant to serve as a comprehensive survey of recent advancements in Edge computing highlighting the core applications. It also discusses the importance of Edge computing in real life scenarios where response time constitutes the fundamental requirement for many applications. This review paper concludes concepts of Edge Computing, benefits of Edge Computing, connection between cloud computing and edge computing and their differences.

Keywords:

Edge Computing, Cloud Computing, Technology, IOT (Internet of Things)

Introduction:

The notion of network-based computing dates to the 1960s, but many believe the first use of “cloud computing” in its modern context occurred on August 9, 2006, when then Google CEO Eric Schmidt introduced the term to an industry conference. It enabled information to be stored and processed on remote servers, which meant our devices could offer services beyond their technical capabilities. Using the cloud, a device with only a few gigabytes of memory can effectively host an infinite amount of data. As time has gone by, though, the cloud has started to impede certain technologies, especially IoT. The scope of IOT (Internet of Things) is so vast that cloud computing alone cannot be a means of data processing. The data sent by IOT over a Wi-Fi or cellular network can slow down the entire network. Without the access to the central cloud IOT devices are useless because of the devices not having an internet connection. This is where edge computing comes in.



A Brief Review on Game Theory

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Abstract:

Game theory is the formal study of decision-making where several players must make choices that potentially affect the interests of the other players. Game theory is used to study many phenomena and behavioral patterns in human societies and socioeconomic systems, such as the emergence of and means of sustaining cooperation in communities and organizations, modeling of unethical or criminal behavior, or the decision-making processes involved in vaccination against epidemics. The structure of the game is often assumed to be common knowledge among the players. Game theory is commonly used in economics, psychology, biology, and political science. Its Application is majorly in studies of competitive scenes. As such, the stated problems are referred to as games while the participants are referred to as the players. The applications of game theory are also being used widely in deciding upon the pricing strategies of both consumers and retailers. Retailers compete against each other to gain market share of customers and for this, they opt for different games or strategies, like offering attractive discounts on specific goods in order to increase sales of complementary products.

Keywords:

Game theory, Player, strategies, Extensive form, Usage

1. Introduction:

The earliest example of a formal game-theoretic analysis is the study of a duopoly by Antoine Cournot in 1838. The mathematician Emile Borel suggested a formal theory of games in 1921, which was furthered by the mathematician John von Neumann in 1928 in a “theory of parlor games.” In 1950, John Nash demonstrated that finite games have always had an equilibrium point, at which all players choose actions which are best for them given their opponents’ choices. This central concept of non cooperative game theory has been a focal point of analysis since then. In the 1950s and 1960s, game theory was broadened theoretically and applied to problems of war and politics. Since the 1970s, it has driven a revolution in economic theory. Additionally, it has found applications in sociology and psychology, and established links with evolution and biology. Game theory received special attention in 1994 with the awarding of the Nobel Prize in economics to Nash, John Harsanyi, and Reinhard Selten.



Applications of Vibration Control Techniques in Mechanical Engineering

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Abstract:

Vibration control is a critical aspect of mechanical engineering, encompassing various techniques and strategies aimed at mitigating detrimental vibrations in machinery and structures. It explores the applications of vibration control techniques in mechanical engineering, highlighting the significance of efficient vibration management in enhancing performance, durability, and safety. Passive vibration control techniques are then presented, focusing on damping and isolation methods. Damping techniques encompass viscous damping and viscoelastic materials, while isolation techniques involve the use of vibration isolators and absorbers. Real-world examples and case studies illustrate the practical application of these passive techniques. Active vibration control techniques are explored as a more advanced approach. Active damping techniques, including active vibration absorbers and magnetorheological dampers, are discussed along with active isolation techniques utilizing electromagnetic actuators and vibration isolators. It delves into specific applications of vibration control in mechanical engineering, including rotating machinery such as motors, engines, and turbines. It also encompasses aerospace and automotive applications, as well as vibration control in civil engineering structures like buildings and bridges. The role of vibration control in optimizing manufacturing processes is also highlighted.

Keywords:

Mechanical vibration control, Vibration mitigation, Passive vibration control, Active vibration control

Introduction:

Mechanical vibration control is a vital aspect of engineering that focuses on the management and mitigation of vibrations in machinery and structures. Vibration, characterized by oscillatory motion, can have detrimental effects on the performance, durability, and safety of mechanical systems. Therefore, the application of effective vibration control techniques plays a crucial role in ensuring optimal operation and preventing structural damage. Understanding the fundamental concepts of mechanical vibration is essential to grasp the significance of vibration control. Vibration can arise from various sources, including external forces, unbalance, and resonance. External forces such as impacts or excitations from adjacent equipment can induce vibrations in a system. Unbalance, which occurs when the center of mass and the center of rotation do not align, can lead to excessive vibrations. Resonance, another significant factor, occurs when the excitation frequency matches the natural frequency of the system, resulting in amplified vibrations. Vibration control techniques can be broadly classified into passive and active methods. Passive vibration control focuses on reducing vibrations through damping and isolation techniques [1]. Damping techniques dissipate energy and reduce vibrations by employing materials with high damping properties, such as viscous damping or



A Review on Electric Vehicles: Opportunities and Challenges

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Abstract:

The need for renewable and environmentally friendly products has grown over time as a result of the overuse and contamination of natural resources. The electric vehicle is one of these products. Petroleum-based vehicles are being replaced by electric ones. They are a new technology that is also practical and environmentally friendly. Electric engines will be cost-effective for consumers and significantly cut pollution when internal combustion engines are replaced. This technique has been adopted by numerous nations all around the world and it is helping to improve the environment. This study will provide information on the opportunities and difficulties India has encountered in introducing electric vehicles. The popularity of electric vehicles (EVs) is growing for a number of reasons, including price reductions and increased environmental and climate consciousness. The advancements of EVs in terms of battery technology trends, charging techniques, as well as fresh research difficulties and untapped prospects, are reviewed in this study. More particularly, an examination of the current state of the EV market globally and its prospects is conducted. The battery is one of the key components of electric vehicles (EVs), hence the article provides an in-depth analysis of all available battery technologies, from lead-acid batteries through lithium ion. Additionally, this study reviews the various standards for EV charging as well as recommendations for power control and battery energy management.

Keywords:

Electric Vehicle, Engine, Pollution, Environment, Air.

Introduction:

India is one of the top ten automobile markets in the world today, with a middle class population that is rapidly growing, has the potential to purchase goods, and is experiencing consistent economic expansion. But over the past two years, the price of petrol has risen by more than 50%. In India, there may be a need for alternative automotive technologies like electric vehicles (EV). Although the initial expenditure is around 1.5 times greater than that of a normal IC engine, the time has come when environmental costs are now more important than vehicle costs. It explains the factors that contributed to the rapid growth of the electric vehicle and why it is necessary in the modern world. The most crucial components of an electric and hybrid car are described in the paper. It contrasts internal combustion engines, hybrids, and electric vehicles. The future of electric vehicles is also covered. The public ultimately gain from the total effect of the electric vehicle. Electric vehicles are thought to be 97% cleaner than gasoline-powered vehicles because they don't emit any particulate matter into the air through their tailpipes. Particulate matter, which gas-powered vehicles spew into the environment and contains carcinogens, "can worsen asthma symptoms and irritate the respiratory system" [1]. Environmental contamination has reached a completely new level as a result of the usage of harmful, non-renewable energy sources. We urgently need to stop using non-renewable resources and cut carbon emissions because of the speeding up of global warming. The amount of carbon in the atmosphere has increased since the



Mobile Ad Hoc Networks (MANET): A Comprehensive Review and Future Perspectives

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Abstract:

Mobile Ad Hoc Networks (MANETs) are self-configuring networks comprised of mobile devices that communicate with each other without the need for a centralized infrastructure. The unique characteristics of MANETs, such as dynamic topology, limited power, and bandwidth constraints, present both challenges and opportunities for researchers and practitioners. This paper provides a comprehensive review of the state-of-the-art in MANET research and explores the future perspectives for this rapidly evolving field. The key challenges faced in MANETs, such as routing, resource management, security, and quality of service provisioning. The paper explores the existing solutions proposed to address these challenges, including proactive, reactive, and hybrid routing protocols, as well as energy-efficient resource management techniques and security mechanisms. The emerging trends and technologies that is likely to shape the future of MANETs, such as software-defined networking (SDN), edge computing, and machine learning. It explores the potential benefits and challenges associated with the integration of these technologies into MANETs, emphasizing the need for adaptive and intelligent solutions. It also highlights the importance of interdisciplinary collaboration and the need for standardization efforts to facilitate the widespread adoption of MANETs.

Keywords:

Mobile Ad Hoc Networks, Self-configuring networks, Dynamic topology, Multi-hop communication, Routing protocols, Resource management, Security mechanisms,

Introduction:

Mobile Ad Hoc Networks (MANETs) have emerged as a dynamic and versatile networking paradigm that enables communication among mobile devices without the need for a centralized infrastructure. These self-configuring networks offer tremendous potential in scenarios where traditional infrastructure-based networks are impractical or unavailable. MANETs have gained significant attention from researchers and practitioners due to their unique characteristics, such as dynamic topology, limited power resources, and bandwidth constraints. In a MANET, mobile devices, also known as nodes, form an autonomous network by establishing direct wireless connections with nearby nodes [1]. Each node acts as a router, forwarding packets on behalf of other nodes, enabling multi-hop communication to reach destinations that are beyond the direct wireless range. This decentralized nature allows MANETs to be highly flexible, adaptable, and resilient to network changes. The critical aspect of MANETs is resource management, which involves efficiently allocating limited power, bandwidth, and computing resources among the nodes. Energy-efficient protocols and mechanisms are designed to maximize the network's lifespan by reducing energy consumption and prolonging the operational time of individual nodes. MANETs



Communication Skills for Technical Students

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Abstract:

There is no limit to a language's vocabulary, as new words are introducing daily. Words are not the only things we need to communicate, although they are closely related to verbal and nonverbal symbols in terms of how we make the meaning of language. Every symbol represents some meaning related to a certain activity. Symbols can be used for communication verbally, for example, when spelling the word "Skills", in writing it is necessary to put the letters S-K-I-L-L-S together. Communication development is an effective teaching method in improving student's technical communication skills as well as empathy. Beyond strong technical knowledge, engineering employers place a high value on other critical engineering competencies such as personal effectiveness and academic and workplace skills. Engineers with strong communication skills can position themselves for leadership roles, using those skills to effectively manage and motivate teams and train individuals in lean development processes or new software programs. Additionally, engineers are responsible for inspiring confidence in their ideas; this requires communication skills to sell their products or designs.

Keywords:

English language, learning, skills, communication

1. Introduction:

In this age of globalization, international projects are increasing, and cross-cultural communication and collaboration is rising; especially in the now international practice of engineering. English is accepted as *the most widespread language in the world*. The number of people who speak English with at least some degree of proficiency exceeds any other language. This is important for engineering students as this indicates that English may be more useful internationally than almost any other language due to its spread. Some multinational firms with bases in continental Europe use English as the prime form of communication in the office. In this sense, multinational corporations can be seen to indirectly influence the educational policies in foreign lands by their value creation of particular languages through global economic power. [1]

This also delivers a strategic advantage to those institutions in non-English speaking countries with effective English language instruction. European students, when recently surveyed, stated that they



Risk Management in Indian Banking Sector: A Study

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Abstract:

The ability to recognize, evaluate, and address risks is made possible by risk management, which provides a bank with the necessary instruments. Through the provision of a framework for wise decision-making, risk management educates a business on the various methods to handle risks. Assessing, communicating, tracking, and valuing risks are just a few of the procedures that go into risk management. Through these procedures, a corporation can guarantee the safety of its assets and stop losses. Additionally, it helps the company evaluate its investment possibilities and risks. The Basel Committee in India, the risk management process, risk kinds, risk management methodologies, and the influence of risk management in banking are all examined in this paper to examine the impact of risk management in banking.

Keywords:

Risk, Management, Bank, Basel Committee

Introduction:

A nation's economy must have a thriving banking sector to support that nation's overall economic growth. Effective surveillance and oversight are among the most critical elements for a successful financial industry. The major goals of monitoring and supervision are to make sure banks maintain enough capital to cover the risks they face and to make sure they function in a setting where trustworthy conditions are established. Every nation's financial system needs to be stable, and this is made possible by effective banking oversight and monitoring. When appropriate macroeconomic policies are put into place and a free market is present, it benefits both. Among the Bank's policies, risk management is a key component. Risk is the potential for a reduction in financial gain in the case of a monetary loss or other expense or loss associated with a transaction or activity of a bank. [1]

For a firm to grow significantly in the future, risk management is crucial. This is due to the fact that there is still no way to predict the future, despite what science can suggest about how it might look. Uncertainties are what make risk a difficulty because they accompany anything unknown and add to its many uncertainties. The State Bank of Pakistan holds that risks are often defined by



IOT Based Accounts Department Security through Digital Image Processing Algorithms

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Abstract:

This paper provides a framework for an automated system that uses digital image processing and the Internet of Things (IoT) to safeguard and manage the college's accounts department. A sensor, digital camera, database, and cell phone make up the system. When someone attempts to enter the house, sensors installed in the door frame alert the camera, which subsequently sends the image to the database or dataset that is saved in the cloud. Image analysis is used to find, identify, and match the image with the dataset of authenticated people that is maintained. An alert message is sent to the college's owner if the image recorded does not match the dataset. In order to compare the picture dataset recorded in the fog to the image's spatial and temporal complexity, image processing algorithms are taken into account.

Keywords:

IoT, MATLAB, Segmentation, Edge detection, Sensor

I. Introduction:

1.1 Internet of Things (Iot)

Internet of Things (IoT) [1] is the expansion of the current Internet services to accommodate real-world entities, such as sensors and RFID readers. The typical architecture of IoT consists of three layers: sensing layer, network layer and application layer. Sensing layer enables heterogeneous devices to be identified. These devices access to Internet through network layer and transport data to application layer, which is responsible for processing data and interacting with users.

The Internet [2] can be described as the communication network that connects individuals to information while the Internet of Things (IoT) is an interconnected system of distinctively addressable physical items with various degrees of processing, sensing, and actuation capabilities that share the capability to interoperate and communicate through the Internet as their joint platform. Thus, the main objective of the Internet of Things is to make it possible for objects to be connected with other objects, individuals, at any time or anywhere using any network, path or service. The Internet of Things (IoT) is gradually being regarded as the subsequent phase in the Internet evolution. IoT will



Syncing Data between an IOT Device and a Server

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Abstract:

The Internet of Things is an emerging distributed computing and real-time based application, and it is a future technological revolution whose development depends on dynamic technological innovation in a number of key areas, including nanotechnology and wireless sensors. IoT and the cloud have been integrated to make life easier and more convenient. The difficult and complicated task of distributed network clock synchronization. Syncing up with other people and the source is essential. To keep systems or networks of Internet of Things devices in sync, a variety of data synchronization techniques, such as NTP and GPS (Global Positioning System), have been proposed. In this research, we suggest a method for synchronizing clocks between IoTs and the cloud, which are interconnected via a dispersed network. The simulation's output demonstrates that the suggested approach operates as intended within the boundaries of ideal and symmetric network latency.

Keywords:

IoT, SQL, Database, Synchronization, Client, Server, FTP

I Introduction:

1.1 Internet of Things (IoT)

Internet of Things (IoT) [1] is the expansion of the current Internet services to accommodate real-world entities, such as sensors and RFID readers. The typical architecture of IoT consists of three layers: sensing layer, network layer and application layer. Sensing layer enables heterogeneous devices to be identified. These devices access to Internet through network layer and transport data to application layer, which is responsible for processing data and interacting with users.

In this paper, we propose a data synchronization algorithm between IoT gateway and platform, aimed to maintain the synchronization between heterogeneous databases and file handling.

1.2 IOT Architecture

The IoT architecture can be split into three basic layers (as shown in figure 1), however they can change based on the use case's as some industry solutions may require further layers.



The Effects of Globalization on India

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Abstract:

The term "globalization" may refer to the blending of economies and societies through the international movement of people, commodities, services, ideas, technologies, capital, and money. Those with the technology and skill may gain from it even within their own nation. Since the economic reforms of the early 1990s, the Indian economy has experienced a sharp increase in economic growth, which has also resulted in an improvement in economic efficiency. It is critical to understand that the shift to a green economy is already under place. It started mostly as a reaction to the Rio Earth Summit in 1992, which raised political awareness of and support for sustainable development. The purpose of this paper is to examine how globalization's impact on the green economy has impacted sustainable development. The paper's primary goal is to research and assess India's perspective on globalization as a whole.

Keywords:

Globalization, growth trends, growth rate of the economy

Introduction:

Globalization is the process of integrating world economies, politics, and cultures. The boundaries between nations have been removed, turning the world into a little town. "The history of globalization dates back to the second half of the 20th century," according to Economic Globalization in Developing Countries (2002); "the development of transport and communication technology led to a situation where national borders appeared to be too limiting for economic activity." In emerging nations, the impact of globalization is becoming more and more significant. It is clear that there are benefits to globalization in terms of economic processes, technical advancements, political impacts, health systems, and social and environmental factors. It greatly benefits our daily lives. New opportunities have been made available to developing nations through globalization. Technology transfers, for instance, have the potential to increase market access for developing nations, spur economic growth, and raise productivity and living standards. It is not accurate to say that this phenomenon has just good impacts. Because of the new problems that globalization has created, like the environment's degradation, the volatility of the financial and commercial markets, and the rise of inequality within and between countries.

Definition:

Stephen Gill describes globalization as the decline in the cost of transnational capital and products transfers, and therefore, the cost of factors of production and goods.

According to Guy Brainbant, the process of globalization includes increased mobility of people, goods, capital, data, and ideas in general as well as infections, diseases, and pollution in addition to



A Brief Research Study on Wireless Sensor Networks

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Abstract:

Wireless Sensor Networks (WSNs) play a major role in revolutionizing the world by its sensing technology. WSNs have become a potent technology with a variety of uses, including ITS, military operations, surveillance systems, and other applications. WSNs are made up of a variety of sensor nodes that collect environmental data while also keeping an eye on the outside world. The aim is to reduce the energy consumption of the sensor network so that it can operate for a longer period of time. The discharge of the batteries that power the sensor nodes has been the main source of worry in the direction of energy conservation. Additionally, WSNs are taken advantage of for their security features in order to employ them in sensitive areas like military battlefields. In this study, the WSN is introduced in several contexts, including applications, routing, data gathering, security considerations, and a brief overview of a modelling platform that can be used to WSNs. This essay makes a contribution by introducing WSNs in various areas of operation and by highlighting their structure and types of sensor nodes and various research issues.

Keywords:

Wireless Sensor Network, Services, and Systems

Introduction:

The creation of wireless sensor networks made up of components known as sensor nodes is now possible because of advancements in wireless communication. The sensors organize themselves and link with one another as soon as they are placed in the network, which allows them to start collecting data and sending it to the base station. WSN can alternatively be described as a network of nodes, which are often small and simple devices capable of sensing their surroundings and transferring data gathered from the monitored region, the information gathered can be sent directly or in multiple hops to the sink, which can use it locally or connect to other networks (like the internet) through gateway nodes.

A sensing unit, a processing unit, a transceiver, and a power unit make up the sensor node's essential parts. ADC, or an analogue to digital converter, converts the physical quantity seen by the sensing device into a digital one. Following that, the processor is utilised for more calculations, and the transceiver is used to send and receive data from the Base Station or from other nodes. Power unit is the most prominent unit in any sensor node. Once the battery is exhausted, it can't be replaced for unattended applications. Other units are application dependent unit like Mobilizer, Power Generator and Location Finding System. [1]



Queuing Theory and Modeling

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Abstract:

Queuing theory is a branch of mathematics which studying congestion and its causes in a process is used to help create more efficient and cost-effective services and systems. Queuing theory examines every component of waiting in line, including the arrival process, service process, number of servers, number of system places, and the number of customers—which might be people, data packets, cars, or anything else. Many organizations, such as banks, airlines, telecommunications companies, and police departments, routinely use queuing models to help manage and allocate resources in order to respond to demands in a timely and costefficient fashion. Though queuing analysis has been used in hospitals and other healthcare settings, its use in this sector is not widespread. Queuing analysis is also a useful tool for estimating capacity requirements and managing demand for any system in which the timing of service needs is random. This paper describes basic queuing theory and models as well as some simple modifications and extensions that are particularly useful in the healthcare setting, and gives examples of their use. The critical issue of data requirements is also discussed as well as model choice, modelbuilding and the interpretation and use of results.

Keywords:

Population, Queue, Models, Customer, Cost

1. Introduction:

A common situation that occurs in everyday life is that of waiting in a line either at bus stops, petrol pumps, restaurants, ticket booths, doctors' clinics, and bank counters, traffic lights and so on. Queues (waiting lines) are also found in workshops where the machines wait to be repaired; at a tool crib where the mechanics wait to receive tools; in a warehouse where items wait to be used, incoming calls wait to mature in the telephone exchange, trucks wait to be unloaded, airplanes wait either to take off or land and so on. In general, a queue is formed at a production/operation system when either customers (human beings or physical entities) requiring service wait because number of customers exceeds the number of service facilities, or service facilities do not work efficiently/take more time than prescribed to serve a customer. Queuing theory can be applied to a variety of situations where it is not possible to accurately predict the arrival rate (or time) of customers and service rate (or time) of service facility or facilities. In particular, it can be used to determine the level of service (either the service rate or the number of service facilities) that balances the following two conflicting costs:

- (i) Cost of offering the service
- (ii) Cost incurred due to delay in offering service.



The Impact of Foreign Investments on the Local Economy

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Abstract:

Through the transfer of capital, technology, and management techniques, foreign investments have an effect on the growth of the economy in the host nation. Additionally, they support the expansion of human resources in the nation where they have made investments as well as the enhancement of domestic enterprises' business operations. The benefits of the investment climate in the Republic of Macedonia are discussed in this article, along with the contribution that foreign investment has made to the country's economic growth. A study of international businesses that have successfully made investments in the nation to obtain their viewpoints on the circumstances surrounding doing so. The article also tries to show how the government may help create a favourable environment for new investment enterprises. It is necessary to draw in foreign investors with investments that will raise the competitiveness of domestic product markets, boost the performance of domestic businesses, and enhance the host country's labour markets in order to boost the local economy. The majority of FDI experts believe that FDI contributed to the economic expansion of the recipient nations. They demonstrated a link between the rise of GDP per capita and FDI flows (as a percentage of GDP), not just for industrialized nations but also for the majority of developing nations. Thus, the nations with the highest rates of economic growth were those that had drawn a sizable amount of FDI. The periods of greatest foreign investment activity from the early 1960s of the 20th century have corresponded with a sharp rise in the macroeconomic indices, particularly the GDP.

Keywords:

International management, business environment, strategy, foreign investors

Introduction:

The investment process is facilitated and intensified by globalisation, market liberalisation, and the removal of obstacles to the flow of goods, services, capital, and information. Companies develop plans for expanding their commercial operations and increasing their market share globally. The term "international management" refers to a method of managing multinational corporations. There isn't a nation in the entire planet that can support its own economic needs without the assistance of other nations. The march towards a unified global economy brings connections and market expansion, which creates limitless chances for managers and businesses operating internationally. The process of globalisation increases rivalry among businesses worldwide while also deepening the relationships



Finite Element Analysis (FEA) in Mechanical Design: A Comprehensive Review

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Abstract:

Finite Element Analysis (FEA) has emerged as a powerful tool in mechanical design, enabling engineers to accurately predict and optimize the behavior of complex structures and systems. The fundamental principles of FEA, including the discretization of a continuous system into finite elements and the formulation of governing equations. It explores the various types of elements, such as beams, plates, shells, and solids, commonly used in FEA simulations and discusses their strengths and limitations. It examines the challenges associated with mesh refinement, element distortion, and the selection of appropriate material models for accurate representation of real-world behaviors. The main focus then shifts to the solution techniques used in FEA, including direct and iterative solvers, static and dynamic analyses, and nonlinear material and contact modeling. The core aspects of FEA, this review presents a comprehensive survey of the diverse applications across mechanical engineering disciplines. These applications include structural analysis, heat transfer, fluid-structure interaction, optimization, and multi-physics simulations. Several real-world case studies are presented to illustrate the practical applications of FEA in mechanical design, ranging from automotive and aerospace engineering to biomedical devices and energy systems.

Keywords:

Finite Element Analysis (FEA), mechanical design, numerical simulation, modeling, optimization, validation

Introduction:

Finite Element Analysis (FEA) has revolutionized the field of mechanical design by enabling engineers to simulate and analyze complex systems with a high level of accuracy and efficiency. This computational technique has gained significant prominence in recent years due to its ability to provide valuable insights into the behavior and performance of mechanical components and systems. By dividing a complex structure or system into smaller, more manageable elements, FEA allows engineers to solve the governing equations numerically and obtain detailed information about stress distribution, deformation, and other critical parameters. FEA is based on the discretization of a continuous domain into finite elements, which are interconnected to form a mesh. Each element is characterized by a set of governing equations that describe its behavior and its interaction with adjacent elements. By assembling the equations for all elements, a system of algebraic equations is obtained, which can be solved numerically using various algorithms and techniques. The applications of FEA in mechanical design are vast and diverse [1]. It finds extensive use in analyzing structures, such as buildings, bridges, and mechanical components, to assess their strength, stability, and fatigue life. FEA is also employed in heat transfer analysis to study temperature distribution and thermal behavior in various systems, including heat exchangers, electronic devices, and engines. Additionally, FEA enables the simulation of fluid flow phenomena, aiding in the design of optimized aerodynamic profiles, hydraulic systems, and ventilation networks. Furthermore, FEA can be used to model coupled multi-physics problems, where multiple physical phenomena interact, such as fluid-



Review of Recent Trends in Micro/Nano-Electromechanical Systems (MEMS/NEMS) and their Applications

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Abstract:

Micro/Nano-Electromechanical Systems (MEMS/NEMS) have emerged as a revolutionary field with significant advancements and applications in various domains. The miniaturization of MEMS/NEMS devices has been a key trend, enabling the development of smaller, lighter, and more efficient systems. Advances in fabrication techniques, such as photolithography, focused ion beam (FIB), and nanoimprint lithography, have facilitated the production of complex micro/nanostructures with high precision and reliability. In terms of materials, there has been a shift towards the integration of novel materials with improved mechanical, electrical, and optical properties. For instance, the utilization of graphene, carbon nanotubes, and other two-dimensional materials has led to the development of highly sensitive sensors, flexible electronics, and energy harvesting devices. Environmental monitoring has witnessed the deployment of MEMS/NEMS-based sensors for detecting pollutants, measuring air quality, and monitoring structural integrity. Consumer electronics have benefited from MEMS/NEMS devices such as accelerometers, gyroscopes, and microactuators, which enable the development of augmented reality (AR) and virtual reality (VR) devices, gaming controllers, and wearable technologies. The integration of MEMS/NEMS with other emerging technologies, including Internet of Things (IoT), artificial intelligence (AI), and robotics, has opened up new avenues for research and applications. The combination of MEMS/NEMS sensors with AI algorithms enables intelligent systems capable of autonomous decision-making and predictive analysis.

Keywords:

Micro/Nano-Electromechanical Systems (MEMS/NEMS), Miniaturization, Fabrication techniques, Photolithography, Focused ion beam (FIB), Nanoimprint lithography, Materials, Graphene, Carbon nanotubes

Introduction:

Micro/Nano-Electromechanical Systems (MEMS/NEMS) have emerged as a cutting-edge field at the intersection of engineering, physics, and materials science. With their ability to integrate microscale and nanoscale components, MEMS/NEMS have revolutionized the development of miniaturized devices with a wide range of applications. MEMS/NEMS technology focuses on the design, fabrication, and integration of miniature mechanical and electrical systems at the micro- and nanoscale. These systems often consist of micro/nanostructures, such as sensors, actuators, switches, resonators, and other functional components, that interact with the surrounding environment. The hallmark of MEMS/NEMS lies in their ability to control and manipulate these structures with precision, enabling functionalities and performance characteristics not attainable at larger scales [1]. One of the key driving forces behind the development of MEMS/NEMS is the trend towards miniaturization. By scaling down the size of devices, numerous advantages are realized, including reduced power consumption, improved portability, enhanced sensitivity, and increased integration density. MEMS/NEMS devices can be fabricated using a variety of techniques, such as



An Overview of the Significance of Data Mining and its Applications

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Abstract:

Techniques to record, handle, and analyse these recordings are urgently needed due to the recent exponential growth of data. Heavy data repositories that include a lot of unprocessed content might waste storage space and cause the loss of hidden data. There have been initiatives to improve the idea of knowledge discovery in databases and data mining since the late 1990s. Organisations have been utilising this strategy to sell their specials and forecast customer preferences. The purpose of this paper is to provide a thorough introduction to data mining, a review of real-world applications involving the concept, big data, and data mining techniques, as well as an integrated overview of the most recent studies pertaining to smart cities in the areas of traffic prediction and forecasting energy consumption, particularly in Oman.

Keywords:

Data Mining, Applications, Techniques, Nature

Introduction:

Data mining is the process of removing intriguing hidden information from available data chunks that might otherwise be impossible to discover manually. Data mining has been defined in a variety of ways in the past, despite the fact that this explanation gives a relatively unpolished picture of it. The phrase "Knowledge Discovery in Databases" was first used in the first Knowledge Discovery in Databases (KDD) Workshop (1989), which is why there are so many different definitions of it now. Since then, KD and data mining have been linked by researchers and authors, with some stating that the two terms have the same meaning. This is partly because knowledge is the end result of data mining. According to a precise definition, data mining is the process of looking for connections and broad patterns that are concealed by the sheer volume of information in massive databases, such as the connections between patients and their medical diagnoses. Although the phrases "Data Mining" and "Knowledge Discovery" have gained widespread acceptance for their synonymous usage, data analysts and researchers have argued about the validity of this development. The aforementioned definitions and summaries of knowledge discovery and data mining were conceptually developed in response to the demand for them in the modern world. Machine-generated logs have gradually taken the role of manual ones as a result of technological advancement. Since then, data have been gathered and processed using conventional file systems in an unordered fashion. This caused data to be improperly managed, which was subsequently replaced by databases. Most businesses have adopted the technology to store their transactions and related data because connected databases are so simple to use. In the early 1990s, there were thought to be around five million databases; 20 years later, one can only speculate about the amount of data that has gathered in various technical sites.

As a result, data acquisition can be seen as having two sides. Although it offers an easy-to-use data storage approach for businesses, data can accumulate at a tremendous rate, producing unprocessed and raw information. Contrary to popular belief, if the massive collection of amassed records can be handled effectively, it can be used to the user's advantage. It makes sense to assume that records compiled over time will contain intriguing connections or hidden patterns. Frequently, this



Performance Improvement in Wireless Sensor Networks using Modified CSMA/CA Protocol

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Abstract:

The low power and low rate Wireless Sensor Network features are what the IEEE 802.15.4 protocol aims to achieve. To connect to the network in either slotted or unslotted mode, it uses the carrier sense multiple access with collision avoidance (CSMA/CA) protocol. The unslotted CSMA/CA is the focus of this article because the node tends to wait for a very small backoff exponent value and is unable to perform clear channel assessment until the backoff procedure is finished. As a result, both the likelihood of a collision and the average delay are large.

This research suggests a modified CSMA/CA that splits the backoff delay into Main Backoff and Secondary Backoff in order to improve the performance of CSMA/CA. To analyse single hop IEEE 802.15.4 behaviour and extract expressions for average delay, energy consumption, and reliability, the Markov model for the modified CSMA/CA is presented. For the redesigned CSMA/CA, an optimisation challenge is also put out to reduce the delay while maintaining energy consumption and reliability limitations. The findings show that the modified CSMA increases dependability while drastically reducing average latency.

Keywords:

Wireless Sensor Networks, modified CSMA/CA, frequency, reliability, throughput

I. Introduction:

Wireless Networks comprise of various nodes which speak with each other over a remote station which have different sorts of systems: sensor system, specially appointed versatile systems, cell systems and satellite systems. In an effective wireless sensor network, different routing protocols have been designed to select the optimized path in the IP network with less delay, large throughput, large lifetime and less packet loss to transfer the data to the destination via intermediate nodes [9]. Routing is the way toward choosing paths in a network along which to send arrange movement [11]. A routing protocol specifies how routers communicate with each other, disseminating information that enables them to select routes between any two nodes on a computer network [10]. As the requirement for imaginative and proficient method for data trade shoot up, remote systems are progressively being utilized to address these requests with constrained expenses to base prerequisites. Be that as it may, the developing fame and far reaching uses of remote systems are straightforwardly proportionate to their affinity for security misuse. The quality of its foundation additionally turns into

A Review on Conversational Marketing

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Abstract:

This review examines conversational marketing, a cutting-edge strategy that emphasizes using technology instead than personnel to improve all aspects of the consumer experience. The notion is introduced first, and then the underlying theories, advantages, and conclusion are presented. Essentially, the goal of this paper is to succinctly explain what conversational marketing is all about and how businesses can use it to enhance their marketing effort.

Keywords:

Conversational marketing, technology, marketing.

Introduction:

Shortening the sales cycle, learning more about customers, and fostering a human buying experience are all goals of conversational marketing, a real-time dialogue-driven strategy used by firms. Businesses personalize the buyer journey, identify interested buyers on various platforms, address their concerns, and then direct them to the appropriate sales representative or product page to complete the purchase. It engages an audience with a feedback-oriented strategy that boosts customer loyalty and customer base. The main goal of conversational marketing is to integrate technology and human practices. The basis of this strategy is feedback. It supports the procedure and aids businesses in adjusting their marketing tactics to meet the wants of customer.

The development of artificial intelligence has allowed it to tackle challenging problems and tasks. Artificial intelligence was made possible by the introduction of the Internet, the proliferation of big data, the explosive growth of computer science, and the significant breakthroughs in robotics and programming. Additionally, it appears that this technology may generate a wide range of content, such as conversations, music, poetry, artwork, scripts for movies or news stories, jokes, and original solutions to problems [1]. Recent advances in artificial intelligence have increased the potency of effective strategies like deep neural networks and machine learning [2]. Numerous papers have shown how these strategies can be applied in conversational interfaces.

Information is now available to customers at their fingertips. With so many options for more informed clients, it has been difficult to keep and attract customers through conventional marketing strategies. Additionally, any organization must be able to conduct business smoothly and efficiently in order to be effective and successful. With additional touchpoints, the relationship between businesses and customers is less straightforward and more complex. The organization and management of vast amounts of data, especially highly effective, genuinely Volume-55, No.12 December 2021 1564

Advancement of Mathematics: Origin and Development

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Abstract:

The origins of mathematics accompanied the evolution of social systems. Many, many social needs require calculation and numbers. Conversely, the calculation of numbers enables more complex relations and interactions between peoples. Numbers and calculations with them require a well organized operational system. Such systems were perhaps the earliest models of complex rigorous systems. It is constantly expanding into new areas of investigation and has been instrumental for the development of physical, biological, social and other sciences. The present paper is an attempt to locate as to how and at which rate did mathematics grow and develop. After discussing history of development of mathematics in brief, the paper has dealt with some factors responsible for tremendous changes in the mathematical sciences especially in the later part of the 20th century. Without mathematics many developments in our times, such as, nuclear power, supersonic flight, reaching out to Moon and Mars and other perplexing complexities of social and national problems would not be possible. On the whole, adventurous developments are likely to take place in mathematical sciences in the first decade of the 21st century.

Keywords:

Mathematics, History, Advancement, Rapid change

Introduction:

Mathematics is a two-sided coin and both sides of the coin are equally fascinating. Pure mathematics is a great intellectual adventure in which we discover beautiful patterns in number and space and then create patterns in Nature and Society and get these insights into physical, biological and social sciences which will be impossible to obtain without mathematics. Theoretical progress opens new fields of application and in turn applications lead to new problems and fruitful results. There is continuous flow of ideas from one sub-discipline to other and each supplements the other. Consequently studies of both – pure and applied aspects of mathematics have been felt essential and as such courses of some of the applied branches, viz. Bio-Mathematics, Operation Research, Numerical Analysis, Industrial Mathematics etc. are being introduced. Similarly mathematical modeling of large-scale systems has been of great assistance to modern science and technology. Besides mathematical modeling of weather conditions, ground water, railway networks, environmental pollution, educational systems, industrial systems etc., modeling of natural calamities, viz. earth quake, hailstorms, flood, Tsunami, etc., is being

Advancements in Robotics: A Comprehensive Review

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Abstract:

Robotics has emerged as a dynamic field at the intersection of engineering, computer science, and artificial intelligence (AI). This abstract provides an overview of the advancements, challenges, and implications associated with robotics, highlighting its significant impact on various domains such as manufacturing, healthcare, transportation, and exploration. Advancements in robotics have revolutionized industries by automating repetitive tasks, enhancing precision and increasing productivity. Intelligent robotic systems equipped with advanced sensors, machine learning algorithms, and sophisticated control mechanisms enable complex tasks to be performed with precision and efficiency. The integration of AI technologies, such as machine vision and natural language processing, further expands the capabilities of robots, enabling them to perceive, reason, and interact with their environment. However, robotics also faces numerous challenges. Safety remains a critical concern, especially in collaborative settings where humans and robots work together. Ensuring the reliability and dependability of robotic systems is essential to prevent accidents and maintain trust. Additionally, ethical considerations arise as robots become increasingly autonomous, raising questions regarding liability, privacy, and job displacement. Addressing these challenges requires interdisciplinary collaborations and the development of robust regulatory frameworks.

Keywords:

Robotics, Artificial Intelligence, Automation, Advancements, Challenges

Introduction:

Engineering, computer science, and artificial intelligence (AI) all interact in the interdisciplinary subject of robotics, which has made significant progress in recent years [1]. With the rapid progress in technology, robots are becoming increasingly intelligent, versatile, and capable of performing complex tasks. These advancements in robotics have profound implications across various domains, including manufacturing, healthcare, transportation, exploration, and beyond. However, along with these advancements, robotics also brings forth a set of challenges and ethical considerations that need to be addressed for its responsible integration into society. Robotics advancements have transformed industries by streamlining procedures, increasing output, and sharpening accuracy. Modern robotic systems can complete complex tasks quickly and accurately because they are outfitted with advanced sensors, innovative algorithms, and strong actuators. Robots can now observe and interact with their environment more intelligently through the use of artificial intelligence techniques like machine learning and computer vision. In manufacturing industries, these developments have increased automation, enhanced quality control, and decreased labour costs [2]. In healthcare, robotics has opened new frontiers by assisting in surgical procedures, aiding in rehabilitation therapies, and providing support to the elderly and individuals with disabilities. Robotic surgical systems enable surgeons to perform minimally invasive procedures with enhanced precision and dexterity [3]. The implications of robotics extend beyond

An ATM System in the Banking Industry

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Abstract:

Automated Teller Machine (ATM) is perceived to offer considerable benefits and challenges both to the banks and their customers, yet these are rarely empirically investigated. This study examines the growth and usage of Automated Teller Machine in Indian banking sector. This study declares that there is an immense growth in Indian ATM service and positively increasing a number of public using Automated Teller Machine every day. There are various Automated Teller Machines which is available for use in Indian banking sector in the current scenario. The ATM services have positive impact on the customer satisfaction; if proper functioning is ensured by the banks, there will be significantly higher customer satisfaction. Availability of cash has highest impact on customer satisfaction. The banks can utilize the finding to improve the services of ATMs and can enhance the overall satisfaction of their customers.

Keywords:

Automated Teller Machine (ATM); Service quality, customer satisfaction; Growth of ATM

Introduction:

The banking sector is considered as a fundamental backbone of economy for development. It simplifies the production of goods and services by providing loan/liquidity for development of new industries as well as cash deposit and withdrawn facilities. Technology has been significantly transforming the banking activities. So, banks have been using technology like Automated Teller Machines (ATMs), internet banking, and mobile banking to reduce cost and enhance efficiency, productivity, and customer convenience/satisfaction. In this context, the technological facilities provided by banks are required for the systematic study (Research) and sustainability of banking activities. Automated Teller Machine (ATM) enables bank customers to withdraw money from their current or saving account by inserting ATM card using a private electronic code into the ATM. The Automated Teller Machine (ATM) enables bank customers to access their money 24hour of a day.

Automated Teller Machine(ATM) also enables clients of financial institution stopper form financial transaction without the need of cashier, human clerk or bank teller on ATM, the customer is identified by inserting plastic smartcard with a chip that contain a unique card number and some security information such as expiring date

An ATM is a computerized device that allows the cardholder or client of the banking and financial institute to perform the financial transaction relate to their accounts. In the present time there are two types of the ATMs: first, used only for the simple transaction like withdraw and general information about the account balance. And second one is complex types that have some extra functionality like the deposit and money deposit in account or other transfer other account. Some kind of banking institute provides both functionality in a single ATM.

Artificial Intelligence in Cyber Security

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Abstract:

Cyber security has grown to be a significant issue in the age of technology. Information leakage, widespread fraud, manual test-breaking, and other related events are common and have an impact on both a lot of people and organizations. The challenges in developing adequate controls and processes and putting them in place with the utmost accuracy to deal with cyber-attacks have consistently been limitless. The threat of cyber attacks has significantly increased as a result of recent advances in artificial intelligence. Everything from healthcare to robots has been impacted by AI. Because hostile hackers were powerless to stop this ball of fire from coming their way, "normal" cyber attacks have evolved into "intelligent" ones. The most promising artificial intelligence techniques are discussed in this study. Researchers examine the potential use of these methods in cyber security.

Keywords:

Cyber security, Artificial intelligence, Cyber-attacks, information.

Introduction:

The 279 cyber security businesses that received the most funding in 2016 received US\$3.1 billion, with the majority of the money going to those that focused on AI and machine learning [1]. By 2021, spending on big data analytics and intelligence might exceed US\$96 billion thanks to machine learning in cyber security. Prospective purchasers come from sectors that are particularly susceptible to cyber attacks, such as government, defense, or banking, where there is either a strong interest in employing machine learning for threat detection through analyzing data at scale or legislative requirements to secure personal data. Airports, oil and gas pipelines, and hospitals are the essential infrastructure components most susceptible to cyber attacks. In particular, the significance of both cyber attack threats and the resulting economic and commercial harm cannot undervalue the significance of cyber attack risks and the resulting economic and commercial harm, particularly when they involve extortion demands for Bitcoin payments made in an anonymous manner. Critical infrastructure is under risk from cyber attacks, which endanger both democratic institutions and global security. They also pose a threat to the rule of law, and when critical infrastructure is the target of ideologically motivated cyber attacks, terrorism is committed. Because managers of critical infrastructure are unfamiliar with terrorism laws and unknowingly finance terrorism when they pay ransoms in Bitcoin in response to terrorist-based cyber security attacks, threats of terrorism from cyber attacks frequently go unnoticed, unreported,

Communication: Role and Importance in Management

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Abstract:

Transmitting knowledge and shared understanding from one person to another is the process of communication. Establishing and maintaining effective working relationships in businesses depends on communication at work. The communication process, hurdles to communication, and recommendations for administrators on how to enhance communication efficacy are covered in this study.

Keywords:

Communication, Workplace, Relationship

Introduction:

The act of exchanging concepts, details, and messages with others at a certain moment in time and location is known as communication. In addition to speech and writing, communication also involves nonverbal cues including body language, facial emotions, and electronic communication (telephone calls, e-mail, cable television, or satellite broadcasts), and visual communication (the use of images or pictures, such as painting, photography, video, or film). In addition to being crucial in everyday interactions, communication is also crucial in the workplace, in the classroom, and in any other setting where individuals come into contact.

The researcher has had the chance to work for a company whose employees and the clients it serves depend on effective communication throughout the course of the past three years. During her time working in the customer service division, the researcher witnessed many comments about the poor communication between the unit leaders and customer service workers. In light of this, a research was conducted within the company to ascertain whether there was a communication gap between the parties on the inside. There is typically a breakdown in the way information is transmitted from the sender to the receiver when there is a communication gap inside an organisation. In top-down hierarchical organisations, this has happened before. It might be challenging for lower-level employees in this type of hierarchy to learn about changes inside the company. This study is crucial since it appears that there is a lack of communication within the organisation, at least based on interactions among customer support agents. Some employees believe that although the supervisors hold daily meetings, no information about corporate changes or processes is conveyed. [1]

Freedom from Financial Constraints

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Abstract:

Children and teens in the current financial crisis are particularly impacted by household finance complexity. Children and young people can learn valuable lessons about personal finance and develop their own money management abilities through times of financial difficulty. Comprehensive methods for teaching them about personal money haven't been developed, though. The condition of young people financial education and policy, along with definitions and efficacy metrics, are examined in this overview of the literature. This article emphasises several difficulties while outlining a variety of ways to the delivery and evaluation of youth financial education. It also provides impact statistics and best practises. It ends with a review of the knowledge gaps and recommendations for additional research.

Keywords:

Freedom, Financial crises,

Introduction:

Defining personal financial freedom is perhaps even more complicated than defining freedom itself. Defining financial freedom requires some combination of the following: evaluating the morally and politically charged concept of freedom; calculating how to equitably assess financial resources; determining when a person has a meaningful opportunity to use his allocated resources; and, deciding how much responsibility people should take for the choices they make when using their allocated resources[1]

We as a country appreciate freedom. In order to defend freedom, we have engaged in a number of wars both domestically and overseas. Political freedom is the kind of freedom we appreciate most. In an effort to protect our civil liberties, we managed to lose sight of the risks to our financial freedom while focusing on rights and other political freedoms. Under fact, our financial freedom is today the freedom that is most under danger due to decades of neglect. [2]

The right to conduct financial transactions practically unrestricted by governmental interference or regulations has been our narrow definition of financial freedom for the previous few decades. People are encouraged to take on enormous debt as a result of this construction of financial freedom. It may be argued that using their financial freedom would be a type of freedom. But the present financial crisis starkly and painfully shows that far too many Americans lack true control over their financial lives.

Green Energy Technologies and their role in the Global Energy Transition

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Abstract:

The exploration and implementation of alternative energy sources have become necessary due to the depletion of fossil fuel resources and the rising environmental problems linked with their use. Utilising the strength of natural resources while reducing negative environmental effects, green energy, which includes renewable and clean energy technology, offers an appropriate response. The advantages, difficulties, and prospects for wide-scale adoption of various green energy technologies, such as solar, wind, hydro, geothermal, and biomass, are discussed. The advantages of using green energy are also discussed, with a focus on the role that legislative frameworks and incentives have in encouraging the use of renewable energy sources. Furthermore, presents a comprehensive analysis of recent research studies, innovative approaches, and technological advancements in the field of green energy, demonstrating the continuous evolution and growing importance of sustainable energy solutions. Overall, this underscores the imperative of transitioning to green energy systems to mitigate climate change, reduce dependence on finite resources, foster energy independence, and promote a cleaner and more sustainable future for generations to come.

Keywords: Green energy technologies, Renewable energy, Global energy transition, Solar energy, Photovoltaic, Solar thermal

Introduction:

The depletion of fossil fuel reserves and the urgent need to address climate change have prompted the exploration and development of renewable energy technologies. This section provides an introduction to the global energy transition, highlighting the significance of green energy in achieving sustainability goals.

Solar Energy:

Solar energy has emerged as a pivotal player in the global energy transition, driven by the urgent need to mitigate climate change, reduce dependence on fossil fuels, and foster a sustainable energy future. As a clean, abundant, and renewable resource, solar energy offers immense potential to meet our energy needs while minimizing environmental impact.

The evolution of solar energy technologies, specifically photovoltaic (PV) systems and solar thermal systems, has been remarkable. Continuous advancements have led to increased efficiency, reduced costs, and improved scalability, making solar energy increasingly competitive and economically viable. PV technologies have become widely adopted, while solar thermal systems, such as concentrated solar power (CSP), offer enhanced storage capabilities.

Solar energy offers numerous advantages. It is a clean and emissions-free source of energy, significantly reducing greenhouse gas emissions. Its widespread distribution allows for decentralized energy production, improving energy access in remote areas. Solar energy also creates employment opportunities, driving economic growth in the green energy sector. Additionally, it reduces dependence on finite fossil fuels, enhancing energy security and resilience.

Human Resource Accounting in India

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Abstract:

“Great vision without great people is irrelevant” Any business entity or institution strives hard for achieving profits, reputation in the society, customer retention and loyalty, business expansion, overcoming and eliminating competition. All these goals can be made possible majorly by the employees of such organizations. It is an undeniable truth that a well managed and highly cohesive work force is the back bone of any organization. Hence it becomes important for any organization to contemplate on the quantity and quality of its workforce which involves a thorough analysis and understanding of the time and capital invested on its human resources. This is commonly referred to as human resources accounting. Even though, researches have been going on since 1691 in this field, many organizations were merely considering their employees as paid workers. However, post 1960 it has gained momentum and many organizations have started practicing human resource accounting.

Keywords:

Accounting, Indian Companies, HRM

Introduction:

Human Resource accounting is the process of identifying and measuring your organization's Human Resources (HR) budget. [1] The term can be slightly misleading, as it implies that HR spending is something to be tracked and analyzed like financial or operational expenses. Human Resource Accounting is a broad term that refers to collecting, analyzing, and reporting data about employee benefits, compensation practices, and benefits in general. It is easy to define human resource accounting. Human Resource Accounting tracks and manages employees' costs and values, including performance, compensation, benefits, and training. HR professionals use various tools to track and analyze data, such as employee surveys, performance reviews, and compensation and benefits reports. In addition to tracking employee performance, HR professionals also need to track the performance of the organization as a whole. For example, HR professionals need to track the success of recruitment and retention efforts as well as the success of initiatives that improve employee morale and satisfaction. Human Resource Accounting is necessary for any organization that wants to know how well its employees are performing and how to improve more. In addition to tracking employee performance, HR professionals also need to track the success of recruitment and retention efforts as well as the success of initiatives that improve employee morale and satisfaction. In order to track employee performance effectively, HR professionals need to use a variety of tools. One important tool is an employee survey. [2] An employee survey is a method for collecting data from employees about their experiences with

Indian Law on Women Right's

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Abstract:

Women constitute almost 50% of the world's population but India has shown disproportionate sex ratio whereby female's population has been comparatively lower than males. As far as their social status is concerned, they are not treated as equal to men in all the places. In the Western societies, the women have got equal right and status with men in all walks of life. But gender disabilities and discriminations are found in India even today. Thus this paper will focus on the place of women in the society of India. Man and woman are both equal and both plays a vital role in the creation and development of their families in a particular and the society in general. Indeed, the struggle for legal equality has been one of the major concerns of the women's movement all over the world. In India, since long back, women were considered as an oppressed section of the society and they were neglected for centuries. The constitution declares that the equality before the law and the equal protection of laws shall be available for all. Similarly, there shall be no discrimination against any citizen on the ground of sex. This article tries to evaluate the status of woman under the Constitution of India and how the Constitution as the supreme document play an important role in bringing gender equality in India and whether the goal has been at all achieved. After the analysis of various provisions of the Constitution it seems evident that the Rights guaranteed to women are at par with the Rights of men. Along with that, in some cases women enjoy the benefit of certain special provisions as well. This paper will also be briefing about the role of Judiciary in case of women rights and also movements initiated for empowerment of women in India.

Keywords:

Indian Law, Women Right's, equality, women empowerment

Introduction:

Women in India are subject to discrimination not just on the basis of gender but on numerous other factors such as caste, community, religion etc. Women cannot enjoy the full range of rights while being repressed through violence and while sections of the administration and the criminal justice system reflect and perpetuate discriminatory practices prevalent in society [1]. As a vast democracy with many regional variations and a "developing" economy, India has an enormous amount to achieve and an enormous amount of commitments to fulfill to all its citizens, including women. Recognizing its international commitments towards the rights of women and urged on by adynamic women's movement, successive governments have unveiled policies of empowerment for Violence against women does not only have a physical impact but also an impact on their ability to enjoy the fullrange of rights including social, economic and political: the right of women to enjoy the full range of rights is indivisible.

Organizational Management of Human Resource

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Abstract:

One of the most crucial human resource practises in the company is human resource planning. Human resource planning is a crucial tool used by businesses to assess their existing situation and future requirements of labourers. This paper's goal is to assess the value of human resource planning to the organisation through a study of the relevant literature. The limitations of human resource planning, the benefits of human resource planning, and the significance of human resource planning to the organisation are the main topics of this paper. The results show a strong correlation between organisational manpower needs, human resource planning as well as organisational performance.

Keywords:

Human resource, planning, competition, employee satisfaction

Introduction:

The management of “people” is the focus of human resources management (HRM)[1]. The word “HRM,” which refers to the concept, policies, procedures, and practises linked to the management of people inside organisations, is becoming more and more common. The acquisition of people’s services, the development of their talents, inspiring them to greater levels of performance, and ensuring that they continue to uphold their commitments to the organisation are crucial to accomplishing organisational goals because people make up every organisation. An organisation can find, train, inspire, and retain exceptional employees who are productive and efficient. Ineffective businesses run the danger of failing or staying in operation.

The following are significant considerations[2]:

- **Emotional control:** It's crucial to learn how to handle a variety of situations without getting angry or upset and allowing them to exert too much influence.
- **Integration into the business:** Understanding how to respect organisational structure is another crucial element.
- **Strategy creation:** A skilled employee should be able to create both organisational and personal strategies.
- **Group acceptance:** Employers must find a candidate employable if they can work well in a team and foster a positive work environment.
- **Business culture:** It's critical that you are aware of and accept the business culture of the organisation where you work or aspire to work if you want to be viewed as employable.
- **Control of emotions:** It is important to know how to face all kinds of situations without losing **Ability** your temper or letting them influence excessively.
- **To listen:** It's crucial to possess this ability to listen, accept notions and internalise them.

Review Paper on Technology

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Abstract:

The pace for an electronic revolution that will result in the rise of electronic services has been set by recent growth in information technology. Business-to-consumer e-service helps businesses cut expenses, expedite delivery, and serve more clients. As a result, many businesses have already transitioned to the electronic environment or are preparing to do so. Understanding each type of product's and service's qualities is essential in this regard. This study's primary objectives are to present a thorough analysis and compile conceptual viewpoints on electronic services. Exploring the traits, benefits, and drawbacks of e-services is crucial to comprehending the nature of electronic services. This study provides a theoretical and scientific basis for next empirical studies by differentiating Little is known about how young children interact with various technology, despite the rising number of very young children who use the internet and other technologies .throughout order to pioneer the investigation of young children and their families' experiences with new technologies throughout Europe, the pilot qualitative study presented in this paper was created and carried out in partnership with a carefully chosen set of academic partners in various European nations. It presents its findings and discusses them at a global level regarding how young children (ages 0–8) interact with digital devices such computers, smartphones, tablets, and video games; how much parental mediation occurs in this interaction; and how well parents understand the risks–opportunities balance. The paper ends with suggestions for legislators, businesses, and parents.

Keywords:

Technology, Healthcare, Education, Transportation

Introduction:

Technology is the application of scientific knowledge to practical purposes, particularly in industry. It includes tools, methods, and frameworks that make it easier for individuals to perform their jobs.Because of technology, there have been changes to the ways that we work, communicate, and live. The world around us is changing as a result of technology, from self-driving automobiles to telephones. Healthcare, education, and transportation are just a few of the sectors that have undergone a revolution and improved efficiency. Information is knowledge that is communicated or received about a certain fact or circumstance. Thanks to technological advancement, we now have access to more information than ever before. The internet is a fantastic resource for learning about everything we are interested in. The way we work has also been revolutionised by

The Application of Biophysics to Life Sciences - A Systematic Review

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Abstract:

Biophysics is a branch of science that uses the methods of physics to study biological processes. Physics uses mathematical laws to explain the natural world, and it can be applied to biological organisms and systems to gain insight into their workings. Research in biophysics has helped prevent and treat disease, advance drug development, and create technology to allow humans to live more sustainably and protect the changing environment. In the first half of the 20th Century, German scientists dominated the biophysics. They studied electromagnetic fields and light, and they became mainly concerned with studying the effects of radiation on living things. The popularity of biophysics rose when the Austrian physicist Erwin Schrodinger published the book what is Life? In 1944. This book was based on a series of public lectures that Schrodinger gave on explaining the processes of living things through physics and chemistry. In it, he proposed the idea that there was a molecule in living things that contained genetic information in covalent bonds. This inspired scientists such as James Watson and Francis Crick to search for and characterize the genetic molecule, and with the aid of Rosalind Franklin's x-ray crystallography research, they discovered the double helix structure of DNA in 1953.

Keywords:

Biophysics, branch, science, methods, physics, biological, processes

Introduction:

Background of Biophysics Being a relatively new subject of study; biophysics emerged as a distinct subfield in the early to mid-20th century. However, a group of physiologists in Berlin lay the groundwork for the study of biophysics much earlier, in the 19th century. Hermann von Helmholtz, Emil DuBois-Raymond, Ernst von Brücke, and Carl Ludwig were members of the Berlin school of physiologists. Adolf Fick, a pupil of Ludwig's, even released the first book on biophysics in 1856. However, physics technology at the time was insufficient to investigate lifeforms in detail, such as at the molecular level. In several nations, biophysics programmers had developed by the middle of the 20th century and were becoming increasingly popular. From 1950 to 1970, biophysics research took place at a rapid pace. Biophysics approaches were also utilized to produce vaccines, imaging techniques like MRI and CAT scans to aid in disease diagnosis, and new treatment modalities including dialysis, radiation therapy, and pacemakers, in addition to the discovery of DNA and its structure. At the moment, biophysics is beginning to concentrate on issues related to the planet's changing environment. For instance, some biophysicists are engaged in research to create biofuels from living microbes that may eventually take the place of petrol.

The Power of Social Media in Modern Time

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Abstract:

Social media refers to websites and programmes that let users publish information, share it with others, or engage in social networking. Power and strength come from knowledge. Many people are familiar with this saying, yet few are aware of the impact social media has had. It is the information flow that will increase their knowledge. Social media has a significant impact on our culture, business, and entire worldview in the modern world. Social media is a new platform that allows individuals to connect, relate to, and mobilises for a cause, exchange ideas, ask for help, and provide direction. Social media has broken down barriers to communication, provided decentralised communication channels, and given everyone the opportunity to engage and have their say. It makes it possible for groups with shared interests, such student groups, to collaborate on initiatives outside of the classroom. It promotes innovation and teamwork. Despite the fact that it has numerous advantages, including making it simple for us to stay in touch with friends and family throughout the world and removing barriers based on nationality and culture.

Keywords:

Social media, Impact, Networks, Society, E-commerce, Facebook, Communication

Introduction:

Social media is become an integral aspect of daily life, used for everything from shopping to emailing, learning, and conducting business. Social networking is vital for Changing peoples' dietary habits. Social media comprises blogging and social networking services that enable quick connections between users. Journalists and their organisations have had to walk a tightrope ever since social networking networks like Twitter and Facebook became important instruments for news [1]. The people's daily routine now includes visiting these sites. According to the majority of definitions, social media refers to "the many widely used, reasonably priced, and accessible electronic tools that enable anyone to publish and access information, work together on a project, or form relationships" [2].

Impacts of Social Media:

- **The Impact of Social Media on Politics:** Social media now has a significantly greater impact on political campaigns than previous forms of media. Election politics are becoming more and more dependent on social media, as seen with Howard Dean's 2003 ultimately unsuccessful run, the election of the first African-American president in 2008, and Donald Trump's Twitter-driven campaign. According to The New York Times, "The election of Donald J. Trump is perhaps the starker illustration yet that social networks

Thermodynamics: A Comprehensive Review of Applications and Advances

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Abstract:

Thermodynamics, a foundational branch of physics, has wide-ranging applications in numerous scientific and engineering fields. This comprehensive review paper explores the diverse applications of thermodynamics in real-world scenarios, highlighting its significance in understanding and optimizing complex systems. Drawing upon an analysis of selected research papers, we delve into key areas where thermodynamics plays a pivotal role, including energy conversion and storage, material science, chemical reactions, and environmental processes. By examining recent advancements in these areas, we provide a comprehensive overview of the applications of thermodynamics and its potential for driving technological innovations and sustainability efforts.

Keywords:

Thermodynamics, Applications, Energy conversion, Material science, Chemical reactions, Environmental processes

Introduction:

Thermodynamics, as a fundamental discipline, provides a powerful framework for understanding and predicting the behavior of diverse systems. This review paper aims to consolidate and analyze recent research papers that highlight the practical applications of thermodynamics in real-world scenarios. By exploring the interplay between theory, experimentation, and application, we aim to demonstrate the relevance and impact of thermodynamics across various scientific and engineering fields.

Thermodynamics in Energy Conversion and Storage:

Energy conversion refers to the process of transforming energy from one form to another. In the context of thermodynamics, this typically involves the conversion of heat energy into mechanical work or vice versa. Thermodynamic principles guide the design and optimization of energy conversion devices such as engines, turbines, and generators. Understanding concepts like heat transfer, entropy, and energy efficiency is crucial for developing efficient and sustainable energy conversion systems.

Energy storage, on the other hand, addresses the challenge of storing excess energy for later use. As renewable energy sources such as solar and wind power become more prevalent, the intermittent nature of these sources necessitates effective energy storage solutions. Thermodynamics plays a key role in the design and operation of energy storage technologies, including batteries, fuel cells, pumped hydro storage, and thermal energy storage systems. By applying thermodynamic principles, engineers can optimize the storage and retrieval of energy, ensuring its availability when the primary energy source is unavailable or insufficient.

In this exploration of thermodynamics in energy conversion and storage, we will delve into the fundamental principles and concepts that underpin these processes. We will examine how thermodynamics enables the analysis and design of energy conversion systems and storage technologies. From the laws of thermodynamics to the thermodynamic cycles and processes

Wildlife Conservation in India: Issues and Challenges

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Abstract:

Wildlife refers to those plants and animal species which live and grow in areas uninhabited by human. It includes all non-domesticated animals & plants including many other organisms & fungi. Wildlife is found in all ecosystems such as forests, plains, grasslands, deserts and all other areas and have a specific and different form of wildlife. But as the human civilizations developed, the domestication of wild animals and plants began for the benefit of human beings and this had a considerable impact on the environment. Due to human activities, many wild animals adapted to the changes in the environment and started to live in a domestic environment along with humans. Examples of such animals are dogs, cats, cows, buffaloes, goats, rodents and a few species of birds etc. As the human activities increased and development took place on a large scale, the wildlife and the ecosystems were seen being affected by it. It was noticed that the exploitation of the wild animals for the benefit of human beings and recreation purposes increased.

Keywords:

Wildlife, Civilization, Domestication, Recreation, Exploitation

Introduction:

It is a well-known fact that 16 percent of the world's population resides in India. It is less well known that this subcontinent is also home to 411 species of mammals, 1,232 bird species, 456 reptile species, 219 amphibian species, 2,546 fish, 83,436 different kinds of invertebrates, and more than 50,000 different plant species. India's wildlife, which includes a wide diversity of unique flora and fauna, is a priceless gift from nature. One of the richest places for biodiversity in the world is India. There are many different types of plants and animals in this country's wildlife. The Asian elephant, tiger, lion, wolf, bear, rhinoceros, camel, monkey, numerous reptile species, crocodiles, deer, and other wild animals are all indigenous to this nation. Additionally, it is home to several bird species, including flamingos, peafowl, pelicans, parakeets, and woodpeckers. The Western Ghats, the Eastern Himalayas, and the Indo-Burma area are three of the 34 biodiversity hotspots in the world that are located in India. Both the grazing herds and the hunting animals that roam the grasslands of western India are famed. The Indian cheetah is no longer found in its native region, but lions and leopards are still active on the plains. India has established 104 National Parks, 18 Bio-Reserves, and more than 515 Sanctuaries to conserve and preserve various animal species because of its extensive, diversified, and rich wildlife reserve. According to one



AN ANALYSIS OF THE IMPACT OF GST ON INDIA'S E-COMMERCE BUSINESS

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Abstract:

Many indirect taxes have been replaced by the Goods and Service Tax, which went into effect on July 1st, 2017. Value-added tax, or GST, is a term that refers to the collection of all indirect taxes. With its two components, the Central GST and the State GST, it is a single taxing structure that eliminates cascading taxes. GST ensures "Ease of Doing Business," promotes "Make in India," and simplifies tax administration. It is one of the most significant initiatives taken to change India's taxes system. "One Nation, One Tax" is what it says. It is crucial to take this step in their direction because e-commerce is a new economic sector in India. Employment opportunities are created by e-commerce in the nation. This essay analyses how the GST has affected online shopping.

Keywords: GST, E-Commerce, Indian Economy.

Introduction:

According to a survey done by the Internet and Mobile Association of India, the e-commerce market in India is predicted to have exceeded Rs. 211,005 crore in December 2016. India is predicted to earn \$100 billion in online retail sales by 2020, according to the report. Online marketplaces have also been created as a result of the growth of electronic commerce in India. An online shopping site that is controlled by an online retailer, like Flipkart, Snapdeal, or Amazon, is called a marketplace. A marketplace model has some of the following characteristics:

- Marketplace allows independent vendors to sign up and conduct online sales on their site.
- Marketplace charges listed merchants a subscription fee or commission based on the sale price.
- Under this arrangement, third-party vendors have more access to customers who have registered with the marketplace.
- On the other hand, the customer has access to a variety of merchants and affordable rates for the goods they want.
- Depending on the marketplace, either the merchant or third-party seller ships the items directly, or the marketplace operator's fulfillment centre handles the shipping.

In order to support the e-commerce marketplace business model in India, the government has also permitted Foreign Direct Investments under this paradigm. Marketplaces have given retailers access to new sales channels



APPLICATIONS OF THERMAL ENERGY STORAGE WITH ELECTRIFIED HEATING AND COOLING

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Abstract:

Thermal energy storage (TES) has emerged as a pivotal technology within the realm of electrified heating and cooling systems, offering innovative solutions to address energy intermittency, demand fluctuations, and overall efficiency enhancement. It highlights the diverse applications and benefits of integrating thermal energy storage with electrified heating and cooling systems. The integration of TES with electrified heating systems enables efficient utilization of surplus electricity from renewable sources during periods of low demand, storing excess thermal energy for later use. This facilitates load balancing, grid stabilization, and curtailment reduction, thereby enhancing the overall sustainability of energy systems. Additionally, TES-equipped electrified heating systems empower demand response mechanisms, allowing consumers to optimize energy consumption according to pricing signals and grid conditions. The paper scrutinizes the application of TES in electrified heating systems, elucidating how excess electrical energy can be converted and stored as thermal energy for later use. This process empowers users with flexibility in energy consumption, fostering demand response mechanisms and grid-friendly behavior. Furthermore, the paper delves into the mechanics of TES-driven electrified cooling, highlighting its potential to reshape cooling demand patterns and mitigate strain on the grid during peak hours. Thermal energy storage (TES) has been shown to be effective in mitigating the increase in peak demand that is seen with electrified heating and cooling systems. By storing thermal energy during off-peak hours, demand can be effectively shifted away from the peak hours. In this study, we investigate the potential of a ground source heat pump coupled with a TES system, in the form of water storage tanks, as a way of decarbonizing the HVAC system while minimizing operating and installed costs.

Keywords: Thermal energy storage, Electrified heating, Electrified cooling, Renewable energy integration, Load balancing, Grid stability, Demand response, Energy efficiency, Surplus electricity.

Introduction:

In the pursuit of sustainable energy solutions, the integration of renewable energy sources has become a central focus. Among the array of challenges posed by the transition to cleaner energy generation, the intermittent nature of renewable sources, such as solar and wind power, stands out prominently. Addressing this challenge requires innovative approaches that not only capture and store excess energy but also align it with the specific energy demands of different sectors. One such innovative approach is the integration of thermal energy storage (TES) with electrified heating and cooling systems [1]. The combination of TES and electrified heating and cooling holds immense promise for revolutionizing the way we harness and utilize surplus electricity. This



**DESIGN AND FABRICATION OF A NOVEL ARTIFICIAL HAND BASED ON A
“BIOMECHATRONIC”**

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Abstract:

The Touch Hand II is a desktop 3D-printed prosthetic hand that was created to advance the initial design iteration and provide transradial amputees with a more affordable prosthetic hand choice than currently available commercial solutions. This research has enhanced the powered grip strength, closing/opening times, mass, power usage, aesthetics, structural integrity, and cost. Five other inexpensive hands and two commercial hands are compared to the new design. This comparison reveals seven aspects of the new design that are equivalent to or superior to those of the commercial counterparts. Only four of the other inexpensive hands' qualities can be said to be the same. In addition to describing how the bespoke circuit board fits in the palm and giving a description of the programmed control system, this paper focuses on the mechanical design of the key hand components and discusses potential future extensions to include amputee feedback and command input.

Keywords: Biomechatronic Hand, Sensor, Fingers, Actuator

Introduction:

The creation of an upper limb prosthetic that the amputee can perceive as an integral part of their body and that can replace the amputated limb by precisely simulating its sensory-motor functions is still a long way off. Current commercial prosthetic hands can't even give the user enough capability for gripping and sensory-motor information. Lack of degrees of freedom (DOFs) is one of the key issues with the gadgets that are now on the market. Multifunctional hand designs and commercially available prosthetics like the Otto Bock SensorHandTM fall well short of matching the human hand's ability to manipulate objects. This is the result of numerous factors. For instance, in prosthetic hands, only two or three joints—the thumb, index, and middle finger's MP joints—can bend actively; all other joints can only passively bend. These two or three joints are actuated by a single motor drive functioning on all three MP joints at the same time. The solution to each of these issues is to create a "cybernetic" prosthesis using the Biomechatronic method, or by creating a mechatronic system that draws inspiration from biology. The following issues with current commercial prostheses must be resolved by a cybernetic prosthesis:

1. The reduced grasping capabilities;



ETHICS IN MARKETING

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Abstract:

The modern era is the era of advertising, which has turned into a prerequisite for the success of businesses. Through advertising, the businessmen can showcase their aptitude for commerce. An advertisement is an impersonal presentation in which the producer or marketer conveys a conventional or common message about the benefits, cost, and accessibility of a good or service. It is a compensated method of an identified sponsor presenting and promoting concepts, products, or services without being personally present. The commercial attempts to draw the product by directly appealing to consumers to purchase it. This pull effect is what makes the advertisement work. Every aspect of advertising is a means of meeting the needs and desires of people. Both the good and the bad are covered in this paper. Additionally, it reveals the extent to which the corporation upholds moral principles in its advertising and the extent to which it defrauds members of the public.

Keywords: Advertisement, Ethics, Ethics in Advertising

Introduction:

One of a company's most crucial components is its advertising. Advertising is one of the techniques used by businesses all over the world to advertise their products globally, and each year they spend billions of dollars doing so. A careful evaluation of the duties and functions of advertising expenditure is necessary given the growth in its importance and role as more businesses operate across international borders. To encourage a certain set of individuals to take a new activity, advertising is a sort of communication. For marketers and other businesses engaged in competition, advertising is regarded as a key and crucial component of their economic growth. In most cases, advertising is a kind of paid promotion provided by a sponsor and is distributed through a variety of modern and conventional media, including blogs, websites, and text messaging as well as classic media like television, radio commercials, outdoor advertisements, newspapers, and magazine mail. Additionally, advances and technology improvements have increased the influence and impact of advertising. As early bullet or "internal needle" models of communication, which gave rise to the first concept of communication effects, "who says what to whom through what medium with what effect," early advertisers believed that advertising is very powerful and that what is said "gets through and strongly achieves the anticipated and persuasive objectives." With the advent of new technology, the advertising landscape has changed, requiring advertisers to stay current with new media such advertising on websites and mobile phones. The global advertising market is anticipated to be worth 90.4 billion dollars in 2011, a 28% rise since 2006,



GROWTH AND DEVELOPMENT OF INDIAN MUTUAL FUNDS

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Abstract:

The important reasserts of capital for an enterprise are shareholders and providers who forgo their gift intake and shop to offer the funds for destiny benefit and capital appreciation. The company of funds and its users comes collectively in open marketplace for his or her mutual gain below positive negotiated values in shape of debt, equity or mutual fund with different maturity periods. Mutual funds provide gain of diversification of danger to buyers. Individual buyers might not have the time and professional competence for studying danger and go back throughout sectors and companies. Diversification includes the combination of investments inside a portfolio to control danger. Investing and liquidating funding method is pretty smooth in case of mutual funds. Funds gathered through one-of-a-kind schemes with the aid of using fund managers are invested in equity and debt marketplace for the company quarter which ends up in pooling of funding and capital formation within side the country. Mutual funds are taken into consideration as a funding choice for benefits the buyers and the economic system as a whole.

Keywords: Mutual Funds, Assets Management, Income Funds, Growth Funds, AMC

1. Introduction

World domination a large part depends upon economic system and technological improvement of a country which calls for large all type assets. To mobilize those assets with the intention to meet out the various fund requirement for typical boom and worldwide financial opposition relevant banks because the apex frame and huge spectrum of economic intermediaries have come into life throughout the world. Efforts to gain those inner and outside objectives, authorities has drastically and dramatically followed and applied regulations and processes of liberalization, privatization, and globalization which resulted excessive diploma of opposition in Indian economic system and created unexplored possibilities to all gamers with new excessive breed various product variety and operational efficiency. In order to strengthening the efforts GOI & regulator of mutual fund enterprise calls for powerful and green execution of followed approach for economic liberalization. It is mentioned that the mutual price range enterprise in India has additionally attained adulthood and has grown dramatically during the last 20 years which may be assessed with the aid of using the quantum of secondary buying and selling and sort of price range presented with the aid of using the issuers. [1] Due to its stupendous boom mutual fund enterprise is socially certain to be obvious in first-rate of economic reporting; and is difficult to a huge quantity of studies which ethically contributes to our understanding and affords appropriate solutions



IMPROVING THE SUSTAINABLE COOLING TECHNIQUES FOR DATA CENTERS

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Abstract:

Data centers play a critical role in modern society by facilitating the storage, processing, and dissemination of vast amounts of digital information. However, the exponential growth of data center operations has led to a substantial increase in energy consumption and environmental impact, primarily due to the high demand for cooling infrastructure. The current state of data center cooling heavily relies on traditional cooling systems that consume significant amounts of electricity and water, contributing to greenhouse gas emissions and straining local water resources. To address these issues, researchers and engineers have been actively exploring innovative cooling solutions that prioritize energy efficiency and sustainability. This study have various sustainable cooling technologies, including direct and indirect air cooling, liquid cooling systems, geothermal cooling, and waste heat recovery methods. Additionally, it examines advanced thermal management strategies, such as hot and cold aisle containment, computational fluid dynamics simulations, and machine learning-based control algorithms to optimize cooling operations. Furthermore, this research investigates the implementation of renewable energy sources, such as solar, wind, and geothermal power, to power data centers and their cooling systems. The integration of renewable energy with efficient cooling mechanisms can lead to a significant reduction in carbon emissions and promote the development of carbon-neutral data centers.

Keywords: Data centers, Sustainable cooling, Energy efficiency, Greenhouse gas emissions, Renewable energy, Cooling technologies, direct air cooling, indirect air cooling

Introduction

In the era of information technology, data centers have become the backbone of the digital age, supporting an ever-expanding volume of data storage and processing demands. However, this proliferation of data centers comes with significant environmental consequences, primarily stemming from the immense energy consumption required for cooling these facilities. The cooling infrastructure of data centers is responsible for a substantial portion of their total energy usage, leading to increased greenhouse gas emissions and contributing to the global challenge of climate change [1]. The urgency to address the environmental impact of data centers has driven researchers, engineers, and industry stakeholders to focus on improving sustainable cooling techniques. By seeking innovative and energy-efficient solutions, data centers can not only reduce their ecological footprint but also contribute to broader efforts in building a sustainable future. This paper delves into the critical subject of enhancing sustainable cooling techniques for data centers. It explores the current state of data center cooling, highlighting the shortcomings of traditional cooling methods that heavily rely on energy-



INNOVATIVE APPROACHES TO LAND RECLAMATION AND LANDFILL DESIGN

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Abstract:

Land reclamation and landfill design have emerged as critical aspects of sustainable urban development and environmental management. Traditional landfill practices often lead to long-term ecological and aesthetic degradation, necessitating a shift towards innovative approaches that minimize environmental impact, optimize land use, and promote resource recovery. This abstract explores the latest trends and advancements in land reclamation and landfill design, highlighting key strategies and technologies that are revolutionizing these fields. Innovative approaches encompass a range of techniques, from the transformation of conventional landfills into multi-functional spaces to the utilization of advanced geosynthetics and liner systems to enhance containment and prevent leachate migration. The adoption of circular economy principles in landfill management is becoming increasingly prevalent, with waste-to-energy facilities, biogas extraction, and material recovery facilities playing pivotal roles in maximizing resource efficiency and reducing the carbon footprint of landfills. Additionally, a growing emphasis on ecological restoration and habitat creation within reclaimed lands is fostering the development of sustainable, green infrastructure projects. These initiatives prioritize biodiversity conservation, carbon sequestration, and the provision of recreational spaces within former landfill sites, exemplifying the integration of environmental, social, and economic benefits. Furthermore, advancements in data analytics and modeling are aiding in the optimization of landfill operations, promoting real-time monitoring, and facilitating informed decision-making.

Keywords: Land reclamation, Landfill design, Sustainable development, Environmental management, Circular economy, Resource recovery, Geosynthetics, Liner systems, Waste-to-energy, Biogas extraction

Introduction:

In an era marked by burgeoning urban populations and escalating waste generation, land reclamation and landfill design have risen to the forefront of environmental management and sustainable development. Conventional landfill practices, once viewed as simple waste repositories, have become recognized for their substantial environmental and social implications. As the global community grapples with the repercussions of excessive waste disposal and diminishing available land, innovative approaches have emerged to transform the way we perceive and manage landfills [1]. This comprehensive introduction delves into the multifaceted realm of land reclamation and landfill design, shedding light on the dynamic and forward-thinking strategies that are revolutionizing waste management. As urbanization continues to accelerate worldwide, the management of waste and the restoration of degraded land have become increasingly urgent concerns. Fig. 1 has been clearly shown that traditional landfill practices have often been associated with long-term ecological degradation, the



PROFESSIONAL STRESS ON COLLEGE TEACHERS

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Abstract:

Nowadays, there is, however, a well known feeling that the lecturers do now no longer have pleasure of their task. There appears to be developing discontentment toward their tasks because of which widespread of schooling are falling. Teachers are disillusioned in spite of various plans and programs that have been carried out to enhance their task. Higher educational and expert qualification of the lecturers, no doubt, can increase the usual of schooling in addition to of nation, however disillusioned teachers, in spite having a terrific and sound educational profession and expert training, will do tons damage than precise due to the fact they'll neither work entire heartedly nor will they are trying to contribute whatever to schooling. The Teacher is one of the maximum critical elements contributing to the national development. He is the pivot round which all of the instructional programs, such as curriculum, syllabus, textbooks, evaluation, etc., rotate. The consequences discovered that 76% of the lecturer's skilled non-public pressure associated with monetary strain. The different most important stressors had been intrinsic activity-associated issues (65%), managerial role (67%). The consequences additionally discovered that 64% of the lecturers had been happy with their activity and round 59% had been dealing with a burnout. The lecturers mentioned a few fitness troubles as a result of work pressure. Teachers who mentioned fitness troubles felt disturbing at work and had been extra burned out; 42% of the lecturers felt happy with coaching as a profession; and approximately 46% of the lecturers who mentioned much less pleasure had been much more likely to sense burned out and equipped to keep in mind different profession alternatives due to work pressure.

Keywords: Work, Stress, Teachers, job satisfaction, work pressure

1. Introduction:

The first-class of schooling relies upon the first-class of the academics. Thus, the position of the academics may be very crucial in making the kingdom. If the academics are versatile, intellectually enlightened, morally strong, emotionally balanced socially and culturally superior than the kingdom could have enlightened and extremely good citizens. Job satisfaction performs a completely crucial position in our regular life, each for personnel and organizations. Organizations have giant results on all personnel and how they sense at work is pondered of their jobs as well. [1] Based on many studies, when personnel are happy with their jobs they'll be greater dedicated to their employer and might be greater productive. Job satisfaction affects worker productivity, wellness and



RECENT ADVANCES IN DISASTER- RESILIENT INFRASTRUCTURE PLANNING AND DESIGN

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Abstract:

In the face of increasing global climate change and the escalating frequency and severity of natural disasters, the imperative to develop and implement disaster-resilient infrastructure has never been more critical. This abstract provides an overview of recent advances in the field of disaster-resilient infrastructure planning and design, highlighting key trends, methodologies, and innovations. Recent research in disaster-resilient infrastructure planning emphasizes a holistic and interdisciplinary approach. It involves the integration of cutting-edge technologies such as Geographic Information Systems (GIS), remote sensing, and artificial intelligence to assess vulnerabilities and predict disaster impacts accurately. This approach facilitates the identification of high-risk areas and allows for proactive mitigation measures. Advancements in risk assessment and modeling play a pivotal role in disaster-resilient infrastructure planning. New methodologies consider multiple hazard scenarios, including earthquakes, floods, hurricanes, wildfires, and pandemics. Researchers are developing advanced risk models that take into account climate change projections, urbanization patterns, and socio-economic factors to create comprehensive risk profiles for infrastructure systems. In the realm of design and construction, recent innovations focus on resilient materials and technologies. Engineers are exploring the use of reinforced concrete, smart sensors, and modular construction techniques to enhance infrastructure resilience. Community engagement and inclusivity are integral components of disaster-resilient infrastructure planning. Initiatives emphasize the importance of involving local communities in decision-making processes, incorporating indigenous knowledge, and addressing the unique needs of vulnerable populations.

Keywords: Disaster resilience, Infrastructure planning, Infrastructure design, Risk assessment, Climate change adaptation, Natural disasters, Hazard mitigation

Introduction:

In an era defined by increasing urbanization, climate change, and a growing frequency of natural disasters, the resilience of our infrastructure systems has emerged as a critical concern. Infrastructure, the lifeblood of modern societies, encompasses a vast network of roads, bridges, buildings, utilities, and communication systems [1]. These vital components face a relentless onslaught of challenges, ranging from extreme weather events like hurricanes and wildfires to seismic activity, flooding, and the unexpected disruptions brought about by global pandemics. As such, the imperative to develop disaster-resilient infrastructure has never been more urgent. This introduction sets the stage for an exploration of the recent advances in disaster-resilient infrastructure planning and design, a dynamic and multidisciplinary field that holds the promise of fortifying our communities against the mounting threats of an uncertain future. It is a realm where engineering meets sustainability, where cutting-



REVIEW OF TRIBOLOGY AND SURFACE ENGINEERING TECHNIQUES FOR REDUCING FRICTION AND WEAR IN MECHANICAL COMPONENTS

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Abstract:

Friction and wear are fundamental challenges in mechanical systems, leading to energy losses, decreased operational efficiency, and increased maintenance costs. Tribology, the science and engineering of interacting surfaces in relative motion, plays a crucial role in addressing these issues. It delves into various surface engineering techniques that have been developed to modify the surface characteristics of materials and enhance their tribological properties. These techniques encompass both traditional and emerging approaches, such as surface coatings, surface texturing, and nanomaterial applications. Surface coatings are widely employed to improve the tribological performance of components. There are different coating types, such as solid lubricant coatings, diamond-like carbon coatings, and nanocomposite coatings, highlighting their benefits and limitations. Furthermore, the influence of deposition methods and coating parameters on the resulting tribological properties is examined. Surface texturing, a promising technique, involves creating designed patterns or microstructures on the surfaces of components. There are various texturing methods, including laser texturing, etching, and additive manufacturing, and evaluates their effectiveness in reducing friction and wear. Nanomaterial applications have gained significant attention due to their unique properties. The review explores the incorporation of nanoparticles and nanolubricants into lubricating systems to reduce friction and wear. The effects of nanoparticle size, concentration, and surface chemistry on tribological performance are elucidated.

Keywords: Tribology, Surface engineering, Friction reduction, Wear reduction, Mechanical components, Surface coatings, Surface texturing, Nanomaterials

Introduction:

Tribology, the study of friction, wear, and lubrication between interacting surfaces, holds immense significance in the realm of mechanical engineering. In mechanical systems, friction and wear are perennial challenges that not only lead to energy losses but also result in reduced operational efficiency and increased maintenance costs. The adverse effects of friction and wear on mechanical components necessitate innovative techniques to mitigate these issues and optimize the performance and longevity of systems [1]. The field of tribology, along with surface engineering, has evolved considerably over the years, offering a diverse range of approaches to combat friction and wear problems. Surface engineering techniques aim to modify the surface properties of materials to enhance their tribological characteristics, thereby reducing friction and wear. The fundamental principles of tribology, including the mechanisms of friction and wear. This foundational knowledge sets the stage for comprehending the intricacies of various surface engineering techniques and their impact on reducing



SYSTEMATIC REVIEW ON DRAWING

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Abstract:

Despite continued advancements in virtual reality, artificial intelligence, and digital imaging technology, drawing remains vital. The ability of drawing to support learning as well as the growth of creativity across disciplines is one of the reasons for its significance. Numerous researches have looked into the function of drawing in the learning process in light of its importance. The drawing process has been shown to improve a variety of learning mechanisms, capacities, and skills, including visual thinking, ideation, intuition, focus, embodiment, translating experience, perceiving, and ideation. These studies also provide a substantial addition to understanding the potential of the drawing process; nevertheless, they concentrate on discrete learning mechanisms, and there is currently a lack of a comprehensive theoretical framework that would characterize the relative importance of the various mechanisms. This paper examines the research on the learning mechanisms supported by drawing in light of this knowledge gap. The three primary stages of the drawing process—perception, elaboration, and production—are described in a theoretical framework that incorporates the recognized learning mechanisms. This theoretical framework can be used by academics to create teaching and learning activities, and practitioners can use it to recognize the intellectual labor that goes into each stage of their artistic production.

Keywords: Sketch, Drawing, Hand drawn, Freehand, Design, Ideas, External, Interpretation

INTRODUCTION:

A sketch is a freehand drawing that can be created by adults, children, experts, and amateurs alike. Sketch research has emerged as a lively and well-liked area of computer vision with the emergence of touch screen digital devices like tablets and phones. On the screens of electronic devices, many people draw shapes, which might provide a huge amount of data for further studies. For instance, one of these recently made available datasets includes more than 50 million free-hand drawings that Google acquired while developing the Smartphone game Quick Draw.

Many researchers ran machine learning classification experiments using hand-drawn sketches as a result of the aforementioned publicly available datasets. Hand-drawn sketches differ from typical photographic images in three key ways: (i) they can be very abstract and deformed while still representing the same object; (ii) some people may draw all the features of the object while others may miss them; and (iii) sketches lack color because they are typically only black and white.



THE EFFECTS OF ARTIFICIAL INTELLIGENCE ON BUSINESS

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Abstract:

One of the disciplines that are rapidly expanding and receiving greater attention in the corporate sector is artificial intelligence (AI). Artificial intelligence is already used in a wide range of industries, including business and daily life. By using AI in business, a sector of the economy may be forced to rely on more efficient, affordable, and timely marketing techniques. By implementing this AI in marketing strategies, a business owner can increase audience response and establish a strong competitive position against other online companies. In addition to marketing, it can revitalize a company with original concepts. Additionally, it offers a solution for challenging problems, aiding in the business's tremendous expansion. Thus, we will address the evolution of the business sector and of entrepreneurs employing AI topology and its function in many business sectors in this paper.

Keywords: Artificial Intelligence, Entrepreneur, Marketing

Introduction:

John McCarthy, the inventor of artificial intelligence, provides a definition for AI, stating that "Artificial Intelligence is the science and engineering of making smart machines, particularly intelligent computer programmes." Artificial intelligence (AI) is intelligence displayed by machines. The study of "intelligent agents" is how the field of artificial intelligence (AI) defines itself in the context of software engineering. The phrase "artificial intelligence" is typically used when a machine mimics abilities that people typically identify with other people's personalities, such learning and critical thinking. A significant amount of programming that incorporates AI components has emerged in the last couple of years. For the current digital behemoths, subfields of AI like Machine Learning, Natural Language Processing, Image Processing, and Data Mining have become crucial. Machine learning is actively employed in Netflix's show recommendations, the Gmail spam filter, and Google's predictive search bar. Google Voice and Apple's Siri both use natural language processing. Both Google's self-driving cars and Facebook's facial recognition algorithms require image processing. Because there is so much information being collected every day in such large quantities, the term "information mining" has become vernacular in the programming business. Companies like Facebook and Google regularly collect a large number of client measures and require a method to interpret the data they receive. Artificial intelligence has successfully shown to be a useful new tool in the technology-overwhelmed society of today.



“UNVEILING THE FUTURE: INNOVATIONS IN WIND TUNNEL TECHNOLOGY”

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Abstract:

A wind tunnel is a tool that evaluates aerodynamic force and pressure distribution by creating an artificial airflow relative to a stationary body to mimic real-world conditions. Wind tunnels provide a quick, affordable, and precise way to conduct aerodynamic research. The capacity of wind tunnels to precisely mimic the complete complexity of full fluid flow is their most crucial feature. A low-cost subsonic wind tunnel is conceived, built, and its performance is evaluated in the current study. The main goals were to build it for less money and to place it in a lab space. The wind tunnel's cross section is square in shape and is 0.90 m x 0.90 m and 1.35 m in length. The tunnel can be constructed in a laboratory room and has a total length of roughly 7.35 m. After testing, the performance inside the test portion of the wind tunnel is around 28 m/s, and the velocity profile throughout its height and width is practically linear in character, with the exception of an allowance of about 12% in the four side walls where the boundary layer is produced. The wind tunnel that was built adhered to the design specifications and can be utilized for a variety of aerodynamics tests.

Keywords: Wind Tunnel, Design, Pressure, Speed, Air

Introduction:

A wind tunnel is a tool for studying the flow around a body and for calculating the forces and pressures acting on a model that is positioned in the test area of a low-speed wind tunnel. It is a fundamental tool for examining the boundary layer separation and drag characteristics over a model or object in the test chamber of a wind tunnel.

Wind tunnels are categorized into two type's viz. Open circuit (Fig.1.) and Closed circuit (Fig. 2.).

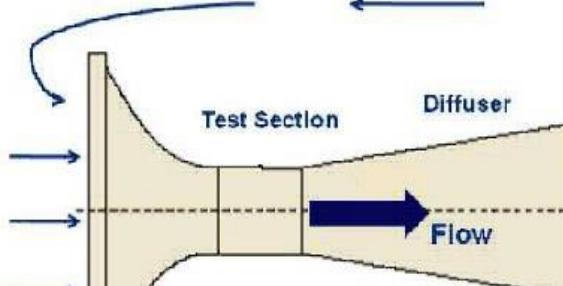


Fig.1: Open Circuit Wind Tunnel



WATERMARKING OF DIGITAL VIDEO OVER THE INTERNET FOR COPYRIGHT PROTECTION

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Abstract:

This work proposes a digital video watermarking method based on K-Harris' original sharpest edge detecting methodology. We analyse the video and determine the best elements within each frame as well as the best elements on the watermark. The Harris detector is used to choose the points. There is a threshold value, which determines which frames are chosen and implanted with the watermark image. The watermark image, whose quality has been kept to a significant extent, is retrievable later.

Keywords: Watermarking, Harris Detector, PSNR, BER, MSE

Introduction:

This work proposes a digital video watermarking method based on K-Harris' original sharpest edge detecting methodology. We analyse the video and determine the best elements within each frame as well as the best elements on the watermark. The Harris detector is used to choose the points. There is a threshold value, which determines which frames are chosen and implanted with the watermark image. The watermark image, whose quality has been kept to a significant extent, is retrievable later. The inadequacy of the current copyright regulations for handling digital data has long been acknowledged. Therefore, this issue can be resolved by current developments in digital watermarking technology. Watermarking is the practise of incorporating a label or watermark into the original data (such as an image, audio file, or video) so that it can later be retrieved or recognised to support a claim about the object. As a guarantee of authenticity, quality, ownership, and source, presentation media are embellished with watermarks of varied degrees of visibility.

Video Watermarking:

Video watermarking [1] entails incorporating cryptographic data generated from digital video frame data into the actual video. A watermark extraction application can read the watermark and retrieve the embedded information, but ideally a person watching the video won't be able to tell the difference between the original, unmarked video and the marked video. This method operates independently of the video file format or codec since the watermark is a component of the video rather than a component of the file format or DRM system. A



ADVANCEMENTS IN NON-DESTRUCTIVE TESTING TECHNIQUES: A REVIEW

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ABSTRACT

Non-destructive testing (NDT) techniques play a critical role in ensuring the integrity and reliability of materials, components, and structures without causing any permanent damage or alteration in the field of mechanical engineering. Over the years, there have been significant advancements in NDT techniques, driven by the need for more accurate, efficient, and cost-effective inspection methods across various industries. There are NDT techniques such as visual inspection, liquid penetrant testing, magnetic particle testing, radiographic testing, and ultrasonic testing. These methods have been widely used and have undergone considerable improvements in terms of equipment, automation, and interpretation algorithms. The integration of digital imaging, robotics, and artificial intelligence has significantly enhanced the accuracy, repeatability, and speed of data acquisition and analysis in these techniques. It explores emerging NDT techniques that have gained prominence in recent years. These include advanced imaging methods such as computed tomography, phased array ultrasonics, and eddy current testing, as well as novel techniques like terahertz imaging, laser-induced breakdown spectroscopy, and guided wave testing. These techniques offer superior capabilities in detecting hidden defects, characterizing material properties, and inspecting complex geometries. There are advancements in data analysis and interpretation techniques, including the utilization of machine learning algorithms and artificial neural networks. These techniques enable automated defect recognition, classification, and predictive maintenance, leading to improved inspection efficiency and reliability.

KEYWORDS: Visual inspection, Liquid penetrant testing, Magnetic particle testing, Radiographic testing, Ultrasonic testing, Digital imaging, Robotics, Artificial intelligence

INTRODUCTION

Advancements in non-destructive testing (NDT) techniques have revolutionized the field of inspection and quality assurance, offering more accurate, efficient, and reliable methods to assess the integrity and reliability of materials, components, and structures. NDT plays a crucial role in industries such as aerospace, automotive, energy, manufacturing, and infrastructure, where the detection and characterization of defects are essential to ensure safety, compliance, and cost-effectiveness in the field of mechanical engineering [1]. Traditional NDT techniques, such as visual inspection, liquid penetrant testing, magnetic particle testing, radiographic testing, and ultrasonic testing, have long been used for inspecting materials and structures. These techniques



ADVANCES IN SUSTAINABLE MANUFACTURING PROCESSES AND TECHNOLOGIES- A REVIEW

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Abstract:

Sustainable manufacturing has emerged as a pivotal approach to address the pressing challenges of environmental degradation and resource depletion in the industrial sector. This review aims to provide an overview of recent advances in sustainable manufacturing processes and technologies, showcasing their potential to revolutionize traditional industrial practices and pave the way for a greener and more environmentally responsible future. It highlights the increasing global awareness of sustainability concerns and their impact on the manufacturing industry. It delves into the shift in mindset towards eco-conscious practices, prompting manufacturers to explore innovative methods to reduce their carbon footprint and resource consumption. It delves into various sustainable manufacturing processes that have gained traction in recent years. These include green materials sourcing, eco-design principles, and product life cycle assessment techniques. Moreover, it explores cutting-edge advancements in energy-efficient manufacturing, waste reduction strategies, and closed-loop production systems, all geared towards achieving greater sustainability. Technological innovations also play a pivotal role in shaping sustainable manufacturing. The role of Industry 4.0 technologies, such as Internet of Things (IoT), artificial intelligence, and big data analytics, in optimizing production processes, reducing energy consumption, and minimizing waste generation. Additionally, it explores the integration of renewable energy sources and smart grids to power sustainable manufacturing facilities.

Keywords: Sustainable manufacturing, Green materials sourcing, Eco-design principles, Product life cycle assessment, Energy-efficient manufacturing, Waste reduction strategies

Introduction:

In recent decades, the global industrial landscape has undergone a profound transformation driven by the growing recognition of environmental concerns and the urgent need for sustainable practices. Among the critical sectors that have embraced this paradigm shift is manufacturing, which has seen a surge in the development and implementation of advances in sustainable manufacturing processes and technologies. As the world grapples with the challenges of climate change, resource depletion, and ecological imbalances, sustainable manufacturing has emerged as a pivotal solution to mitigate environmental impacts while meeting the demands of a rapidly evolving market. The conventional manufacturing approaches of the past were often characterized



BIOMIMETICS FOR SUSTAINABLE DEVELOPMENT: A REVIEW

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Abstract:

Biomimetics, also known as biomimicry, is a rapidly emerging field that draws inspiration from nature to address various challenges and develop sustainable solutions. It highlights its interdisciplinary nature and the fundamental idea of emulating nature's designs, processes, and strategies. It discusses the underlying principles of biomimetics, such as evolution, adaptation, and sustainability, and how they guide sustainable development practices. The methodologies and approaches used in biomimetics, emphasizing the importance of observing and understanding natural systems. It explores the process of translating biological strategies into practical solutions through interdisciplinary collaborations and iterative design iterations. Biomimetic databases and computational tools are also discussed as valuable resources for implementing biomimetic design principles. Several case studies from diverse fields, including architecture, energy, materials science, and transportation, are presented to showcase the potential of biomimetics for sustainable development. Examples include energy-efficient buildings inspired by termite mounds, bio-inspired solar panels, and biomimetic materials with enhanced properties. The environmental and societal benefits of biomimetics, such as resource efficiency, waste reduction, and improved resilience, are highlighted. The review also addresses the challenges and limitations associated with biomimetic design, such as the need for deeper scientific understanding, technological advancements, and effective knowledge transfer.

Keywords: Biomimetics, Biomimicry, Sustainable development, Nature-inspired design, Interdisciplinary approach, Evolutionary principles, Adaptation, Sustainability, Observation of natural systems, Design iterations, Biomimetic databases

Introduction:

Biomimetics, a field that draws inspiration from nature's designs and processes, has emerged as a powerful approach to address the challenges of sustainable development. By emulating nature's solutions, biomimetics offers a pathway to develop innovative and sustainable technologies, systems, and practices. In recent years, the urgent need for sustainable development has become increasingly evident. Traditional approaches to innovation and design often neglect the intricate wisdom that nature has honed through millions of years of evolution [1]. Biomimetics, however, recognizes nature as an invaluable source of inspiration and knowledge. By studying and emulating the structures, processes, and strategies found in the natural world, biomimetics seeks



DIFFERENCE BETWEEN WORK TRANSFER AND HEAT TRANSFER IN THERMODYNAMICS

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Abstract:

Heat and work are two different ways of transferring energy from one system to another. The distinction between Heat and Work is important in the field of thermodynamics. Heat is the transfer of thermal energy between systems, while work is the transfer of mechanical energy between two systems. This distinction between the microscopic motion (heat) and macroscopic motion (work) is crucial to how thermodynamic processes work. Heat can be transformed into work and vice versa, but they aren't the same thing. The first law of thermodynamics states that heat and work both contribute to the total internal energy of a system, but the second law of thermodynamics limits the amount of heat that can be turned into work.

Keywords: Work, heat, types, formula, similarities, differences

1. Introduction:

Work transfer in thermodynamics:

During our discussion about mechanics, we have discussed that work is said to be done if a force is acting over an object and object moves through a displacement in the direction of force. Work will be calculated by the dot product of force and displacement and its unit of measurement will be joule and will be indicated by J.

Work is basically defined as the transformation of energy by any process except from heat in the field of thermal engineering. In thermal engineering energy transfer in the form of work will be calculated by the product of force (F) and displacement (X). Displacement will be in the direction of the force.

Work is one of the basic modes of energy transfer. In mechanics, the action of a force on a moving body is called work. A force is a means of transmitting an effect from one body to another. An effect of that certain distance can be performed by a body. The product of force and distance is the same to accomplish the same effect.

In order to change the state of the system, we need to alter the condition of the system by altering the thermodynamic properties of the system such as temperature, volume or pressure. Above changes will be done by varying the volume by displacing the piston or by changing the pressure by removing or adding the weight over the piston or varying the temperature by heating the gas.

**EFFECTS OF ADDITION OF CARBIDE ON SEWAGE DEGRADATION****Ruchika Sharma¹ Harish Sharma²,**

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Abstract:

An important environmental concern is the disposal of industrial solid wastes in the environment. This study looked into how waste dumps for calcium carbide affected the soil's quality. Using a hand auger, soil samples were taken from three distinct dumpsites at various depths and combined to create composite samples. Samples were put through routine analytical processes. The pH ranged from 10.38 to 8.28, the amounts of nitrate, phosphate, and calcium carbide were lowered from 10 to 3%, 5.6 mg/kg to 9.3 mg/kg, respectively. In control soil sample, there was no calcium carbide. The range of fungal counts from dumpsites was 0.8×10^3 to 1.4×10^3 cfu/g, while the range of bacterial counts was 1.8×10^5 to 2.5×10^5 cfu/g. *Pseudomonas spp.*, *Flavobacterium spp.*, and *Achromobacter spp.* were among the bacteria that were isolated. Among the fungi were *Penicilliumnotatum*, *Aspergillusniger*, and *Rhizopusstolonifer*. While there were isolates from various soil depths, none of the dumpsites' 0–15 cm of soil had any organisms. The alkaline nature of the dumpsite may contribute to toxicity. Calcium carbide may be bactericidal and fungicidal, which could affect cellular physiology, growth, and death, as well as the biodiversity of the environment as a whole and ecosystem processes. The optimal management strategy may involve detoxifying calcium carbide waste before burying it in the ground.

Keywords: Calcium carbide waste, Soil health, Denitrification, Toxicity, Biodiversity, Ecosystem processes

Introduction:

Wastes that are produced are dumped into the environment without proper treatment. When it gets into the soil, it enriches the nutrients and causes hazardous chemicals to build up in the biomass and sediments [3]. The majority of these infiltrating materials cause the demise of soil-dwelling biota. Nitrates and phosphates, which are frequently present at municipal waste disposal sites, encourage the growth of microorganisms, but calcium carbide from spent carbide disposal sites can cause the death of microorganisms necessary for plant growth, rendering the area unsuitable for plant cultivation.

In order to produce industrial acetylene for welding equipment and chemical synthesis, calcium carbide (CaC_2) is typically employed. Large used carbide is typically left by some cavers anywhere in caverns where the recharging of gas generators takes place, and over the course of a year this can lead to a major buildup of such wastes like carbide dumps (William et al., 2000). Acetylene is another fuel utilised in caving [1].



HYBRIDIZATION IN WIRE ARC ADDITIVE MANUFACTURING (WAAM): A COMPREHENSIVE REVIEW

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Abstract:

Wire Arc Additive Manufacturing (WAAM) has emerged as a promising technique for fabricating large-scale metallic components with significant potential in various industrial sectors. This paper presents a review on the incorporation of hybridization approaches in WAAM, exploring the integration of multiple processes and technologies to enhance the overall efficiency, accuracy, and material properties of the additive manufacturing process. Subsequently, the concept of hybridization is introduced, wherein different manufacturing technologies, such as laser-based additive manufacturing, electron beam melting, and friction stir welding, are synergistically combined with WAAM to achieve a new level of process flexibility and control. It highlights the crucial role of material selection and deposition strategies in WAAM hybridization. By using multiple materials and deposition techniques, researchers have been able to create functionally graded components with tailored mechanical, thermal, and chemical properties, expanding the application range of WAAM-produced parts. In addition to material advancements, the implementation of advanced sensors and monitoring systems in hybrid WAAM setups is also discussed. Real-time process monitoring and adaptive control have shown promising results in mitigating defects, optimizing deposition parameters, and ensuring the integrity of the final products. Furthermore, the economic implications of hybrid WAAM systems are addressed, with an analysis of the potential cost savings and production time reductions when compared to conventional manufacturing methods. The environmental impact of these hybrid processes is also explored, emphasizing their potential contributions to sustainable manufacturing practices.

Keywords: Wire Arc Additive Manufacturing, Hybridization, Additive Manufacturing, Laser-based Additive Manufacturing, Electron Beam Melting, Friction Stir Welding, Functionally Graded Components

Introduction:

Wire Arc Additive Manufacturing (WAAM) has emerged as a revolutionary technique in the realm of additive manufacturing, enabling the fabrication of large-scale metallic components with unprecedented efficiency and versatility. Unlike traditional subtractive manufacturing methods, WAAM builds up complex structures layer by layer, offering numerous advantages in terms of material usage, design freedom, and reduced waste [1]. As this technology continues to gain



IMPORTANCE OF PROJECT MANAGEMENT IN MECHANICAL ENGINEERING

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Abstract:

Project Management is an integral part of mechanical engineering. As it (ME) gives launching platforms for every field of engineering such as automobile, manufacturing, aerospace, power generation, chemical engineering, etc. Project management activities occur during project planning and project execution. Project planning involves scheduling the project tasks and determining resource requirements. The project plan is first laid out during the concept development phase, although it is a dynamic entity and continues to evolve throughout the development process. Project execution, sometimes called project control, involves coordinating and facilitating the myriad tasks required to complete the project in the face of inevitable unanticipated events and the arrival of new information. Execution is just as important as planning; many teams fail because they do not remain focused on their goals for the duration of the project. We present the fundamentals of task dependencies and timing, along with three tools for representing relationships among project tasks.

Keywords: Design, project, structure, planning, management, benefits

1. Introduction:

Project management is the practice of shepherding a project from inception through to delivery, applying the necessary skills and knowledge to keep the project on time, on budget, and aligned with all relevant specifications. For engineers, project management includes careful planning and communication of that plan to a team of engineers. It involves the identification of project goals and milestones as well as the development of multiple scenarios and contingency plans. It's an important process for any engineering team because otherwise, the unexpected can arise and derail the work of dozens or even hundreds of people.

Engineering is a complex and ever-evolving industry, so engineering project managers need to be adaptable and up to date on all of the latest best practices. That includes engineering practices related to the project at hand, as well as overall management skills.

Engineering project managers need to have general project management expertise. That includes the following skills, as identified by the Project Management Institute:

- Communications



MATHEMATICAL MODEL ON AIR CONDITIONING AND REFRIGERATION SYSTEM

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Abstract:

An air conditioner is a system that is used to cool down a space by removing heat from the space and moving it to some outside area. The cool air can then be moved throughout a building through ventilation. Air conditioners require some input of work to operate, otherwise entropy would decrease naturally which is forbidden by the Second law of thermodynamics. Air conditioners act similarly to a heat pump, but instead follow a cycle. Mathematical simulation of air conditioning and refrigeration systems is an effective method for investigating the thermal behavior and thermodynamic characteristics of these systems and to obtain the power consumption, cooling power, and COP under any operating conditions. A mathematical model for a complete air conditioning and refrigeration system is an integration of the component sub-models, including the compressor, condenser, evaporator, and expansion valve. Therefore, a detailed analysis of each component in an air conditioning and refrigeration system is covered during the modeling procedure.

Keywords: Vehicle Air conditioning and Refrigeration, Mathematical Modeling, Optimization

1. Introduction:

Both industrial refrigeration and air-conditioning are based on the same mechanism: a fluid, generally water or air, is cooled by evaporation of another fluid, called the refrigerant. The refrigerant circuit, comprising the compressor, evaporator, condenser and expansion device, is an integral part of both systems. Nonetheless, there are substantial differences between refrigeration and air-conditioning systems, for example as regards the components, the design methods, the commercial or industrial structures where they're installed and their operation, such as to justify the existence of two distinct market sectors. Air-conditioning is that process used to create and maintain certain temperature, relative humidity and air purity conditions in indoor spaces. This process is typically applied to maintain a level of personal comfort. It's also used in industrial applications to ensure correct operation of equipment or machinery that need to operate in specific environmental conditions or alternatively to be able to carry out certain industrial processes, such as welding, which produce considerable amounts of heat that needs to be disposed of in some manner. An air-conditioning system must be effective regardless of outside climatic conditions



PRODUCTION STRATEGIES IN INDUSTRY

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Abstract:

Companies that need to be aggressive with inside the market create a manufacturing approach to broaden a plan of action. These plans permit them to set up short- and long-time period desires that tell each issue of manufacturing. In this paper we take a look at what a manufacturing approach is, speak how it is able to gain the manufacturing team, discover the exceptional sorts of manufacturing strategies, and offer a manual to developing your own. Production techniques are long-time period plans for the manufacturing of products and services. They intention to find a critical purpose or goal hooked up through a company's control team. A manufacturing approach features as a manual for the manufacturing branch through figuring out the form of generation to use, the extent of funding for manufacturing, the manufacturing schedule, and what form of schooling the manufacturing body of workers can also additionally require.

Keywords: Importances, types, strategy, production, push, pull

1. Introduction:

Balancing client and shareholder pleasure must be the final aim of any business strategy, further to creating money. Understanding the elements which might be vital for enterprise boom is essential. Improvements in device usage and efficiencies of operations, and discounts in direct hard work are not getting the entire process executed. Industrial engineers want to re-evaluate those indices and upload others with a focal point on enhancing the complete gadget as opposed to the paintings of people or small groups. Work receives executed thru people. People are liable for procedure operations, waft of materials, and first-rate output. People may also reply to enlightened path—that is, common-sense path in phrases they could apprehend. They apprehend the limitations that save you them from doing their jobs. They apprehend moves that make their jobs better. Keeping their machines maintained, presenting right tools, presenting the proper fabric of right first-rate on time, supplying vital training, and organizing attainable truthful desires are all manner to make upgrades they could apprehend. These are problems that interrupt the waft of first-rate merchandise at an aggressive product fee and at a transport fee that fits client demand. Companies must cognizance on those problems for maximum overall performance of the complete organization. Owners of the procedure are key to this objective, because it is thru them that upgrades are made. Industrial engineers must join philosophically with the people doing the



REVIEW OF ENERGY EFFICIENT HVAC (HEATING, VENTILATION, AND AIR CONDITIONING) SYSTEMS

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Abstract:

As global concern over climate change and energy consumption intensifies, the need for energy-efficient solutions becomes paramount, especially in the context of Heating, Ventilation, and Air Conditioning (HVAC) systems. The current energy consumption patterns and environmental challenges associated with traditional HVAC systems. It emphasizes the urgency for adopting energy-efficient alternatives to mitigate greenhouse gas emissions and curb the escalating demand for fossil fuels. The analysis of various energy-efficient HVAC technologies and strategies. These include advancements in system design, equipment optimization, control algorithms, and smart automation. Innovative heat recovery systems, variable refrigerant flow (VRF) systems, and passive cooling techniques are also scrutinized for their potential to reduce energy consumption significantly. The integration of renewable energy sources, such as solar panels, geothermal systems, and wind turbines, with HVAC systems. This approach presents an opportunity to harness clean, sustainable energy and make buildings more self-sufficient and environmentally friendly. The importance of regular maintenance and optimization of HVAC systems to ensure long-term energy efficiency. It addresses the significance of occupant behavior and awareness in maximizing the potential benefits of energy-efficient HVAC solutions. Various case studies and real-world examples of successful implementation, demonstrating the positive impact of energy-efficient HVAC systems on energy consumption reduction and indoor comfort.

Keywords: HVAC systems, Energy efficiency, Heating, Ventilation, Air conditioning, Economic benefits, Control algorithms, Sensor technologies, intelligent building management systems

Introduction:

Heating, Ventilation, and Air Conditioning (HVAC) systems play a crucial role in maintaining indoor comfort and air quality in various residential, commercial, and industrial settings. However, the rising global energy consumption and the environmental impact associated with traditional HVAC systems have prompted the exploration and implementation of energy-efficient alternatives [1]. Energy efficiency in HVAC systems is of paramount importance due to its potential to reduce energy consumption, lower greenhouse gas emissions, and minimize operating costs. Traditional HVAC systems often suffer from inefficiencies, such as excessive energy use, poor insulation, and inadequate control strategies. These inefficiencies not only contribute to increased energy bills but



ROLE OF MATERIAL MANAGEMENT IN CONSTRUCTION

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Abstract:

Material inventory management is one part of the logistics system devoted to project implementation on material procurement as per the needs plan procurement management is a very important material function, since the material inventory for a construction project involves a considerable investment cost. In general, every construction project involves complex activities, which involves the sharing of activities and operations. Construction Materials Management (CMM) is a core function of supply chain management and, as we all know, crucial to successful and profitable projects. It involves planning and executing supply chains to meet the objectives and requirements for project delivery to all construction firms. These requirements include controlling and regulating material flow while simultaneously sourcing, purchasing, receiving, storing, and using construction materials. It is a critical component of any construction project, as it can have a significant impact on the project's cost, schedule, and quality.

Keywords: Construction Materials, Cost control, Materials Management

1. Introduction:

Construction material management is the process of sourcing appropriate materials at a reasonable cost and ensuring their availability — at the right place and time — to meet project requirements and deadlines. It is a vital function for construction projects of every scope. The quality of your construction material management can make or break a project budget. A poor materials management strategy can result in skyrocketing costs through decreased labor productivity, material waste, and missed project milestones and deadlines. However, a carefully-planned materials-management strategy has the potential of an immense impact on the business growth of your organization.

Handling of Resources in Construction Industry can be defined as the management of Funds, Human Resources, Raw Materials and Tools, Equipment and Machineries required for the successful completion of the project. Any Mismanagement in handling the Resources can pose a serious threat to the timely completion of the project within the given time and given profit of margin. Hence it has to be treated with at most care, importance and attention. Material management is intended to support in order to ensure the smooth and efficient implementation of construction projects. The material management objectives include:



THE ROLE OF NATURAL GAS AS AN ENERGY SOURCE

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Abstract:

According to current estimations, natural gas can be found in many parts of the world in sufficient amounts to provide energy for human activities for about 250 years. In 2011, natural gas accounted for around 21% of the worldwide energy industry's total revenue, placing it third in importance behind coal and oil. That corresponds to hundreds of billions of dollars in financial terms each year. This paper will examine the components of that fuel to highlight its significance as a source of energy and evaluate its potential impact on supplying energy in the future. The technique covers a description of natural gas, its history, its potential stocks and their distribution geographically, its use, a comparison with other energy sources and the potential for developing additional resources.

Keywords: Natural Gas, Energy Source, Fuel, Hydrogen, Sulfur

Introduction:

Natural gas [1] is a gaseous fossil fuel that can be found in coal beds, natural gas fields, and oil fields. It is a hydrocarbon-rich gas.

William Hart, regarded as America's "father of natural gas," drilled the first known natural gas well in Fredonia, United States, in 1821. In more modern times, drilling for crude oil led to the discovery of natural gas. Due to the absence of a secure system for long-distance gas distribution throughout the 19th century, natural gas was utilised locally as a source of lighting. Natural gas was widely used after World War II as a result of engineering developments that made it possible to build secure, dependable, long-distance pipelines for gas transportation.

Natural gas has no colour, no shape, and no odour when it is pure. It is a combustible gas, and burning it releases a sizable quantity of energy. When compared to other fossil fuels (such as coal and crude oil), it is regarded as a clean, environmentally friendly fuel. Other than natural gas, combustion of fossil fuels releases vast quantities of chemicals and particles that are harmful to human health. Although nitrous oxide and carbon dioxide emissions are reduced when natural gas is burned, sulphur dioxide emissions are zero, which contributes to a reduction in issues with acid rain, the ozone layer, and greenhouse gases.

Natural gas provides 29% of our energy and is used to heat about half the homes in the United



DEVELOPMENT OF GROUND IMPROVEMENT TECHNIQUES AND ITS APPLICATION

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Abstract:

The rapid urbanization and industrialization of modern society have led to an increased demand for infrastructure development on a global scale. However, many construction sites are challenged by weak or unsuitable ground conditions, which pose significant engineering and environmental challenges. This necessitates the development and implementation of effective ground improvement techniques to enhance the load-bearing capacity, stability, and overall performance of subsoils. This abstract provides an overview of the recent developments in ground improvement techniques and their versatile applications in geotechnical engineering. The primary focus of this research is to present a comprehensive review of the latest advancements in ground improvement methods, which include but are not limited to soil compaction, stone columns, grouting, deep soil mixing, and geosynthetics. These techniques are explored in terms of their mechanisms, materials, design considerations, and sustainability aspects. Furthermore, the integration of modern technologies such as numerical modeling, geospatial analysis, and monitoring systems has revolutionized the assessment and implementation of ground improvement solutions. This abstract also highlights the practical applications of ground improvement techniques across various infrastructure projects, such as the construction of highways, bridges, buildings, ports, and land reclamation. Case studies from around the world illustrate the successful deployment of these techniques to mitigate settlement, improve slope stability, reduce liquefaction susceptibility, and enhance the overall performance of engineered structures. The economic, environmental, and social benefits of these improvements are underscored, emphasizing their role in sustainable and resilient construction practices.

Keywords: Ground improvement, Geotechnical engineering, Infrastructure development, Soil compaction, Stone columns, Grouting, Deep soil mixing, Geosynthetics, Numerical modeling, Geospatial analysis

Introduction:

The development of ground improvement techniques and their applications in geotechnical engineering is a topic of significant importance in the context of modern infrastructure development. As urbanization and industrialization continue to reshape our world, the demand for robust, reliable, and sustainable construction practices has never been greater. However, a fundamental challenge faced by engineers and builders alike lies in the unpredictable and often



FACTORS INFLUENCING DECISION-MAKING IN ORGANISATIONS

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Abstract:

One of the most crucial aspects of management in today's organisations is the decision-making process because it determines whether the entity succeeds or fails. Understanding the elements impacting decision-making is crucial in situations with high levels of uncertainty. The article's goal is to examine the factors that influence organisational decision-making. Economic, social, organisational, personal, and psychological aspects are among those that affect how decisions are made in organisations. According to the research, respondents ranked economic and organisational issues as being the most crucial. The most significant economic aspects impacting the decision-making process, according to the managers, are the resources possessed by the company, its commercial purpose, and the economic account. The organisational structure and the leadership style have the most effects on how effectively decisions are made.

Keywords: Management, organisations, decision-making, economic aspects, organisational structure

Introduction:

Organisations are currently [1] operating in very complicated, volatile, and unstable environments, which places them in entirely new qualitative situations. Complexity refers to both the dynamics of them and the extremely dynamically expanding number of factors influencing them. Managers are forced to make challenging decisions that will either define their success or failure because to the quantity and, more importantly, the incredible velocity of changes in the factors influencing the functioning and development of organisations. The method of decision-making is crucial for choosing the best course for development. [2] This presents difficult responsibilities for managers in terms of decision-making speed and quality based on, among other things, identifying the organization's core resources and success determinants, as well as identifying opportunities and dangers in the environment. Making decisions has to do with deciding on the best course of action. Choosing the greatest option from a variety of feasible solutions is frequently required for this. This essay's goal is to examine the factors that influence organisational decision-making. The data issue has been investigated using IDI, a method for aiding decision-making. The research hypothesis asserts that the manager's understanding of the factors influencing decision-making is crucial. It is vital to identify elements, issues, and barriers affecting the decision-making process in the continuously evolving and uncertain environment of organisations. As a result, this study updates the body of knowledge in this topic by the review of the literature and extensive



PERCEPTIONS AND PURCHASING DECISIONS OF CONSUMERS INFLUENCED BY CELEBRITY ENDORSEMENTS

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Abstract:

This paper was produced with the current celebrity endorsement trends in mind, as well as the numerous ways businesses are trying to convince their customers that they are superior. The empirical data in this research support the assertion that there is a very substantial correlation between the effects of celebrity endorsement and consumer preferences. The amazing increase in celebrity endorsements in the modern era, when everyone is connected to the internet to a great extent, can be linked to brand building and creating a lasting impression on consumers. Although enlisting a celebrity is a work that involves extensive study and planning, when done in ways that appeal to the target audience, it results in a significant increase in sales and improves brand image and equity. The purpose of this study was to shed light on the relationship between celebrity endorsements and their subsequent influence on purchasing decisions. The article focuses on all aspects of the relationship, which spans a variety of facets and shapes the brand and its overall image.

Keywords: Celebrity, Celebrity Endorsement, Brand, Brand value, Advertising, Consumer, Consumer Preferences

Introduction:

In today's cutthroat marketing environment, effective communication and strategic positioning serve as the two key "mantras" for brand success. Corporate organizations make every effort to market their brands and seize the attention of consumers. The focus is on grabbing the customer's attention and creating favorable associations in order to influence purchase decisions through influencing recall as well as trial and final trial behavior. It is important for businesses to take all reasonable steps to influence, motivate, and instill a desire to purchase in the customer through an efficient advertising campaign in a market where advertising plays a crucial part in coordinating consumer purchases. The employment of celebrities in advertising creates a lot of awareness and attention, as demonstrated by theory and practice. Celebrities such as Liz Hurley, Britney Spears, and Tiger Woods play a significant influence in the advertising industry, as seen by the billions of dollars spent on celebrity endorsement deals. Celebrities now lend their endorsement to numerous advertisements. Multiband has the support of even famous people. Customers' thoughts about buying the product are now quite unclear as a result. Therefore, research is needed to determine



THE PSYCHOLOGY OF CONSUMERS AND PRICING: A STUDY

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Abstract:

The price of a good or service is dependent on the buyer's perception of what that price ought to be. The consumer will determine if prices are reasonable, too high, or reasonable and low, depending on his or her prior experiences. Your clients will have a decent concept of where your rates should fall in respect to the market and your rivals thanks to personal experiences, advertising, and a fundamental understanding of standard pricing. You can use psychology to present a sense of worth or discount that will aid in the sale of your goods. For instance, the popular preference for Rs. 2999 over Rs. 3000 stems from the price psychology principle that even though there is just a one cent difference, something in the 9 range is a better deal than something in the 10 range. Studies have really shown that odd numbers are more frequently than even ones linked to cheaper rates. Giving something away with a purchase is mostly done to create the illusion of savings. A buy-one-get-one-free deal may save the consumer a modest amount of money, but it increases sales because people like the concept of obtaining something for nothing. The availability of items is another element that affects how much something costs. When you advertise a one-day deal, for instance, the assumption is that the buyer would move quickly rather than think about the purchase because there is a limited amount of inventory available. In the same way, if you are confident that supply and demand are working in your favor, you can maintain a higher pricing and make it clear that there aren't many left of the item. The value of limited edition things is always higher.

Keywords: Pricing, Consumer Psychology, Buying Behavior

Introduction:

The market is affected by how a product's pricing is determined. It is a significant pricing strategy that has historically been applied by retailers. Considering how buyers react, particularly to things with strange price finishes, the fashion seems to be useful. It is crucial to comprehend the psychological effects of price ending on consumers because the issue is subjective and functions at the cognitive level, employing the theory of perception. Marketers have employed psychological pricing over the years to influence consumers' purchasing decisions. Marketers frequently, though unknowingly, utilize psychological pricing strategies when setting prices for their goods and services. The use of price structures and presentations that appeal to consumers' emotions and have an impact on their decision-making processes is known as psychological pricing. The use of a pricing policy involves more than just numbers; an effort is also made to manipulate consumer



VEDIC MATHEMATICS: BELIEFS AND ACTIONS

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Abstract:

Vedic mathematics gives the answer in one line, whereas traditional methods require multiple steps. This is an ancient technique that simplifies multiplication, division, complex numbers, squaring, etc. cube root, square root, cube root. Repeating decimals and supplementary fractions can also be handled in the following way: Vedic Mathematics. Vedic Mathematics is part of Jyotish Shastra and is one of his six parts of Vedangas. Jyotish Shastra or Astronomy consists of his three parts called Skandhas. It refers to the large branches of a tree that protrude from the trunk. The bases of Vedic mathematics are the 16 scriptures, which ascribe many properties to numbers. 16 scriptures (verses) and 120 ancient Hindu scientists (rishis) of Bharat Word provides easy to follow instructions to solve all your math problems in 2 or 3 steps. Vedic mathematics or one line or two line method for division, reciprocal, Factorization, HCF, squares and square roots, cubes and cube roots, algebraic equations, multiples Simultaneous equations, quadratic equations, cubic equations, quadratic equations, higher order equations, differential calculus, partial fractions, integrals, Pythagorean theorem, Apollonius Theorems, analytic cone theory, etc. Vedic mathematics Then the formula will be presented with many examples Can be used to perform various mathematical operations Subtraction, addition, division, multiplication, etc. other. Vedic mathematics is basic mathematics, but for better mathematics

Keywords: Vedic mathematics, short cut, sutras, Formula, Operation, Vedas

1. Introduction:

Veda means "knowledge" in Sanskrit. Vedic Mathematics is its name. The ancient mathematical systems of India, or a precise set of rules for performing any arithmetic, easily solve algebra, geometry, or trigonometric problems. This system is based on 16 Vedic scriptures, a series of word formulas explaining solution steps and logic any mathematical problem that is considered very difficult or tedious in a traditional way. Vedic mathematics was originally rediscovered from Indian scriptures from 1911 he was developed in 1918 and fully developed by Jagad guru Sri Bharathi in 1957. Maharaja Krishna Sataj, scholar of Sanskrit, mathematics, and philosophy, It must be a divine revelation from God. What are the four Vedas? Yajur Veda, Rig Veda, Athar Vaveda, Sveda. However, the Vedas are ancient documents whose exact date is unknown. They are thought to date back many centuries BC. B.C. of The contents of the Vedas was known long before they were printed it was invented and available to everyone for free. That is it has been passed down by word of mouth for centuries. Of The Vedas are a collection of recently discovered

A REVIEW OF WIRELESS TECHNOLOGY

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Abstract:

The term "wireless" refers to communication methods where a signal is transmitted using electromagnetic waves. Numerous consumer and business applications of voice and data services use cutting-edge wireless communication technologies. The state-of-the-art in wireless technology and its numerous modern applications in daily life have been discussed in this study.

Keywords: Mobile technology, Wireless technology, Generation, 7.5G

1. INTRODUCTION

Mobile devices [1] together with the intelligence that will be embedded in human environments will create a new platform that enables ubiquitous sensing, computing, storage and communication. Core requirements for this kind of ubiquitous ambient intelligence are that the devices are autonomous and robust. They can be deployed easily and require little maintenance.

In the past few decades, mobile wireless technologies have experienced 4 or 5 generations of technology revolution and evolution, namely from 0G to 4G. With the 1G technology the cellular concept was introduced, which made the large scale mobile wireless communication possible.

Digital communication has replaced the analog technology in the 2G which significantly improved the wireless communication quality. Data communication, in addition to the voice communication, has been the main focus in the 3G technologies and a converged network for both voice and data communication is emerging. With continued R&D, there are many killer application opportunities for the 4G as well as technological challenges. 4G mobile systems will mainly be characterized by a horizontal communication model, where such different access technologies as cellular, cordless, wireless LAN type systems, short-range wireless connectivity, and wired systems will be combined on a common platform to complement each other in the best possible way for different service requirements and radio environments. The 5th wireless mobile multimedia internet networks can be completed wireless communication without limitation, which bring us perfect real world wireless – World Wide Wireless Web (WWW). 5G is based on 4G



A REVIEW ON ARTIFICIAL NEURAL NETWORKS

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Abstract:

This paper gives a brief overview of artificial neural networks (ANN) and some of their practical uses. Here, several neural network types and their architectures are also covered. In order to replicate the complex interactions between neurons in the human brain, neural networks use connections between neurons. The advantage of this is that artificial intelligence can start from scratch, create its algorithm, and learn the rule with the help of machine learning techniques based on the rules, whereas neural networks can develop over time without human intervention once they are given a set of rules or guidelines. While neural networks learn from the original baselines through human feedback, AI can learn from observations and doesn't need the baseline.

Keywords: Artificial intelligence, artificial neural networks, artificial learning

1. Introduction:

Artificial neural networks (ANN) are computer systems developed to realize skills such as generating, deriving, and developing new information by utilizing the information processing technique of the human brain [1]. The first application of ANN studies in computer systems started with the modeling of neurons. Neurons are interconnected by links that have a numerical weight. By adjusting these weights, learning takes place in the neural network.

Artificial neural networks can also be defined as a system designed to model a function that takes place in the human brain. Artificial neural networks are formed by connecting nerve cells in layers. Artificial neural networks can be used to perform basic operations such as classification, clustering, data aggregation, conceptualization, and prediction.

Artificial neural networks are used in fields such as engineering, military, industrial, finance, entertainment, medicine and health applications.

2. Historical Development:

Artificial neural networks are a sub-field of artificial intelligence developed to imitate human behavior in parallel with the technological developments in recent years. Artificial neural networks start with people's interest in neurobiology and their application to computer science. Studies on

A REVIEW ON MULTIMEDIA AND E-EDUCATION SYSTEMS

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Abstract:

The 21st century is said to be the era of innovation in data and correspondence. The understudies of today have grown up in an environment where information and learning are always accessible, where robotization is expressed through remote controls, and where the ability to reproduce is valued highly psychologically. The rapidly evolving field of "Multimedia and E-Education" is the subject of this paper. These days, more schools, colleges, and foundations are using astute demonstration techniques. From its creation in the 1980s, it has continued to evolve. This new innovation offers understudies the benefit of a different approach to studying. The e-Education methods add intelligence and intrigue to the classroom. Additionally, it has had a more notable impact on the training framework as well as the general public. Electronic course books that are actually used in the learners' actual classes are provided by e-course reading. The Advanced Course book makes use of the newest clever device and invention.

Keywords: Smart class, e-education, smart education, students, education system

1. Introduction:

Progress and enhancement of life and modern society rapidly imposes the need and requirement for modifications in educational infrastructure, which are traditionally very slow because of the country and the inertia of the education infrastructure or organization. Enhancing the quality and the improvement of instructing and learning through the utilization and execution of new patterns of innovation and IT empowered training is the essential focus of advanced education framework. Electronic based Training is making each instructive program that utilizations data and correspondence advancements to upgrade the learning procedure as E-learning couple of years prior, and now a days as Shrewd taking in a progressive approach is to utilize Brilliant learning as a supplement to customary educating, as a steady part the way toward instructing and learning. This paper exhibits the patterns in training in current way that is Savvy getting the hang of winning in advanced education through the usage of Brilliant learning and it's Institutionalization in instruction. Learning is not how much one can cramp up. It's rather the knowledge that remains after one forgets what he/she learned in schools. The Smart Learning approach provides learners of all ages and walks of life with a framework and a host of Smart Thinking Tools that motivate higher levels of understanding. Through the process learners activate and build background knowledge, process information, transform their learning into a product that shows what they know, and reflect on their learning [3].

ANALYZE THE SAFETY MEASURES AND TECHNOLOGIES USED IN AUTOMOTIVE VEHICLES

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Abstract:

This study looks into the potential opportunities and problems that new autonomous vehicle (AV) technology may present for transportation policy. Automated vehicles (AV) have the potential to reduce transportation costs and improve accessibility for low-income households and individuals with mobility impairments. Beyond anyone's current expectations, this new technology also has far-reaching uses and implications. This study covers a wide range of topics, from machine ethics to safety, and offers a thorough analysis of the pertinent literature. Communication between automobiles and infrastructure (connected vehicles) is a crucial component of any future development of autonomous vehicles. Traffic accidents have increased in frequency and severity as a result of societal development and a dramatic rise in car sales. Automotive technology has also advanced quickly in tandem with the swift advancement of science and technology, with automotive safety technologies progressively permeating every part of the vehicle. This paper presents the current state of car safety technology, suggests a type of airbag system, and explains how it operates.

Keywords: Automated vehicles, Mobility, Traffic accidents, Safety technology, Airbag system

Introduction:

Our everyday lives have been significantly impacted by new robotics and communication technologies, and this is also the case with transportation. With the use of these technologies, autonomous vehicle (AV) technology is now a possibility. Its goal is to increase accessibility to transportation while lowering energy use, pollution, collisions, and traffic. Despite the fact that autonomous car technology has been around for decades, large-scale production has been hampered by prohibitive costs [1]. Nevertheless, in the past ten years, there has been a surge in the amount of research and development work done to realise the concept of the AV. For instance, the introduction of the Google vehicle raised awareness of AVs. Additionally, the automobile sector



ASSESSING THE EFFECTIVENESS OF SUSTAINABLE DRAINAGE SYSTEMS (SUDS) AND CHALLENGES TO CONVENTIONAL DRAINAGE SYSTEMS

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Abstract:

In developing countries, dense, precarious and informal settlement is common. In the tropics, the occurrence of intense rainfall and the increased impervious surfaces have led to disastrous floods. Sustainable urban drainage systems (SUDS) are an alternative to enhance storm water management and runoff control, providing benefits related to social and environmental domains. This paper aims to ground the development of procedures for SUDSs implementation to mitigate flooding, and to maximize urban benefits and presents a modeling framework of SUDs implementation, using the Storm Water management Model (SWMM) to stimulate various SUDs scenarios, impacts of urbanization and climate change and various challenges to conventional drainage system.

Introduction:

SUDS are created to satisfy particular performance standards for (i) hydraulics, (ii) water quality, (iii) amenity, and (iv) biodiversity.

SUDS components are typically volume-based and created to control the interaction between the built environment and the drainage system to make managing large flows easier. Additionally, SUDS may treat surface water runoff, enhancing water quality in the process. By doing this, SUDS can dramatically enhance an area's amenity, adding value and enhancing wellness. In the UK in the late 1980s, SUDS were first used to lessen runoff. The "Scope for Control of Urban Runoff" recommendations, which offer guidance on a variety of technological measures to control runoff, were released by 1992. In 2000, additional guidelines that formalized the phrase "sustainable drainage systems" were published. Since 2003, SUDS have been required in the majority of new developments in various nations, including Scotland. Urbanization involves the significant use of impermeable surfaces, such as concrete and tarmac, which impedes rainwater infiltration. Water that could previously be infiltrated now flows off surfaces, creating large volumes of runoff and therefore, generating increased flooding risks. This has been exacerbated by the threats of more intense rainfall events due to climate change, placing even further pressures on surface water systems.

Waterbodies are generally protected by the setting of Environmental Quality Standards for priority chemicals, including potentially toxic elements such as copper, zinc, cadmium, lead and nickel.



AUGMENTED REALITY (AR) APPLICATIONS IN CONSTRUCTION

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Abstract:

Augmented Reality (AR) has emerged as a transformative technology with the potential to revolutionize the construction industry. This abstract provides a concise overview of the manifold applications of AR in construction, emphasizing its impact on project efficiency, safety, and collaboration. AR in construction involves overlaying digital information, such as 3D models, real-time data, and instructions, onto the physical environment. These applications can enhance several aspects of construction projects. AR-enabled project visualization allows stakeholders to experience a project in 3D before construction begins, helping in design validation and improving decision-making. One of the primary advantages of AR in construction is improved on-site worker performance and safety. AR headsets and mobile devices can provide real-time access to critical project data, helping workers visualize plans, navigate complex structures, and detect hidden hazards. This can result in reduced errors, rework, and accidents, ultimately enhancing project efficiency and safety. Collaboration is another area where AR shines. It enables remote experts to provide guidance to on-site workers through live video feeds, annotations, and shared 3D models. This fosters better communication and problem-solving, especially on complex construction sites. Furthermore, AR supports efficient quality control and inspection processes. It enables real-time comparisons of as-built structures with digital designs, streamlining the identification and correction of discrepancies. This reduces delays and cost overruns. AR applications in construction have the potential to revolutionize the industry by improving project visualization, worker performance, safety, collaboration, and quality control. While challenges such as device affordability and integration still exist, the promise of AR in construction is compelling, and its adoption is expected to continue to grow as technology advances.

Keywords: Augmented Reality (AR), Construction Industry, Project Visualization, Worker Performance, Safety Enhancement, Collaboration, Quality Control, 3D Models, Real-time Data, On-site Navigation

Introduction:

The construction industry, a cornerstone of modern society, is known for its dynamic nature and the perpetual quest for enhanced efficiency, safety, and collaboration. In this pursuit, technological advancements have become the catalysts for transformative change, and one technology that stands



BIG DATA INTEGRATION IN THE CONSTRUCTION INDUSTRY: CHALLENGES, OPPORTUNITIES, AND FUTURE DIRECTIONS

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Abstract:

The construction industry has witnessed a substantial transformation in recent years, driven by the adoption of big data integration. The integration of big data into the construction industry marks a significant paradigm shift, offering both challenges and remarkable opportunities. One of the foremost challenges faced by construction firms is the quality and reliability of the data collected. Ensuring that data is accurate and up-to-date is essential for making informed decisions. Privacy concerns also loom large, as construction projects often involve sensitive information about clients, stakeholders, and designs, making data security a top priority. Interoperability remains another challenge, as different software and systems used in the industry must seamlessly exchange and make sense of data. However, amidst these challenges, big data integration opens up exciting possibilities. It empowers construction companies with the ability to optimize project management, streamline processes, and make more cost-effective decisions. Real-time data from various sources can lead to improved resource allocation and scheduling, ultimately enhancing project timelines and reducing costs. Additionally, big data analytics can significantly boost safety by enabling the proactive identification of potential risks, thereby preventing accidents and improving overall workplace safety. Looking ahead, the future of big data integration in construction is bright. Emerging technologies like the Internet of Things (IoT) and artificial intelligence (AI) are set to further revolutionize the industry. IoT sensors can collect data from equipment, machinery, and even construction sites in real time, while AI can process this information to provide insights and recommendations. As construction companies harness these innovations, they will have the opportunity to reshape the industry, optimizing efficiency, sustainability, and overall performance. Construction firms must address data quality, privacy, and interoperability issues to fully leverage the potential benefits.

Keywords: Big Data Integration, Construction Industry, Internet of Things (IoT), Artificial Intelligence (AI), Real-time Data, Risk Management, Sustainability, Data Security, Resource Allocation, Technology Integration

Introduction:

The construction industry, a cornerstone of global infrastructure development, is experiencing a transformative revolution in the way it operates, largely driven by the integration of big data. In



BLOCKCHAIN TECHNOLOGY IN THE CONSTRUCTION INDUSTRY

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Abstract:

Blockchain technology has gained significant attention in various industries due to its ability to enhance transparency, security, and efficiency in data management. The construction industry, known for its complexity and information-intensive nature, is no exception. This abstract provides an overview of the key applications and benefits of blockchain technology in the construction sector. The construction industry faces challenges related to data integrity, supply chain management, project collaboration, and financial transparency. Blockchain technology offers solutions to these challenges by creating a decentralized, tamper-proof ledger system that records and verifies transactions and data across the construction lifecycle. This results in improved trust, accountability, and efficiency within the industry. One of the primary applications of blockchain in construction is the creation of smart contracts. These self-executing contracts automate and enforce agreements, ensuring that project milestones are met, and payments are made only when predefined conditions are fulfilled. Smart contracts reduce disputes and delays, enhancing project management. Additionally, blockchain facilitates a transparent and immutable record of construction materials and equipment through its supply chain. This helps in tracking the origin and quality of materials, reducing the risk of counterfeit products, and ensuring compliance with regulations and standards. Collaboration among various stakeholders in construction projects, such as architects, contractors, and clients, is streamlined through blockchain's distributed ledger. Real-time access to project data fosters better communication, decision-making, and accountability, ultimately leading to improved project outcomes. Blockchain technology also enhances financial transparency by recording all financial transactions related to construction projects. This reduces the potential for fraudulent activities and ensures that payments are made promptly, benefitting both contractors and subcontractors.

Keywords: Blockchain, Construction Industry, Transparency, Smart Contracts, Supply Chain Management, Project Collaboration, Financial Transparency, Data Integrity, Decentralization

Introduction:

Blockchain technology has emerged as a transformative force in the world of digital innovation, and its impact is reverberating across various industries. One sector where the potential of blockchain is becoming increasingly evident is the construction industry, a traditionally complex and data-intensive field. The construction industry relies on intricate collaboration between

CLIMATE CHANGE AND ITS IMPACTS ON ROAD TRANSPORTATION INFRASTRUCTURE

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Abstract:

Climate change is a pressing global issue with profound consequences for various sectors, and road transportation infrastructure is no exception. This abstract delves into the extensive impacts of climate change on road transportation infrastructure, encompassing the challenges it presents to road networks, engineering, and maintenance. As the effects of climate change become increasingly evident, the integrity and functionality of road transportation systems face unprecedented challenges. Rising temperatures and shifting weather patterns have led to a range of environmental stressors, including extreme heat, increased precipitation, sea-level rise, and more frequent and intense weather events. These factors collectively contribute to a significant deterioration of roads, bridges, and other transportation assets. High temperatures cause materials to expand and contract, leading to cracks and deformations, while heavy rainfall and flooding erode road surfaces and damage critical infrastructure components. As a result, maintenance and repair costs have surged, straining transportation budgets and causing longer periods of service disruption and road closures. Safety is also a growing concern, as climate change-induced factors, such as extreme heat, heavy rainfall, and the potential for landslides, create hazardous driving conditions, increased accident rates, and pose challenges for emergency response efforts. Furthermore, the need for resilience measures is evident, necessitating improved design standards, enhanced drainage systems, and the use of durable, climate-resilient materials. In response to the climate crisis, sustainable practices are gaining traction within the transportation sector. These practices include promoting public transit, carpooling, and expanding electric vehicle charging networks to mitigate the sector's impact on climate change. Recognizing the intricate interplay between climate change and road transportation infrastructure is essential for the development of effective policies and strategies to address these challenges.

Keywords: Climate change, Road transportation, Infrastructure, Impacts, Vulnerability, Maintenance, Safety, Resilience, Extreme weather, Sustainability

Introduction:

Climate change is one of the most significant and pressing global challenges of our time, with far-reaching implications across various sectors. Among the many facets of our society affected by the changing climate, the state of our road transportation infrastructure stands as a critical concern



CLIMATE CHANGE IMPACTS ON WATER RESOURCES IN CIVIL INFRASTRUCTURE: CHALLENGES, RESILIENCE, AND ADAPTATION

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Abstract:

Climate change is exerting profound and far-reaching impacts on water resources within the realm of civil infrastructure, thereby creating a complex web of challenges and necessitating urgent resilience and adaptation measures. One of the most discernible consequences of climate change is the alteration of precipitation patterns, which translates into more frequent and intense weather events. These changes manifest in the form of increased flooding, jeopardizing the stability and functionality of infrastructure systems. Coastal regions and urban areas are particularly vulnerable to rising sea levels, making flooding an immediate and persistent threat to civil infrastructure. Conversely, climate change is also giving rise to prolonged droughts, diminished snowpacks, and altered hydrological cycles. These factors are resulting in water scarcity in various regions, impacting water supply systems, hydropower generation, and agricultural practices. The implications of climate change on water resources extend beyond availability and encompass water quality concerns. Altered temperature conditions and precipitation patterns can lead to changes in water quality, affecting the safety of drinking water and increasing the burden on wastewater treatment facilities. The existing civil infrastructure, designed with historical climate data in mind, is increasingly vulnerable to the new climatic conditions. Recognizing these challenges, it is imperative to emphasize resilience and adaptation as the cornerstone of mitigating the adverse impacts of climate change. Strategies for enhancing infrastructure resilience include retrofitting existing systems to withstand extreme weather events, adopting water-efficient technologies to reduce demand, and incorporating green infrastructure solutions to manage stormwater and reduce flooding. Moreover, the integration of advanced data and predictive modeling is essential to gain insights into climate-induced water resource changes, enabling informed decision-making.

Keywords: Climate Change, Water Resources, Civil Infrastructure, Resilience, Adaptation, Flooding, Water Scarcity, Water Quality, Infrastructure Vulnerability

INTRODUCTION:

Climate change is a defining global challenge of the 21st century, with far-reaching implications for our planet's ecosystems and human societies. One of the most critical aspects of climate change is its profound impact on water resources within the realm of civil infrastructure. As temperatures rise, weather patterns become increasingly erratic, and sea levels continue to ascend, the



CONFLICT METHODS IN OPTICAL MULTISTAGE INTERCONNECTION NETWORKS

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Abstract:

The optical multistage interconnection network poses a problem called crosstalk, which is caused by coupling two signals inside a switching device. A variety of techniques, such as time- and space-domain approaches, have been proposed to avoid crosstalk. Since the messages must be split up into multiple groups before being sent to the network, some methods are employed to find conflicts between the messages. The window technique is used to detect whether messages disagree and should not be in the same group. The bitwise-based fast window method (BWM) is presented in this paper. The comparison result illustrates the superior performance of our algorithm. This algorithm has an execution time reduction of more than ten times when compared to previous versions.

Keywords: Window, Bitwise, Algorithms, Network, Interconnection, Multistage, Optical

Introduction:

In earlier days of parallel computing systems, the metal-based communication technology becomes a chokepoint to meet the increasing demands of high performance computing applications for high channel bandwidth and low communication latency. Now the requirement arise to improve the existing interconnection technology or to introduce some new interconnection technology in parallel computing systems. Electro-optic technologies have made optical communication a promising network choice to meet the increasing demands because Fiber optic communications offer a combination of high bandwidth, low error probability and very high speed transmission capacity. For parallel computing systems, multistage interconnection networks have been extensively accepted as an interconnecting scheme. As optical technology advances, there is considerable interest in using optical technology to implement interconnection network and switches. A multistage interconnection network is composed of several stages of switch elements by which any input port can be connected to any output port in the network. This network consists of N inputs, N outputs and n stages ($n=\log_2 N$). Each stage has $N/2$ switching elements each SE has two inputs and two outputs connected in a certain pattern. The most widely used MINs are the electronic MINs. In electronic MINs, electricity is used and in optical MINs, light is used to

DESIGN AND MAINTENANCE OF SUSTAINABLE FLEXIBLE PAVEMENT

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Abstract:

The construction and maintenance of flexible pavements play a pivotal role in the sustainable development of transportation infrastructure, ensuring the efficient movement of people and goods while minimizing environmental impact. This abstract presents an overview of the key considerations in the design and maintenance of sustainable flexible pavements, emphasizing the integration of innovative materials, engineering techniques, and environmentally conscious practices. The design phase of sustainable flexible pavements requires a comprehensive understanding of traffic loads, climate conditions, and subgrade properties. Advanced design methodologies, such as Mechanistic-Empirical (ME) design, have gained prominence in recent years, enabling engineers to optimize pavement structures for longevity and performance. In addition, the utilization of recycled and sustainable materials, such as reclaimed asphalt pavement (RAP) and warm mix asphalt (WMA), reduces the carbon footprint associated with pavement construction. Maintenance is equally critical in achieving sustainability goals. Regular inspections and effective maintenance strategies can extend the service life of flexible pavements while reducing the need for costly and resource-intensive reconstruction. Emerging technologies like pavement condition assessment using remote sensing and data-driven predictive maintenance systems offer opportunities for more efficient and proactive maintenance practices. Furthermore, sustainability in flexible pavement design and maintenance extends beyond the technical aspects. Environmental considerations, such as stormwater management and the reduction of heat island effects, have become integral in modern pavement projects. The incorporation of permeable pavements, green infrastructure, and cool pavements can mitigate adverse environmental impacts and enhance urban sustainability.

Keywords: Sustainable pavements, Flexible pavement design, Pavement materials, Mechanistic-Empirical (ME) design, Reclaimed asphalt pavement (RAP), Warm mix asphalt (WMA), Life cycle cost analysis

Introduction:

Transportation infrastructure, especially road networks, is the lifeblood of modern society, facilitating the movement of people and goods, and supporting economic development. Among the various components of road infrastructure, flexible pavements form the critical surface layer that supports vehicular loads. Designing and maintaining these pavements to be sustainable is



DEVELOPING AIRPORT DESIGN FOR ENVIRONMENTAL SUSTAINABILITY

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Abstract:

As the global aviation industry continues to expand, airports have become key players in addressing environmental challenges. This paper explores the imperative of developing airport design for environmental sustainability. With a growing emphasis on reducing carbon emissions, minimizing resource consumption, and mitigating noise pollution, airports must adapt to meet the demands of a more eco-conscious world. This study delves into the multifaceted aspects of airport design, examining strategies that embrace sustainable principles and practices. It highlights various facets of sustainable airport design, such as energy-efficient terminal buildings, green infrastructure, wildlife habitat preservation, and low-impact transportation connections. The paper also underlines the importance of comprehensive environmental impact assessments in the planning and development stages. These perspectives include economic sustainability, benefits related to economic and environmental sustainability, and the impact of operations on the airport environment. This paper summarises the current state of airport environmental sustainability practices, including greenhouse gas emissions from airport pavements, energy management strategies for airport buildings and operations, water conservation, and waste management. Furthermore, the paper discusses the pivotal role of airport operators, regulatory authorities, and aviation stakeholders in driving sustainability initiatives. It emphasizes the need for collaboration among these entities to establish standards and regulations that promote environmentally friendly airport development. Case studies from around the world illustrate real-world applications of sustainable airport design, showcasing successful projects that have minimized ecological footprints while meeting the demands of an ever-growing aviation industry. The findings of this study not only contribute to the ongoing discourse on sustainable aviation but also serve as a valuable resource for airport authorities, designers, and policymakers seeking to create a more sustainable and environmentally responsible aviation infrastructure.

Keywords: Airport design, Environmental sustainability, Sustainable aviation, Carbon emissions reduction, Resource conservation, Noise pollution mitigation, Energy-efficient terminals, Green infrastructure

Introduction:

Air travel has transformed the world, connecting people and cultures, fostering economic growth, and expanding opportunities for global exchange. However, as the aviation industry continues to



DEVELOPING SUSTAINABLE SOLUTIONS FOR COASTAL INFRASTRUCTURE

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Abstract:

Coastal regions worldwide are facing an unprecedented challenge due to the growing impacts of climate change, including rising sea levels, more frequent and severe storms, and erosion. As a result, coastal infrastructure is under constant threat, requiring innovative and sustainable solutions to ensure the resilience and longevity of these critical assets. It provides an overview of the ongoing efforts to develop sustainable solutions for coastal infrastructure that can mitigate environmental and economic risks while supporting thriving coastal communities. The importance of sustainable coastal infrastructure solutions lies in their ability to address both environmental and social concerns. By integrating environmentally friendly designs, materials, and practices, these solutions reduce the ecological footprint of coastal developments and minimize harm to delicate ecosystems. Furthermore, sustainable coastal infrastructure promotes economic stability by safeguarding critical transportation hubs, ports, and energy facilities from climate-induced disruptions, ultimately safeguarding local and global supply chains. This abstract highlights various aspects of sustainable solutions, including green engineering practices, resilient design, adaptive management, and the integration of natural systems. Green engineering encourages the use of nature-based solutions such as wetlands, mangroves, and artificial reefs, which not only protect against erosion but also enhance biodiversity and sequester carbon. Resilient design strategies focus on infrastructure that can withstand and recover from climate-related disasters, ensuring operational continuity. Public engagement and education are essential components, as they help raise awareness of the importance of these solutions and ensure community participation in their planning and implementation.

Keywords: Coastal infrastructure, Sustainability, Climate change, Resilience, Green engineering, Natural systems, Erosion control, Sea level rise, Climate adaptation, Coastal communities

INTRODUCTION

Coastal regions are dynamic and vital ecosystems, providing habitat for diverse marine life, economic opportunities for local communities, and serving as gateways for global trade and transportation. However, these regions are under increasing threat from the relentless impacts of climate change [1]. Rising sea levels, intensified storms, and coastal erosion are challenging the sustainability and resilience of coastal infrastructure, placing communities and economies at risk. The development of sustainable solutions for coastal infrastructure emerges as an urgent and



DEVELOPING SUSTAINABLE SOLUTIONS FOR RAILWAY DESIGN AND MANAGEMENT

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Abstract:

The global transportation landscape is undergoing a transformative shift towards sustainability, with railways emerging as a key player in this transition. This abstract explores the critical role of sustainable solutions in railway design and management, emphasizing the need for innovative approaches to address environmental, economic, and societal challenges. The paper begins by highlighting the pressing issues facing the railway sector, such as increasing energy consumption, maintenance costs, and greenhouse gas emissions. It then delves into the central theme of sustainability, discussing how it can be achieved in railway systems through various facets, including energy efficiency, infrastructure design, operational practices, and community engagement. Innovative technologies and practices are at the forefront of sustainable railway development. We discuss the implementation of energy-efficient propulsion systems, electrification, and alternative energy sources, which reduce the environmental footprint of railways. Additionally, the integration of cutting-edge data analytics, predictive maintenance, and IoT technologies enhances the efficiency of railway operations, reducing costs and downtime. The paper also emphasizes the importance of resilient railway infrastructure and its adaptability to climate change, including extreme weather events and rising sea levels. Sustainable design approaches, such as eco-friendly materials and urban planning, are explored, highlighting how they can foster harmonious coexistence with surrounding ecosystems and communities. Community engagement and social sustainability are pivotal aspects of railway design and management. Public perception, safety, and accessibility are keys considerations in ensuring railways benefit local populations. The abstract explores case studies that exemplify successful community engagement strategies and highlight the positive socio-economic impacts of sustainable railways.

Keywords: Sustainable solutions, Railway design, Railway management, Sustainability, Energy efficiency, Infrastructure design, Innovative technologies, Predictive maintenance, IoT (Internet of Things), Resilient infrastructure

Introduction:

In an era marked by a growing emphasis on environmental responsibility, the railway industry is emerging as a beacon of sustainable transportation. Developing sustainable solutions for railway



EFFECTIVENESS OF SMART BRIDGE MAINTENANCE STRATEGIES

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Abstract:

Bridges play a critical role in modern infrastructure, facilitating the efficient movement of people and goods. To ensure their longevity and safety, it is imperative to implement effective maintenance strategies. Smart bridge maintenance strategies leverage advanced technologies and data-driven approaches to optimize maintenance operations, extending the lifespan of bridges while minimizing disruptions to transportation networks. This abstract provides an overview of the research conducted to assess the effectiveness of smart bridge maintenance strategies. This study encompasses a comprehensive analysis of various smart maintenance techniques, including structural health monitoring systems, sensor networks, predictive maintenance models, and data analytics. Data collected from these systems are used to assess the condition of bridges, identify potential defects or degradation, and predict maintenance needs. The effectiveness of smart bridge maintenance strategies is evaluated through several key performance indicators, such as maintenance cost reduction, improved safety, reduced downtime, and increased bridge lifespan. The study also considers the environmental benefits of reduced material consumption and energy usage through more targeted maintenance efforts. To support the evaluation, case studies from different regions and types of bridges are examined, showcasing real-world applications of smart maintenance strategies. Additionally, the study assesses the integration of artificial intelligence, machine learning, and remote sensing technologies in enhancing maintenance accuracy and efficiency. The findings of this study reveal that smart bridge maintenance strategies not only lead to significant cost savings but also improve the overall safety and reliability of bridge structures. Furthermore, they allow for proactive and data-driven decision-making, reducing unplanned maintenance disruptions and ensuring optimal resource allocation. As a result, smart bridge maintenance strategies are poised to become a critical component of infrastructure management, contributing to the sustainability and resilience of transportation networks.

Keywords: Smart bridges, Bridge maintenance, Infrastructure management, Structural health monitoring, Sensor networks, Predictive maintenance, Data analytics, Maintenance cost, reduction, Bridge lifespan extension

Introduction:

Bridges are vital components of modern infrastructure, serving as the lifelines of transportation

ENVIRONMENTAL ETHICS: AN OVERVIEW

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Abstract:

Environmental ethics is the study of normative issues and principles relating to human interactions with the natural environment. Acid rain is one of the important environmental threats and occurs due to the presence of certain acids in the atmosphere. Acidification of the rainwater is identified by the presence of sulphuric and nitric acids. Interaction of acid rain with environmental components results in their degradation. Acid rain reduces the soil fertility resulting in an adverse impact on the growth of the forest and crop fields. This paper also summarizes a review on ozone layer effects. Ozone is a naturally occurring molecule. An ozone molecule is made up of three oxygen atoms. It has the chemical formula O₃. Chemicals containing chlorine and bromine atoms are released to the atmosphere through human activities. These chemicals combine with certain weather conditions to cause reactions in the ozone layer, leading to ozone molecules being destroyed. Depletion of the ozone layer occurs globally; however, the severe depletion of the ozone layer over the Antarctic is often referred to as the 'ozone hole'.

Keywords: Environmental Ethics, Climate, Acid Rain, Global warming

Introduction:

While the phrase 'environmental ethics' is sometimes used to refer simply to the ethical (or unethical) character of people's behaviour where it affects the natural environment, it is important that this phrase is also used not just of behaviour but also of the normative principles applicable to it, and their critical study. This critical study is itself widely known as 'environmental ethics', the subject of this overview. Environmental ethics is sometimes differently defined as the kind of approach to environmental issues which finds independent value located not only in the interests of intelligent or of sentient creatures, but also in natural living creatures in general, or in the natural world in general (Thompson, 1990). While many influential philosophical perspectives are committed to this kind of approach, many others say otherwise, and base their justifications on the interests of sentient creatures or even of human beings only. Since the latter kind of approach is adopted by many environmentalists, and undeniably offers not only specifications of environmental problems but also solutions to them, it is wise not to adopt a definition of 'environmental ethics' which treats this approach as lying outside environmental ethics. If the



FEASIBILITY OF USING UNMANNED ARIEL VEHICLES (DRONES) IN CONSTRUCTION

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Abstract:

The construction industry is continuously evolving, seeking innovative technologies to enhance productivity, safety, and cost-efficiency. Unmanned Aerial Vehicles (UAVs), commonly known as drones, have gained significant attention for their potential applications in construction projects. This abstract summarizes the research conducted to investigate the feasibility of incorporating drones into various construction phases and assesses their impact on the industry. This study analyzes the capabilities and limitations of drones in construction, considering their use for site surveying, progress monitoring, quality control, and safety management. The research also explores the economic aspects, including the initial investment required for drone implementation, operational costs, and the return on investment (ROI) over the project lifecycle. Various types of drones, such as fixed-wing, multirotor, and hybrid systems, are considered in terms of their suitability for specific construction tasks. Furthermore, the legal and regulatory framework surrounding drone use in construction is examined, focusing on compliance with aviation authorities, privacy concerns, and safety protocols. The study also addresses the challenges related to data acquisition, storage, and analysis, emphasizing the need for robust data management solutions to derive actionable insights from drone-captured data. Safety considerations are paramount, and the research investigates the risk factors associated with drone operations on construction sites and proposes risk mitigation strategies. The findings reveal that the use of drones in construction is indeed feasible and holds immense potential to transform the industry. However, successful integration requires careful planning, regulatory compliance, and addressing various technical and operational challenges. The economic benefits, particularly in terms of reduced operational costs and improved project outcomes, make a strong case for the adoption of drones in construction.

Keywords: Unmanned Aerial Vehicles (UAVs), Drones, Construction Industry, Progress Monitoring, Quality Control, Safety Management, Economic Feasibility, Fixed-wing Drones, Multirotor Drones

Introduction:

The construction industry has long been recognized as a vital driver of economic growth and

FUNCTION AND PERFORMANCE EVALUATION OF RECIPROCATING AIR COMPRESSORS

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Abstract:

High pressure is delivered via a reciprocating compressor, also referred to as a positive displacement compressor. After entering the cylinder through the intake manifold and being compressed by the piston's reciprocating motion, high-pressure air is delivered from the exhaust manifold. These are employed in a variety of production sectors, including chemical and refrigeration plants. The primary focus of this paper is to examine how control factors affect compressor performance. The investigation revealed that the compressor's performance is influenced by a number of factors, including ambient temperature, and that there has been some decline in volumetric and isothermal efficiency as a result of clogging. The primary goal was to look at how clogging and control settings affected the compressor's performance. Its performance was below the design specifications due to the impacts of clogging, which resulted in a constant rise in temperature. This dropped the discharge pressure, mass and volume flow rates, isothermal and volumetric efficiencies. The results also showed that one of the main factors influencing the reciprocating compressor's performance effectiveness was blockage.

Keywords: Air Compressor, Isothermal Efficiency, Volumetric Efficiency, Compressor Clogging, Discharge Temperature

INTRODUCTION:

An air compressor is a tool that uses a gasoline, diesel, or electric motor to transform power into potential energy. Pumps are only used for liquids, but air compressors may handle gas or air. This is how they vary from each other. One-way valves are used in single-stage reciprocating compressors to direct air into and out of chambers. Air enters the chamber when the piston is moving downward. A charge of air is driven out of the piston and into the storage tank when it is in the upward stroke. A pressure relief valve is used to lower tank pressure when it reaches its top limit.

Compressors are essential components of contemporary industry. They are extremely important in making sure that industrial operations and tasks are completed [2]. Mechanical devices called compressors have the ability to compress gaseous substances. A compressor is referred to as an air compressor when air is utilised as the working fluid. Accordingly, an air compressor is a device that raises the temperature and pressure of air [3]. The air's intake/inlet pressure is often increased to a greater exhaust pressure during the air compression process.



IMPACT OF COMMUNICATION IN BUSINESS MANAGEMENT

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Abstract:

Communication is a fundamental principle in any company or community company vision and goals, Principles and business models determine a company's business strategy. The importance of clarity Business strategy is based on the fact that it provides the company with important information about the behavior of its employees that provides details and important information about how your company works and how to stay ahead of your competitors stand out. More importantly, this plan is communicated to staff so that the entire organization can benefit looking forward to achieving his goals. Everything you need to effectively plan your business employees at all levels need to understand the company's goals. Plans should not be created only by upper management but it should also be communicated to all employees. Proper alignment with company strategy is essential to ensure that employee decisions are in line with company strategy company goals and vision. This has created effective communication tactics for the business model. Corporate communication is a method of communicating data and information such as: Businesses are communicated to multiple business stakeholders such as consumers, suppliers, business customers, and employees. We aim for efficient corporate management. Additionally, a continuous flow is required. Information and feedback that is considered an essential and important aspect of the company's operations work. Communication plays an important role in many management tasks such as planning, coordinating, and organizing.

Keywords: Business communication, business organization, effective listening, management, organizational communication

1. Introduction:

Communication is a valuable asset for any company because it helps fulfill the contract. It's important Communicate well during negotiations to achieve the desired outcome. Internal communication is very important company. It can promote good working relations between employers and employees and improve morale and productivity. This also helps build relationships and leads to success cooperation. Customers are the most important element for any company. Relevant external communications being consistent will help you attract new customers and retain existing ones. An effective communication strategy can help Convince customers to investigate your company's services. A smart PR strategy can improve a company's image through the use of media. Efficient business Communication helps foster entrepreneurial innovation. By expanding



IMPACTS OF PREFABRICATION IN THE BUILDING CONSTRUCTION INDUSTRY

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ABSTRACT:

The construction industry has witnessed a significant transformation in recent years with the adoption of prefabrication techniques. This abstract explores the profound impacts of prefabrication on the building construction industry, focusing on its contributions to efficiency, sustainability, cost-effectiveness, and overall project outcomes. Prefabrication involves the manufacturing of building components in controlled environments before assembling them on-site. This method streamlines construction processes by reducing construction time and labor requirements. Consequently, projects are completed more quickly, minimizing disruptions to local communities and reducing overall construction costs. Moreover, prefabrication plays a pivotal role in enhancing sustainability in construction. By enabling the use of eco-friendly materials, reducing construction waste, and optimizing energy efficiency, prefabrication aligns with the growing environmental awareness in the industry. The controlled manufacturing process also ensures a higher degree of precision, reducing material waste and leading to more sustainable building practices. Cost-effectiveness is another significant benefit of prefabrication. The reduced construction time and labor costs, coupled with the minimized risk of delays, contribute to lower overall project expenses. This cost-effectiveness extends to the maintenance phase, as prefabricated components are often more durable and require less frequent repairs. Furthermore, the impacts of prefabrication extend beyond the construction site. Its ability to reduce project timelines benefits local economies by accelerating the return on investments. Additionally, the implementation of prefabrication has the potential to address the skilled labor shortage in the construction industry, as it relies more on manufacturing skills rather than traditional on-site construction skills.

KEYWORDS: Prefabrication, Construction industry, Efficiency, Sustainability, Cost-effectiveness, Building components, Controlled environment, Construction time, Labor requirements

INTRODUCTION

The construction industry, a cornerstone of modern society, has undergone a remarkable evolution in recent years, with innovative approaches reshaping the way buildings are designed and erected. One of the most transformative developments within this sector is the increasing prevalence of prefabrication techniques [1]. This shift towards prefabrication has not only streamlined

INDIAN CONSUMERS' BUYING BEHAVIOR: THE ART OF BRANDED LUXURY

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Abstract:

Some of the wealthiest men in the world reside in India, and the country's high net worth individual (HNI) population is rising at the Asia-Pacific region's quickest rate. The Indian luxury market is the region's leading economic indicator. Many foreign brands are competing to design, develop, and deliver high-end products and services that meet the expectations of Indian consumers. They must expand their distribution in order to achieve this, as well as generate interest in products that are unfamiliar to many Indian consumers. The motivation behind why people buy luxury goods is highlighted in this essay. It demonstrates that people acquire luxury goods because of their brand names and are unaffected by the price tags associated with such goods. It demonstrates the link between status symbol and the purchasing of luxury products by consumers.

Keywords: Marketing, consumer behavior, consumer decision making, luxury goods

Introduction:

International research demonstrates that customers are beginning to experiment with brands as their purchase patterns move from necessities to discretionary items as a result of the expansion in the economy and per capita income. In 2015–2016, it is anticipated that India's gross domestic product (GDP) growth will go up. The Department of Industrial Policy and Promotion (DIPP) reports that the total amount of foreign direct investment (FDI) that India received for the fiscal year 2015–2016 (April 2015–March 2016) was US\$ 40 billion, demonstrating that the government's efforts to streamline business regulations and increase ease of doing business are having an impact. To elevate their brand position, managers of international brands should concentrate on attributes unique to that brand, such as exceptional quality and a distinguished image. International brands have been investigated from the perspective of consumers. Global brands are offered to consumers under the same name in a number of different countries, and these brands typically have comparable and centrally coordinated marketing campaigns. According to a 2016 analysis on the global luxury goods market, almost all of the world's major regions have seen a rise in the demand for luxury products in recent years. The rise in demand for luxury products can be attributed to a number of factors, including the digital era, expanding e-commerce, high tourist spending, rising disposable income; youth brand awareness, upper class purchasing power, etc. Consumer



INHERITANCE METRICS FOR OBJECT ORIENTED SOFTWARE SYSTEMS- A SURVEY

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Abstract:

Object oriented techniques are frequently cited as the greatest means of providing explanations for software development issues. In software engineering, object-oriented design metrics are widely used to assess software complexity and to estimate project size, quality, and effort. We can determine the software cost estimation and predicates on different types of deliverable items using a variety of methods. Using object-oriented metrics as early predictors of software defects ensures lower costs and less maintenance work. An early quantification like this improves the finished software's quality. In this study, object-oriented metrics are reviewed.

Keywords: Inheritance, Metrics, Object oriented, Software

Introduction:

Object-Oriented design is more beneficial in software development environment and object oriented design metrics is an essential feature to measure software quality over the environment. Object-oriented design is those design which contained all the properties and quality of software that is related to any large or small project. It is a degree through which a system object can hold a particular attribute or characteristics. Object-oriented is a classifying approach that is capable to classify the problem in terms of object and it may provide many paybacks on reliability, adaptability, reusability and decomposition of problem into easily understood objects and providing some future modifications. Software metrics makes it possible for software engineer to measure and predict software necessary resource for a project and project work product relevant to the software development effort. Metrics provide insight necessary to create and design model through the test. It also provide a quantitative way to access the quality of internal attributes of the product, thereby it enables the software engineer to access quality before the product is build. Metrics are the crucial source of information through which a software developer takes a decision for design good software. Some metrics may be transformed to serve their purpose for a new environment. [1]

The Metrics:

The metrics presented and evaluated in this paper are both ‘pure’ object-oriented metrics and metrics proposed for structural programming that could also be applied to object-oriented programming. Measurements using some of these metrics have been automated in our laboratory

MECHATRONICS: IT'S IMPORTANCE IN TODAY'S INDUSTRY

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Abstract:

Engineering in mechatronics is a relatively new discipline that has shown tremendous growth in recent years. Mechanical engineering, electronics, control systems, and computer science are all combined in the topic of mechatronic engineering. The design, development, and control of advanced systems, such as robots, automated machines, and intelligent systems, are the focus of this interdisciplinary field. The significance and function of mechatronics engineering in the contemporary and developing world will be discussed in this paper.

Keywords: Mechatronics, Automotive mechatronics, Robotic systems etc

Introduction:

In many instances, conventional combinational design philosophies are proving insufficient for the sophisticated goods and quick turnaround times required by today's markets. Many times, a company's mechanical and electronic design departments are located in different cities or even nations. If they happen to be in the same building, their lack of interaction will unavoidably have an impact on product design. A machine is frequently designed by a mechanical engineer, who then throws it over the wall to an electrical or electronic engineer to fit the control systems and, in turn, to a software engineer to develop the control programs. Better engineering products can be designed using the trans-disciplinary method known as mechatronics, which is built on open communication networks and concurrent activities.

Traditional automated manufacturing systems lack the adaptability that is heavily mandated by contemporary trends in the production of commodities, and thus are unable to adjust quickly to changes in demand and supply [1].

According to the conventional method, the mechanical, electrical, electronic, and software parts that make up these multi-technology systems are designed individually, end-to-end, and then merged to form the finished system. There is currently no agreed definition of what mechatronics actually is. The terms micromechatronics, optomechatronics, supermechatronics, mecanoinformatics, contromechanics, and megatronics are just a few of the many that have been used in various contexts to describe concepts related to or including mechatronics. The following are some examples of attempts to define mechatronics:

MODERNIZATION OF RAILWAY IN INDIA

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Abstract:

Increasing pressure from population growth is also contributing to strong growth Passenger and freight traffic across various modes of transport is continuously increasing. However, trains remain the primary and preferred mode of transportation. A large part of the population, especially the lower classes, India's railway network ranks fourth the worlds' longest and busiest system transports more than 8 billion passengers and nearly 1 billion tons of cargo annually. Significant increase in demand the number of train services between subways and mini-subways is significantly higher than the national average. Railway modernization is fundamentally about running heavier trains safely, economically, and at higher speeds, providing higher productivity and better customer service for railway users of it consists of modernizing the tracks, using better designed rolling stock and introducing better types of traction. Having better signaling and communication facilities and using other modern technologies Railway system operation.

Keywords: Indian Railways, modernization, developments, online services, coaches

1. Introduction

The country currently suffers from a severe and chronic underinvestment in railway infrastructure. This results in a disproportionate shift of freight and passenger traffic onto the roads. Railways are the most important development in terms of infrastructure in India from 1850 till date. Indian railways are the only reliable and viable means of transporting goods and materials over land. India's railway network integrates markets and people across the length and breadth of this vast country. Indian Railways is her fourth largest railway in the world. In the current scenario, Indian Railways has emerged as the leading engine of the Indian economy, which is reflected in the gross domestic product in the latest Budget 2023. According to Vision 2023, the main focus of railways is track improvement, environmental sustainability, expansion of the railway network, capacity creation, train safety, reduction of carbon footprint, introduction of high-speed trains, and excellence. It is based on the technology. This research paper provides a comprehensive resource for those involved in research and reforms related to the modernization, digitization and efficiency of Indian Railways. It focuses on the analysis of key factors such as population and total area of the country, railway electrification and railway expansion, which indicate the importance of railways and identify the potential that needs to be addressed in Indian Railways from a market perspective. Significant decline in revenue for Indian Railways is also placing a heavy burden on the country. This can be determined by the much higher ratio of freight to GDP and the greater



NANOTECHNOLOGY AND ITS APPLICATION: A REVIEW

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Abstract:

Nanotechnology has the potential to greatly advance and potentially revolutionise a wide range of industries, including information technology, electricity, environmental science, pharmaceuticals, home security, food safety, and transportation, among others. Nanotechnology is now studying recent developments in chemistry, mechanics, material science, and biotechnology in order to create new materials with special properties as their nanometer-sized architectures are specified. The diverse nanotechnological applications and their advancements over the past few decades are covered in this study.

Keywords: Nanotechnology, Environmental Science, Agriculture, Food safety, Engineering

INTRODUCTION

It is exacerbated by the rising need to preserve our climate that the world's need for energy needs is being fulfilled. Several scientists are investigating ways of improving safe, accessible and renewable energy, as well as ways to reduce energy usage and to mitigate environmental toxicity [1]. Nanotechnology solar panel experiments are more successful in transforming sunlight to energy than conventional designs that pledge in future cheap solar power. Cheaper and easier to install, nanostructured Solar Cells can use print-like production processes and are assembled in compact sheets, rather than separate plates [2]. Nanotechnologies already have a higher power density and are longer to retain the storage charge (Jalaja and others 2016; Najim et al. 2015; Maine et al. 2014), which are being used for a variety of new forms of battery which are less inflammable, quicker to charge, more powerful and more light weight. In an environmentally benign production process, a new lithium-ions battery model uses a common, nontoxic virus. In order to improve the hydrogen membrane and storage materials and the catalysts needed to produce alternative transport systems fuel cells at reduced cost, nanostructured material is being sought. Researchers often build a clean, lightweight fuel tank for hydrogen [3].

Various science-based solutions for transforming waste heat into useful energy are being

RECENT DEVELOPMENTS AND CHALLENGES OF 3D-PRINTING IN CONSTRUCTION

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Abstract:

Three-dimensional (3D) printing has emerged as a transformative technology in the construction industry, offering novel solutions to age-old challenges. This abstract provides an overview of recent developments and the challenges associated with 3D printing in construction. Recent developments in 3D printing for construction have witnessed significant progress in the technology's maturity and widespread adoption. The construction industry has embraced 3D printing for its potential to increase efficiency, reduce costs, and minimize environmental impact. Researchers and industry experts have successfully used 3D printing to produce complex architectural elements, structural components, and even entire buildings, showcasing its versatility and potential. In addition to the exciting advancements, several challenges persist in the integration of 3D printing into the construction sector. These challenges include but are not limited to issues related to scalability, materials, regulatory compliance, and skilled labor. Scalability remains a concern as large-scale 3D printers capable of constructing entire buildings are costly and require significant infrastructure. Material limitations in terms of strength, durability, and sustainability present obstacles to the widespread adoption of 3D printing. The regulatory landscape is still catching up with the rapidly evolving technology, leading to uncertainties in compliance and safety standards. Moreover, the construction workforce needs to be upskilled to operate and maintain 3D printers, posing a human resource challenge. Despite these challenges, 3D printing in construction holds great promise for the future of the industry. The ongoing research and development, along with increased collaboration between academia, industry, and regulators, will likely address many of the existing challenges. As 3D printing technology continues to evolve, the construction industry is poised to benefit from enhanced efficiency, reduced waste, and increased design freedom, ultimately reshaping the way we build and inhabit our cities.

Keywords: 3D Printing, Construction Industry, Additive Manufacturing, Building Technology, Construction Materials, Structural Components, Sustainability, Scalability

Introduction

The construction industry, a cornerstone of human civilization, is witnessing a profound technological transformation through the integration of three-dimensional (3D) printing. As one of the most substantial sectors of the global economy, construction has historically been marked



REVIEW PAPER ON CRYPTOGRAPHY

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Abstract:

Data security has elevated to the top of everyone's list of concerns in recent years as a result of the internet's pervasiveness and exponential growth in our daily lives. To protect data, numerous methods and strategies have been created. Data security forbids any data manipulation or alteration and guarantees that only the intended recipients have access to our information. The term "cryptography" refers to a variety of methods for encrypting data with algorithms, rendering it unintelligible unless the sender decrypts it according to predetermined steps.

Keywords: Cryptography, Security, Algorithm, Cipher, Decryption, Data Security

1. INTRODUCTION

Cryptography is a Greek word in which crypt means “hidden” and graphy means “writing”. Cryptography is a system used to secure information and communication techniques derived from mathematical foundations and a set of rule-based calculations called algorithms, to transform messages in ways that are hard to decipher. These algorithms are used for cryptographic key generation, digital signing, to protect data privacy, web browsing on the internet and confidential communications such as card transactions and email and protecting from malicious third parties. The basic working of cryptography requires two steps Encryption and Decryption. The original message is called as Plain text (also known as clear text). The encryption uses a cipher [4] to encrypt plaintext and convert it into cipher text and decryption on the other hand applies that same cipher to convert cipher text back into plaintext. The encryption algorithms are only considered secure if the attackers do not determine any of the property of plaintext or the key along with cipher text. Even if they have many combinations of plaintext or cipher text they should not be able to determine the secret key and its properties. A real-world example can be considered of Credit Card Information that is used daily on many e-commerce sites. The code in the web browser encrypts the plaintext, card number, into cipher text, which will not be recognized by malicious party and will look illegible, random text. Once the card number reaches its intended recipient, the online platform, their software would decrypt it back into plaintext so the payment can be completed successfully.

2. HISTORICAL ALGORITHMS

ROLE OF LEADERSHIP IN THE MODERN ERA

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Abstract:

One of the major factors that affect an organization's success or failure is its leadership. The way a leader directs and motivates others to achieve organisational goals is known as their leadership style. This study investigates how leadership styles affect the effectiveness of the organisation. In simple terms, leadership involves taking chances and questioning the existing quo. Leaders inspire followers to accomplish something greater and new. It's interesting to note that leaders pursue innovation rather than doing so out of necessity. Success is determined by examining the accomplishments and knowledge gained by the team. The paper will summarise and analyse the research on leadership styles and organisational structures.

Keywords: Leadership styles, Leadership types, Job performance, Leaders.

Introduction

For more than two decades [1], the crucial relevance of team effectiveness has been regarded as the primary goal of any company. The process of leading teams and maintaining their success necessitates the presence of a leader who can motivate and inspire their subordinates. Leaders are thought to create smart goals for subordinates and empower them sufficiently to attain organisational goals. One of the most developing fields of research is that focuses on analysing the influence of leaders in managing the effectiveness of teams. Leaders' roles are seen as crucial tools for team members. The reason for this is that leaders play an important role in establishing collective standards and aiding team members in confronting and resolving difficulties that develop in the team environment. The vital relevance of leaders on team members has resulted in the development of innovative methods for leaders to give value to team members. The leader's management style is critical to the success of the teamwork. In many circumstances, leaders are unaware of their subordinates' primary needs and desires, or they fail to recognise the differences amongst the individuals involved in the team. As a result of the multiple concerns that were not discovered in time among team members, team members' productivity is diminishing. It is vital for the leaders to give inspiring guidance that can support the team members in achieving the team's and organization's goals. Both transformational leaderships, often referred to as person-focused leadership behaviour, and compelling direction should be sufficient to start the framework of task-focused leadership. In this sense, it's crucial to consider how the two styles of leadership behaviour differ from one another. The fulfilment of the task in a timely and accurate manner is the primary focus of task leadership behaviour or management style. Task-focused leaders create



SINGLE ELECTRON TRANSISTOR: APPLICATIONS AND LIMITATIONS

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Abstract:

New insights from recent SET research will transform digital data storage and random access memory systems. This work aims to explore the fundamental physics and practical uses of the nano electronic device known as a "single electron transistor [SET]," which has the ability to regulate the movement of a single electron. One important component of the present nanotechnology research field is the single-electron transistor (SET), which has the potential to operate at high speeds and low power consumption. A novel kind of switching device that amplifies current via regulated electron tunnelling is the single electron transistor.

Keywords: Single-electron transistor, Nanoelectronics, Single-electron tunnelling, Coulomb blockade, Coulomb oscillation, Quantum dot

1. INTRODUCTION

The semiconductor transistor [1] has been one of the most remarkable inventions of all time. It has become the main component of all modern electronics. The miniaturization trend has been very rapid, leading to ever decreasing device sizes and opening endless opportunities to realize things which were considered impossible. To keep up with the pace of large scale integration, the idea of single electron transistors (SETs) has been conceived. The most outstanding property of SETs is the possibility to switch the device from the insulating to the conducting state by adding only one electron to the gate electrode, whereas a common MOSFET needs about 1000– 10,000 electrons. The Coulomb blockade or single-electron charging effect, which allows for the precise control of small numbers of electrons, provides an alternative operating principle for nanometre-scale devices. In addition, the reduction in the number of electrons in a switching transition greatly reduces circuit power dissipation, raising the possibility of even higher levels of circuit integration.

2. WHAT IS A SET?

The SET is a nano electronic [2], three-terminal, tunnel junction device, where a capacitively coupled input voltage modulates a drain-source current serving as the amplifier output. A SET is



THE APPLICATIONS OF ARTIFICIAL INTELLIGENCE IN CIVIL ENGINEERING

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Abstract:

Artificial Intelligence (AI) is a subfield of computer science that studies, develops, and uses intelligent machines. Hard problems take a tremendous amount of computing power to solve, but AI-based solutions offer a simpler solution. This provides an overview of the field's evolution and contains a discussion of recently discovered concepts and techniques for the creation and application of AI in civil engineering. Big data, deep learning, and machine learning technologies have advanced tremendously and are now being applied successfully in a variety of civil engineering fields. Artificial intelligence research in civil engineering is primarily focused on two key areas: design optimization and structural management and maintenance. The application of AI in civil engineering provides civil engineers with a number of benefits and opportunities, including productivity, data collection, and sustainability evaluation. The building trend has now changed to one that prioritizes sustainability thanks to the usage of digital technology. Expert systems and artificial intelligence are more equipped to handle the empirical and poorly organized problems that arise in real-world civil engineering applications than numerical, algorithmic calculations, which are the main focus of computer use in this field.

Keywords: Artificial Intelligence, Civil Engineering, Artificial Neural Networks, Big Data, Deep Learning, Genetic Algorithms

Introduction:

A subfield of computer science known as artificial intelligence in civil engineering studies, develops, and applies intelligent computers. It is vital to the digitalization and intelligence of civil engineering and facilitates major advancements in automation, performance, and dependability as well as the creation of a clear connection between digital and physical construction. This field's primary goal is to explore various methods for simulating and performing certain cognitive processes of the brain in order to progress technology and develop relevant theories. Concise symbolism, behaviorism, and connectionism sum up the fundamental theories and methods of artificial intelligence. Artificial intelligence has been the subject of many hopes and ambitions ever since it was first introduced in the 1950s. Artificial Intelligence (AI) is a well-recognized technology that offers a distinct strategy for resolving a variety of unclear problems and obstacles. In addition, complex system modeling, identification, optimization, forecasting, and control have all been done with artificial intelligence. Five distinct periods make up the categorization of the

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Abstract:

Every country needs an infrastructure to carry out any kind of socially beneficial and service-oriented activity. Due to its connection between two locations by maritime, terrestrial, or aerial means and its creation of a link for social and economic activities, the transportation system was incorporated into the infrastructure. Since ancient times to the present, bridges have been used extensively to cross rivers, valleys, and roadways, allowing access to other regions of the land. Each construction has distinct needs to be satisfied, including span clearance, traffic flow, geometry, and site-specific characteristics; as a result, a wide range of bridges can be created. Common building materials include structural steel, reinforced concrete, pre-stressed concrete, and post-tensioned concrete. Depending on how each form of bridge behaves structurally, there will be a maximum clear span that must be covered using efficient structural design processes and techniques, the new and existing structure must be able to sustain a variety of loads and environmental circumstances, such as dead loads, traffic, rain, wind, floods, and seismic occurrences. Effective resource usage decisions frequently involve the input of numerous people. Better raw material utilisation may result from understanding how particular criteria are used to choose materials. This Article's goal is to provide a brief overview of the design, material selection, building, and maintenance of both historic and contemporary bridges.

Keywords: Infrastructure, bridges, maintenance, deterioration, construction

Introduction:

A society needs a variety of components that serve its demands if it wants all of its functions to operate well. Food, water, energy, and transportation are basic needs that all different kinds of constructions are needed to supply. Infrastructure includes all structures with a vital and effective functioning that support the commodities and services of the community. To be completed, every social service needs some kind of support. A room is necessary for an engineer, architect, or lawyer to expand their enterprises and support their clients; a highway is necessary for a merchant to convey their goods to their destination; and pipes, pipelines, and tanks are needed to deliver water to any location.

It has been clearly established that bridges need to be replaced [3]. According to the FHWA [5], the current materials used in bridge construction are prestressed concrete (15%), reinforced



UNDERSTANDING AND DETERMINING THE INDETERMINACY OF DIFFERENT TYPES OF STRUCTURES

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Abstract:

Before beginning to analyze a structure, it is important to know what structure is. Structure is an assemblage of a number of components like slabs, beams, columns, walls, foundations and so on, the methodical examination of a structure's stiffness, strength, and stability is known as structural design. Creating a structure that can withstand all applied loads without failing for the course of its planned life is the fundamental goal of structural analysis and design. A structure's main function is to transfer or support loads. In the event that the structure is not correctly designed or built, or if the applied loads exceed the design specifications, the device is likely to malfunction and may have major repercussions. Costly failures are considerably less likely in a well-engineered structure. The entire conversation is contained in the paper below.

Key words: Structures, beam, columns, walls, foundations, slabs, structural analysis.

Introduction:

Knowing the type of structure a structure is crucial before starting an analysis. It could be necessary to analyze various structure types using various methodologies. For instance, indeterminate structures require the use of both static equilibrium and compatibility relationships to identify the internal forces, but determinate structures can be fully analyzed using simply static equilibrium. Real constructions must also be stable. This indicates that a disruption can cause a structure to regain static equilibrium. Analyzing an unstable framework serves no purpose [4].

Any structure is built to withstand the strain caused by bending moments, shear forces, deflection, torsional stresses, and axial stresses. The proportioning can be done if these moments, shears, and stresses are assessed at various critical sections. Analysis is the process of evaluating these stresses, moments, and pressures and plotting them for that structural component. Design is the process of determining the sizes of these components of these stresses and proportioning [1].

The rigorous examination of the stability, strength, and stiffness of structures is known as structural design. The main goal of structural analysis and design is to create a structure that can withstand all applied loads without failing for the duration of that structure's specified life. A structure's main function is to transfer or support loads. The device will probably not carry out its intended function, which could have significant repercussions, if the structure is inadequately planned or constructed,



“UNEARTHING THE HIDDEN POTENTIAL: AN IN-DEPTH EXPLORATION OF INTERNAL COMBUSTION ENGINES”

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Abstract:

By boosting combustion rate and utilizing all of the heat energy produced in the engine, internal combustion engines can become more efficient, which is crucial in today's market. In order to reduce emissions and prevent pollution, it is crucial that we use conventional fuels very sparingly while also minimizing the amount of carbon that remains unburned. The design and materials used in the manufacture of engines have a significant impact on their performance and lifespan. An engine's piston is essential to enhancing performance. In the automotive industry, the adoption of advanced coating materials has significantly improved engine performance. Future internal combustion engines for light-duty applications will need to handle a very complicated set of societal, governmental, and commercial demands. Customers anticipate significant advancements in terms of cost of ownership, drivability, durability, and reliability. Significant reductions in fuel usage and emissions are the main legal requirements. In a highly competitive climate, further manufacturing cost reductions will be necessary to preserve or improve the business.

Keywords: Internal Combustion Engine, Piston, Fuel, Air

Introduction:

An internal combustion engine is one in which a fuel, typically a fossil fuel, is burned in conjunction with an oxidizer (typically air) in a combustion chamber. In an internal combustion engine, a component, such as pistons, turbine blades, or a nozzle, is subjected to direct force as a result of the expansion of the high-temperature and-pressure gases created by combustion. These forces propel the part over a distance, producing mechanical energy that is used to power the engine. External combustion engines, like steam or Sterling engines, in which the energy is provided to a working fluid not comprising of, mixed with, or contaminated by combustion products, are quite distinct from internal combustion engines (or ICE). Working fluids include heat, pressurized water, liquid sodium, air, hot water, and many types of boilers [1]. When fuel is burned inside internal combustion engines, the chemical energy contained inside the fuel is released as heat and converted into mechanical work. Fuel combustion raises the temperature and pressure of the engine's internal gasses, which create the working fluid. Work is produced by the engine's moving parts and high pressure gasses as they expand. Prior to combustion, the working fluid for a portion of the internal combustion engine cycle is either a mixture of fuel and air or just



“UNRAVELING THE DEHTS OF UNDERWATER WIRELESS COMMUNICATION: A REVIEW PAPER”

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Abstract:

Even though the hydrosphere protects the majority of the Earth's surface, scientists and researchers from all over the world are interested in the underwater world because it is a complex riddle. To develop a reliable and efficient form of communication, numerous theoretical and experimental studies have been carried out. This is necessary to ensure the management of marine resources responsibly as well as to make it easier to execute important industrial, military, and security applications. Technologies for underwater communication have advanced significantly as a result of their implementation using wired and wireless methods, acoustic waves, or electromagnetic waves. The development of electromagnetic waves-based communication has been made possible despite the fact that acoustic communication can achieve extended communication ranges in kilometers due to its low speed, limited data rate, and unfavorable effects on the aquatic environment. High-speed communication and a high data rate are provided by electromagnetic waves. Additionally, underwater radio frequency communications are unaffected by the turbidity characteristics of water and maintain a smooth transition between water and air. However, they are extremely expensive. Interestingly, all of the aforementioned methods have been exceeded by wireless communications in the optical band. This is due to its low price and high bandwidth.

Keywords: Underwater Wireless Communication, Sensor Network, Acoustic Network, Air, Waves

Introduction

Due to its significant underwater uses for both military and commercial purposes, Underwater Acoustic Networks (UAN) research is becoming more and more popular. Acoustic waves are utilized to transmit digital data through underwater channels because they can travel great distances; radio signals, which are electromagnetic waves, are not employed because of their limited propagation times. For monitoring aquatic settings like lakes, ponds, drinking water reservoirs, or rivers, a wireless sensor network is provided. Different types of sensors can be added to the network to enable the monitoring of important physical, chemical, or biological characteristics. An uplink node floating on the water's surface gathers network data, which is then radio-transmitted to a host node on land, where it is uploaded to a computer for visualization and analysis. Underwater communication networks (UWCN) have become increasingly useful in a



A REVIEW OF GRID COMPUTING

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Abstract:

The speed, scale, and volume of computer processing power, data storage, and communication have all increased dramatically in recent years. Supercomputers are still unable to solve a large number of intricate and computationally demanding tasks, nevertheless. The only way to address these issues is with a wide range of diverse resources. The availability of high-speed networks and the growing popularity and use of the Internet have steadily altered how we perform computers. These technologies have made it possible to use a multitude of geographically dispersed resources cooperatively as if they were a single, more potent computer. Grid computing is a novel approach to combining resources to solve complex problems. The principles that underpin grid computing are explained in this work.

Keywords: Grid, Grid Computing, Cloud Computing, Principles, Characteristics, Applications

Introduction:

In modern computing technologies, two important technologies are cloud computing and the grid computing. The grid computing is a next generation computing technology with the focus of combining several weak and smaller networks in order to make a strong processing power and storage resource [1]. Thus, grid computing is a combination of interconnected resources which can be spread all over the world having higher computing capabilities. Grid computing provides benefit of combining several disperse resources which can be interconnected and solving problems which were not possible individually [2]. Unlike distributed processing which relies on similar or homogeneous resource, the grid computing consists of different resources based on heterogeneous platforms and specifications. The resources in the grid are grouped based on some classification such as personal network, educational networks, companies' networks and local networks. For developing the entire grid model, these different networks are connected with an end using the internet [3]. Intra-grid scope refers to the methodologies and algorithms which are used for managing the grid network related issues such as resource balancing, task scheduling, and managing security of the network [4].



A STUDY OF M-COMMERCE IN INDIA: POTENTIALS AND CHALLENGES

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Abstract:

This study paper's goal is to pinpoint the variables influencing M-commerce adoption. It's amazing how much M-commerce applications have grown in India. A growing number of consumers are switching to M-commerce in order to facilitate faster and better market transactions. M-commerce involves shifting market procedures and has a complex nature. In India, m-commerce is only getting started. India's mobile penetration rate is growing at an astonishing rate, and mobile technology and networking are getting better every day. These days, a mobile phone can be used for a variety of purposes beyond texting or making calls, such as online browsing, online chat, and other virtual activities. The elements influencing the adoption of M-commerce are identified in this study report. Explaining "How M-commerce is developing in India and to identify clear contexts and assistant mechanism" is the theoretical contribution of this study.

Keywords: E-Commerce, M Commerce, Mobility Markets, customers

Introduction:

In developing markets across the world, the merging of rapidly growing economies and the advance in mobile services usage create new innovative services including m-commerce. M-commerce is services or platform offers industry players to their consumer for various commerce activities by using mobile devices capacity. In other words, M-Commerce involved the transaction of information, services and goods through mobile devices between merchants and end-user or their customers in wireless communication technology.

Based on the statistics [1] for second quarter of 2015, there are 59% among US adults spent their time on mobile but only 15% of their dollars spent on mobile which is 85% on desktop. However, they have problems in interface design which resulted on poor mobile shopping experience among the user, it's because of few factors [2] such as small screen size, speed, security and the most importantly is many sites are not mobile optimized (customer experience) in term of interface design.

Previous researchers [3] also found that there are several issues in m-commerce that customers find it difficult to perform smooth activities or transaction using their mobile such as limited mobile memory, simplicity of user interface, screen size and small input method or keypad. In addition to that, [3] suggested in order to plan or design a good mobile application interface, they must consider the few design factors such as the purpose of



COMPARATIVE ANALYSIS OF BUILDINGS UTILIZING FLAT AND REGULAR SLABS

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Abstract:

In recent times, Flat slab buildings are generally used for the construction because use of flat slab building provides many advantages above regular slabs building in terms of economy, make use of space, easier formwork, architectural flexibility and mostly shorter construction time. The structural effectiveness of the Flat slab construction is mainly difficult by its meager performance under earthquake loading. This study conducts a thorough comparative analysis of buildings employing flat and regular slabs, exploring the nuanced differences that impact structural integrity, architectural flexibility, and overall sustainability. By scrutinizing factors such as load-bearing capacity, cost-effectiveness, and adaptability to diverse architectural styles, the research sheds light on the distinct advantages and limitations associated with each slab system. Through a combination of theoretical exploration and practical case studies, the study offers valuable insights for architects, engineers, and developers navigating the complex decision-making process in construction. The findings of this comparative analysis contribute to a deeper understanding of the implications of choosing between flat and regular slabs, informing industry professionals about the optimal use of each system based on specific project requirements. The stability of flat slabs under different situations has been critically studied. In civil engineering uses different types of slabs are used in buildings, parking, etc. Using flat slab buildings has numerous benefits over standard RC frame buildings in terms of simpler formwork, space use, architectural flexibility as well as quicker construction times. The analysis demonstrates that flat slab structures are lighter than traditional slab structures. As the construction landscape evolves, with a growing emphasis on efficiency and sustainability, this research aligns with the ongoing dialogue in the built environment. Ultimately, the study serves as a practical guide for decision-makers, facilitating informed choices that balance structural performance, cost considerations, and environmental impact in the pursuit of resilient and sustainable building practices.

Keywords: Comparative analysis, Building structures, Flat slabs, Regular slabs, Structural performance, Load-bearing capacity, Cost-effectiveness, Architectural design, Construction methods, Sustainability, Building optimization

Introduction:

In the ever-evolving landscape of construction and architectural design, the choice of building materials and structural systems plays a pivotal role in shaping the efficiency, functionality, and sustainability of structures. One critical aspect of this decision-making process involves the selection between flat and regular slabs, two distinct yet prevalent choices in the construction realm. This study embarks on a journey of comparative



DATA HIDING IN DIGITAL IMAGE USING STEGANOGRAPHY: A REVIEW

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Abstract:

The science of encrypting secret data into suitable multimedia carriers, such as audio, video, and image files, is called steganography. Steganography is beneficial in many different contexts. The primary goals of steganography are capacity of the hidden data, resilience to different image processing techniques, and undetectability. These are the primary distinctions between it and other watermarking and cryptography techniques. The review of steganography in digital photographs is the primary subject of this work, which also includes the key steganography techniques.

Keywords: Steganography, Digital Image, Data hiding, Information hiding

Introduction

Steganography is the art of concealing a message, image or file within another message, image or file. Steganography is used to secure the message. One of the major requirements of data hiding is that the hidden data must be imperceptible. The use of steganography has many advantages and is very useful in digital image processing which makes them suitable for a wide variety of applications. In this modern area, internet offers great convenience in transmitting large amounts of data in different parts of the world. However, the safety and security of long distance communication remains an issue. In order to solve this problem of security and safety has led to the development of steganography schemes. Steganography is different from watermarking and cryptography. The main objective of steganography is to hide the existence of the message itself, which makes it difficult for an observer to figure out where exactly the message is. On the other hand, cryptography techniques tend to secure communications by changing the data into a form so that it cannot be understand by an eavesdropper. And in watermarking logo is more important than information. Steganography is the type of hidden communication that means “covered writing” (from the Greek words stego or “covered” and graphos or “to write”). In 1550, Jerome Cardan, an Italian mathematician, proposed a scheme of secret writing where a paper mask with holes is used. The user needs to write his secret message in such holes after placing the mask over a blank sheet of paper. Then remove the mask to fill in the blank parts of the page and in this way the message appears as innocuous text [1].



WIRELESS SENSOR NETWORKS: A GENERAL VIEW OF APPLICATIONS

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Abstract:

Wireless sensor networks have emerged as a central new area in wireless technology. The appearance of sensor networks as one of the leading technology trends in the coming decades has posed various unique challenges to researchers. In this paper we have discussed that Wireless Sensor Networks (WSNs) are being increasingly deployed in military, health care, health monitoring, environmental and several other applications. However, design and deployment of WSNs have several challenges.

Keywords: WSNs, Monitoring, Data, Applications, Industrial, Health

INTRODUCTION

Wireless sensor network (WSN) refers to a collection of sensors for observing, monitoring and recording the physical conditions of the environment. After observing and recording the behavior of sensors, consolidating the collected data at a central location is the main task. WSNs measure environmental conditions like wind, humidity, temperature, pollution levels of sound, air and so on.

WSNs consist of spatially distributed and independent sensors to observe and monitor physical and environmental conditions. They are helpful to collectively pass recorded data through the network to a central location. Some of the networks are bi-directional, i.e. both collecting data from distributed sensors and supporting control of sensor activity.

Spatially dispersed and dedicated networks help to collect different parameters with special sensors which are included in the WSN. The development of WSN was motivated by mainly military applications such as battlefield surveillance. Nowadays, such networks are used in many applications like industry, consumer applications. Few of the applications such as industrial process, monitoring and control, machine health monitoring. [1]