Analysis of Different Security Attacks in MANETs on Protocol Stack A-Review

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Abstract: A MANET is an infrastructure-less type network, which consists of number of mobile nodes with wireless network interfaces. In order to make communication among nodes, the nodes dynamically establish paths among one another. The nature and structure of such networks makes it attractive to various types of attackers. In this paper we discuss various types of attacks on various layers under protocol stack. Different types of attacker attempts different approaches to decrease the network performance, throughput. In this paper the principal focus is on routing and security issues associated with mobile ad hoc networks which are required in order to provide secure communication. On the basis of the nature of attack interaction, the attacks against MANET may be classified into active and passive attacks. Attackers against a network can be classified into two groups: insider and outsider. Whereas an outsider attacker is not a legitimate user of the network, an insider attacker is an authorized node and a part of the routing mechanism on MANETs.

4G Wireless Standard

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Abstract: The First generation wireless mobile communication systems were introduced in early eighties and second generations systems in the late 1980s were intended primarily for transmission of voice. The initial systems used analog frequency modulation where as the second as well as the subsequent mobile systems use digital communication techniques with time division multiplexing (TDM), frequency division multiplexing (FDM) or the code division

multiple access (CDMA). The third generation wireless systems which are just getting introduced in the world markets offer considerably higher data rates, and allow significant improvements over the 2G systems. The 3G Wireless systems were proposed to provide voice and paging services to provide interactive multimedia including teleconferencing and internet access and variety of other services. However, these systems offer wide area network (WAN) coverage of 384 kbps peak rate and limited coverage for 2 Mbps. Hence providing broadband services would be one of the major goals of the 4G Wireless systems.

Comparison of 4G with Previous Generations

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Abstract: Wireless services have the highest demand in wireless and internet world. Mobile phones are rapidly becoming the preferred means of personal communication. Every generation technology has some platform for its development as a reason. 1G was based on analog signaling whereas 2G on low-band digital data signaling. The 3G technology was developed to overcome the faults of 1G & 2G technologies. 3G finds application in wireless voice telephony, mobile Internet access, fixed wireless internet access, video calls and mobile TV. The 4G system provides mobile ultra-broadband, internet access with very high speed data rate. This research paper presents an overview of 4G technology trends in the wireless technology market, a comparative overview of 4G v/s all other previous generation technologies and the major improvements which could be made to 4G technology.

E-Learning

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Abstract: In this rapid changing world, it is difficult to overcome the learning challenges. To bridge this gap, the concept such as E-learning has been introduced as a part of effective education. Thus a new learning process has been discussed which not only provides expertise in disciplinary field but also inculcate cognitive and lifelong learning skills in students. E-learning has been characterized in a manner which includes a precise approach to be followed for learning.E-learning is the use of technology to enable people to learn anytime and anywhere. Educational technology includes numerous types of media that deliver text, audio, images, animation and streaming video and includes technology applications and processes such as audio or video tape, satellite TV, CD-ROM and computer based learning as well as local intranet / extranet and web-based learning. Information and Communication system, whether free-standing or based on either local networks or the Internet in networked learning, underlie many e-learning processes.

Cognitive Radio Based Wireless RegionalArea Network (IEEE Standard 802.22)-A Review

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Abstract:IEEE 802.22 wireless regional area network (WRAN) is a standard under development by the IEEE 802.22 LAN/MAN Standard Committee. This will be the first worldwide application of cognitive radio (CR) networks in unlicensed T.V. broadcast bands. CR is designed to help unlicensed users utilize the maximum available licensed bandwidth allowing for improved commercial data services, new emergency and military communications services This technique was taken into consideration by the U.S. FCC for communications services in

unlicensed VHF and UHF TV bands. This paper provides a detailed overview of the 802.22 air-interface architecture, topology, and operation.

Flexible Electronics: What it is? Where it is?

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Abstract: The developments in the field of Thin Film Transistors and development of polymer materials which are conducting in nature has led to vast advances in the field of Flexible Electronics. Ease of fabrication, light weight, flexible base are amongst the important advantages of flexible electronic devices. This paper presents a brief review of what the flexible electronics is, materials available for the development of flexible electronics and two methods such as Screen printing and Inkjet printing for printing the electronic circuits for flexible electronics. Possible applications of flexible electronics in various fields such as Flexible solar cells, flexible sensors, Smart Contact lens are discussed briefly so that the power of flexible electronics can be realized. In the end the present state of flexible electronics or organic or plastic electronics in context to India is stated.

OFDM

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Abstract: This paper basic stress to overcome and investigates OFDM over wireless communication standards as OFDM finds its usage in 4G AND LTE communication standards. It exhibits the way to improve channel response. Researchers founded the use of DWT (Discrete Wavelet Transform) exploited the response of FFT (Fast Fourier Transform). This paper illustrates bit error rate performance and shows the improvement of DWT over FFT. Here simulation will be done with the help of MATLAB software.It emphasizes the concept of exploiting OFDM systems for covert communication. Now the basic purpose of covert

communication is to hide the transmission of information with a low probability of detection (LPD), the covert signal can be embedded within an existing non-covert communication.

Reduction of Static and Dynamic Power Consumption in CMOS Technology

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Abstract: This paper describes the need and technique of reduction of static and dynamic power in CMOS based design. The impact of technology scaling on power consumption is discussed along with the consequences of power dissipation on the performance and reliability of the device. Different factors which affects the power consumption are identified and approaches are developed to reduce static and dynamic power. Impact of transistor stacking, Clock distribution, Clock gating and multiple thresholds is discussed in detail. Different leakage currents are discussed which highly affects the static power of standby power. Impact of technology mapping on dynamic power consumption is discussed.

Fuzzy Logic

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Abstract: The computational environment used in any analytical approach is perhaps too categorical and inflexible in order to cope with the intricacy and the complexity of the real world physical system. It turns out that in dealing with such system, one has to face a high degree of uncertainty and tolerate imprecision. Soft Computing the tolerance for imprecision and uncertainty is exploited to achieve tractability , lower cost , high Machine Intelligence Quotient(MIQ) and economy of communication. Principle constituents of soft computing are: fuzzy logic, artificial neural network, probabilistic reasoning. These distinct and yet interrelated

methodologies are currently attracting great deal of attention and have already found a number of practical applications ranging from industrial process control fault diagnosis and smart appliances to speech recognition and planning under uncertainty. In this perspective, the principal contribution of fuzzy logic relates to its provision of a foundation for approximate reasoning, while neural network theory provides an effective methodology for learning from examples, Thus, in order to make the information mining process more robust or, "human-like", methods for searching and learning are needed that are tolerant toward imprecision , and exceptions, have approximate reasoning capabilities and are capable of handling partial truth, Properties of the aforementioned kind are typical of "SOFT COMPUTING" a collection of methodologies whose cornerstones are fuzzy logic, neural networks, and evolutionary algorithms.

A REVIEW OF FRACTAL ANTENNA

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Abstract: Different type of antennas are used in the field of communication but commercial and military telecommunication systems require ultra wideband antennas. The small physical size and multiband capability are very important in the design of ultra wideband antennas. Fractals have unique properties such as self-similarity and space-filling. The use of fractal geometry in antenna design provides a good method for achieving the desired miniaturization and multi-band properties. In this paper, we studied about the different fractal antennas used for various applications.

Haptic Technology- The Science of Touch

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Abstract: As electronics is leading its way in the development of the nation, so it is necessary for more and more inventions in the diverse field of electronics. This paper will include about the introduction, applications and research of Haptic Technology in various fields.Haptic Technolgy is generally recreating the sense of touch by applying forces, motions or vibrations to the user. This mechanical stimulation can be used in creation of virtual objects, to control such virtual objects and to enhance the remote control of machines and objects. Haptic devices may incorporate tactile sensors that measure forces exerted by the user on the interface.

Sustainable life on Mars

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Abstract: All the data collected by various rovers and satellites observing mars suggests that life ispossible on mars from every perspective. This project is based on developing the sustainable life on Mars. As we have the raw material (like basalt) and water on mars so we just need to send a single spaceship on mars which will contain the rover with multiple specifications, which will land on southern highlands (basaltic surfaces are found primarily inthe southern highlands).The structure build on the mars will be able to face every extremesituation. Plants can be grown on the Martian soil. Carbon dioxide can be taken from theatmosphere if the plants take in more than the humans expel. Using solar panels is the bestchoice since it takes away the requirement to develop and launch a nuclear reactor, therebysaving time and money while avoiding the risks and concerns of the use of a nuclear powersource. After the estimated time (which is dependent on speed of the rover) the astronautswill be send to mars along with the cell which contains food

and other equipments. Thehuman excrete can be used as organic matter for Martian soil. Oxygen can be manufacturedfrom water by electrolysis method. Water can also be used for making fuel. So in this way,launching of vehicle from mars will be possible and returning of astronauts to earth will alsobe possible. Hence sustainable life will be possible on Mars in an uncostly way.

HD-Radio

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Abstract: The DAB digital radio established in some areas of the globe is known as High Definition (HD Radio). Using HD Radio will enable high quality audio to be received along with ability to incorporate many new features and facilities. The HD Radio system has been developed by iBiquity and has now been selected by the Federal Communications Commission (FCC) in the US. It will take the place of both existing AM and FM transmissions and offers many advantages for both listeners and broadcasters. The HD Radio uses a variety of technologies to enable it to carry digital audio in an acceptable bandwidth with the new high quality that is required. The transmission uses COFDM combined with specialized codec to compress the audio one of the requirements for HD Radio was that it would maintain compatibility with existing stations to achieve this, there are two versions; one HD Radio system for FM and the other for AM. In what is termed as hybrid mode, the AM version has a data rate of 36Kbps for the main audio channel and the version of HD Radio for the FM bands carries 96Kbps. In addition to this HD Radio can also e used to carry multiple audio channels and in addition to this secondary channels for services, such as weather, traffic and the like may be added. However, adding additional channels will reduce the available bandwidth for the primary channel and the audio quality may be impaired. In the hybrid mode, a radio receiver will first lock onto an analog signal. If this is possible, then it will try to find a stereo component (FM) only and finally it will endeavor to decode a digital signal. If the signal is lost, then it will fall back to the analog signal. The success of this process depends upon the transmitting station being able to synchronize the digital and analog signals. Often, the digitization process takes a noticeable amount of time and the digital and analog signals may not be transmitted in time with

each other. Once the HD radio is fully established ,the hybrid mode may be removed and then no analog information will be transmitted However ,it is envisaged ,that this will take some time as this can only be viable when only be viable when only very few analog when only very few analog radios are in use.

Wearable Electronics

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Abstract: As technologies change, so will clothing, life style, living standards changes.Electronics helps in improvement of our life and also contributes in the economic growth of the nation.These emerging technologies are helping us to measure our capabilities by the use of electronics.So, this paper will include the introduction and working of the latest electronics gadgets which we can wear.It will cover the use of wearable technology in sports, clothing, medicine.Tech Togs are clothing and accessories incorporating computer and advanced electronic technologies.Wearable devices such as activity trackers are a good example of the IOT(Internet Of Things), since they are part of the network of physical objects or "things" embedded with electronics, sensors, softwares and connectivity to enable objects to exchange data with a manufacturer, operator and/or other connected devices, without requiring human intervention.

E-Governance

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Abstract:E-governance is a process in which people are given accessed to information or facilities of government to everyone. This helps the government transparent ,anti-corrupt. E Government can be defined as use of information and communication technology by governments to enhance the range and quality of information and services provided to citizens, businessman, civil society organizations in an efficint , cost effective and covenint manner ,making government processes more transparent. Although, there is of e governance but every government is making according to their aims. "E Government refers to the use of no exact defination government agencies of information that have the ability to transform relation wit citizens,businessman ,and other arms of government". These help in better delivery of services to citizens, improved interactions with business or more efficient government management. Dr. APJ Abdul Kalam, has visualized e-governance as: "A transparent smart e-government with seamless access, secure and authentic flow of information crossing the interdepartmental barrier and providing a fair and unbiased service to citizen".

Data fusion in wireless sensor networks

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Abstract: Data fusion mechanisms process the data from multiple sensors and thereby create meaningful new information that cannot be obtained from any single sensor. The main purpose of data fusion mechanisms in WSNs is to provide a greater QoS for the purpose of arriving at reliable and accurate decisions about the events of interest. The QoS here can mean reliable delivery of accurate, complete, and dependable information. In fact, fusing data ensures that not only the data quality of the WSN is enhanced, but also energy consumption can be lowered as it removes redundant information as well.Sensors are widely being used in industrial, domestic and military environments for sensing

of environmentparameters. This sensing provides data for controllingthe systems which are doing some useful work in thatenvironment. The size of these sensors units isdecreasing as the time is passing. Now a days with advancement in manufacturing process and also inmicroelectronics the complete units is becoming so smallthat they can be utilized efficiently in many locations,where previously considered to be difficult. A completeunit of the Wireless Sensor comes with components as asensor component, signal processing unit, signal transmitand receive unit, power unit, if this wireless sensor ismobile then additional unit of mobility and navigation. Wireless sensors when used in large number, then anetwork of these sensors becomes a unit called as awireless sensor network (WSN). Use of the WSNs isbeing done in monitoring of the different environments.

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Abstract: In this paper, a novel ultra-compact (0.17*0.17*0.05 wavelengths) reconfigurable antenna equipped with shunt switches at the edges of the radiating elements. This antenna has the ability to adapt to different environments. The design of antenna for multi-band and multi-environment operation is optimized by hierarchical optimization process consisting of genetic algorithm and local search for geometry optimization. The tenability and environment robustness were confirmed in simulation and measurements. Numerical analysis of the impact of commercial MEMS devices is reported, including practical interest. A compact antenna that can operate at different locations around a simplified model of a laptop PC without performance degradation. Environment robustness is a key feature to satisfy the continuously requirements put on mobile terminals and in power efficiency.

Smart Home-Control and Monitoring System Using Smart Phone

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Abstract: This paper presents a low cost and flexible home control and monitoring system using an embedded micro-web server, with IP connectivity for accessing and controlling devices and appliances remotely using Android based Smart phone app. The proposed system does not require a dedicated server PC with respect to similar systems and offers a novel communication protocol to monitor and control the home environment with more than just the switching functionality.The Internet of Things (IoTs) can be described as connecting everyday objects like smart-phones. Internet TVs, sensors andactuators to the Internet where the devices are intelligently linked together enabling new forms of communication betweenthings and people, and between things themselves. Now anyone, from anytime and anywhere can have connectivity foranything and it is expected that these connections will extend and create an entirely advanced dynamic network of IoTs. IoTstechnology can also be applied to create a new concept and wide development space for smart homes to provide intelligence,comfort and to improve the quality of life.

DSDV for Mobile Ad Hoc Network

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Abstract: An ad hoc network is a collection of wireless mobile hosts forming a temporary network without the aid of any centralized administration. In such a network, each node acts as both router and host simultaneously, the nodes can leave or join the network anytime. The routers are free to move. DSDV is developed on the basis of Bellman Ford routing algorithm with some modifications. In this routing protocol, each mobile node in the network keeps a

routing table listing all the other nodes it has known either directly or through some neighbor. Every node has a single entry in the routing table. The entry will have information about the node's IP address, last known sequence number and the hop count to reach that node. Along with these details the table also keeps track of the next hop neighbor to reach the destination node, the timestamp of the last update received for that node. Information updates might either be periodic or event driven. DSDV protocol requires each mobile node in the network to advertise its own routing table to its current neighbors. The advertisement is done either by broadcasting or by multicasting.

Humanoid Robotics- Machine with Human Brain

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Abstract:A dream of humanoid robot researchers is to develop a complete "human-like" (whatever that means) artificial agent both in terms of body and brain.The field of humanoids robotics is widely recognized as the current challenge for robotics research .The humanoid research is an approach to understand and realize the complex real world interactions between a robot, an environment, and a human. The humanoid robotics motivates social interactions such as gesture communication or co-operative tasks in the same context as the physical dynamics. This is essential for three-term interaction, which aims at fusing physical and social interaction at fundamental levels.People naturally express themselves through facial gestures and expressions. Our goal is to build a facial gesture human-computer interface for use in robot applications.

Photonics

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Abstract: Copper interconnects will soon be the limiting factor of performance of a computer. The aim of photonics is to bring the high performance of optical interconnects to silicon, relatively cheap and abundant source. Today optical data connection are most commonly found in haul communications and in large server forms. These connections make off the backbone of our communications infrastructure because of their ability to transfer massive amount of data at fastest rate possible. High price is typically due exotic materials from which optical devices are constructed. Silicon photonics is relatively new field with the goal of developing silicon based optical devices. This approach appears to be very enticing due to multiple reasons including the large established silicon fabrication infrastructure and the relatively low cost and the high abundance of this material. Unfortunately silicon does not have inherently good optical properties, however many of these shortcomings are proving to be engineering problems and not absolute limitations. The development of an integrated optical chip consisting of six significant components: waveguides, optical modulator, laser source, photo-detector, CMOS intelligence and passive assembly.

Paper Battery - A Promising Energy Solution for India

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Abstract: This paper gives a thorough insight on this relatively revolutionizing and satisfying solution of energy storage through paper batteries and provides an in-depth analysis of the same.

A paper battery is a flexible, ultra-thin energy storage and production device formed by combining carbon nanotubes with a conventional sheet of cellulose-based paper. A paper battery can function both as a high-energy battery and super capacitor, combining two discrete components that are separate in traditional electronics . This combination allows the battery to provide both long-term steady power production as well as bursts of energy. Being Biodegradable, Light-weight and Non-toxic, flexible paper batteries have potential adaptability to power the next generation of electronics, medical devices and hybrid vehicles, allowing for radical new designs and medical technologies. The paper is aimed at understanding & analyzing the properties and characteristics of Paper Batteries; to study its advantages, potential applications, limitations and disadvantages. This paper also aims at highlighting the construction and various methods of production of Paper Battery and look for alternative means of mass-production.

A Review Paper on Fractal Antenna and a New Shape of Hybrid Fractal Antenna

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Abstract: Now days the demand for wireless communication is increasing and its main objective is the design of wideband, multiband, and low profile, small antennas. Due to the demand for many challenging application like wireless communication, satellite communication, GPS, Zigbee and so on, there is need of compact size antenna so the size reduction of the antenna is becoming challenging factor. In this review paper we introduce about the fractal and proposed a new hybrid fractal shape.

Solitons: The Wave of Future

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Abstract: Multiterabit/s, ultrahigh-speed optical transmissions over several thousands of kilometers on fibers are becoming a reality. In this paper, evolution of soliton pulses has been discussed and simulated. It is based on pulse spreading due to linear effects i.e. Group Velocity Dispersion (GVD) and non-linear effects which are dependent on refractive index variation due to the intensity of light, called self phase modulation (SPM). By choosing appropriate pulse shape highly stable light pulses known as solitons are generated when effect of GVD is balanced by SPM. The application of solitons in communication systems opens the way to ultrahigh-speed information superhighways. The problems and difficulties associated with solitons and their remedies have also been outlined.

Organic Light Emitting Diode (OLED)

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Abstract: Organic light emitting diode (OLED) display technology has been grabbing headlines in recent years. Now one form of OLED displays, Light Emitting Polymer (LEP) technology is rapidly emerging as a serious candidate for next generation flat panel displays. LEP technology promises light weight emissive displays with low drive voltage, low power consumption, high contrast, wide viewing angle, and fast switching. One of the main attractions of this technology is the compatibility of this technology with plastic-substrates and with a number of printed based fabrication techniques, which offer the possibility of roll-to-roll processing for cost-effective manufacturing.

Wi-Vi Technology- Behind the Walls

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Abstract: Wireless technology has become part of our life as wireless enabled handheld devices, laptops with WLAN access and cell phones and all other wireless devices have made our life very easy. It is hard to imagine life without going wireless. This paper explores the further use of Wi-Fi as wireless vision or Wi-Vi which can be used for watching and detecting moving objects behind the walls and closed doors. Wi-Vi also helps in locating number of people in a room with their location and the simple gestures made even behind a wall. It can track a human by considering movement of human body as array antenna and analyzing resulting RF beam.

GPS & GSM based Women Security System

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Abstract: Women's security is a critical issue in today's world and its very much needed for every individual to be acting over such an issue. This paper describes a "GPS & GSM based Women security system" that provides the combination of GPS device and specialized software to track the vehicle's location as well as provide alerts and messages with an emergency button trigger. Now a days due to recently happened cases such as rape by drivers or colleagues, burglary etc., employee security, especially women employee security has become the foremost priority of the companies. System uses the Global Positioning System technology to find out the location of vehicle. The information of vehicle position provided by the device can be viewed on Google maps using Internet or specialized software. The IT companies are looking forward to the security problem and requires a system that will efficiently evaluate the problem of women employees security working in night shifts. This paper focuses on the proposed model that can be used to deal with the problem of security issue of women employees using GPS and GSM based vehicle tracking.

Cell Phone Based Pick and Place Robot

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Abstract: Mankind has always strived to give life like qualities to its artifacts in an attempt to find substitutes for himself to carry out his orders and also to work in a hostile environment. The popular concept of a robot is of a machine that looks and works like a human being. The industry is moving from current state of automation to Robotization, to increase productivity and to deliver uniform quality. The industrial robots of today may not look the least bit like a human being although all the research is directed to provide more and more anthropomorphic and humanlike features and superhuman capabilities in these.

Here how a pick and place robot can be designed for a workstation where loading and packing of lead batteries is been presented. All the various problems and obstructions for the loading process has been deeply analyzed and been taken into consideration while designing the pick and place robot. This robot is based on DTMF phenomena.

The pick and place robot is a microcontroller based system that detects the object, picks that object from source location and places at desired location. For detection of object, infrared sensors are used which detect presence of object as the transmitter to receiver path for infrared sensor is interrupted by placed object. The movement of this pick and place robot in 6 directions i.e. forward-reverse, up-down and pick-place.

These type of robots are widely used in Production industry, automobile industry, mass production and in bottle filling plants etc. Easily programmable, space-efficient and flexibility are the main advantage of using these robots.

Recognition of Vehicle Number Plate Using MATLAB

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Abstract: This work proposes a method for the detection and identification of vehicle number plate that will help in the detection of number plates of authorized and unauthorized vehicles.This paper presents an approach based on simple but efficient morphological operation and Sobel edge detection method. This approach is simplified to segmented all the letters and numbers used in the number plate by using bounding box method. After segmentation of numbers and characters present on number plate, template matching approach is used to recognition of numbers and characters. The concentrate is given to locate the number plate region properly to segment all the number and letters to identify each number separately.

Remotely Controlled Android Based Electronic Notice Board

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Abstract: Notice Board is primary thing in any institution organization or public utility places like bus stands, railway stations and parks. But sticking various notices day-to-day is a difficult process. A separate person is required to take care of this notices display. The main objective of this real time embedded system design is to develop a wireless notice board that displays notices:
1. When a message is sent from the user's android application device via Bluetooth which is captured by the BT-module connected to the MCU near the display which decodes this message (text, voice) and displays it on the LCD display.
2. Remote operation is achieved by any smart-phone, with Android OS, upon a GUI based touch screen operation.

Solar Charger Circuit

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Abstract: With fuel hikes making news, solar energy is the most sought after energy source. Solar chargers are simple, portable and ready to use devices which can be used by anyone

especially in remote areas. Going solar can solve more than one problems, right from cutting down on carbon emissions and dependence on fuels, to solving the energy crisis. This project aims to make a simple solar charger which can be used on the go. Solar panels don't supply regulated voltage while batteries need so for charging. Hence, an external adjustable voltage regulator is used to have the desired constant voltage. A Zener diode switches on to ensure charging is cut off at the saturation point.

Propeller Clock

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Abstract: Conventional methods of displaying images or massage to public are using LCD display and dot-matrix LED displays. Propeller LED display is a special kind of device that project an image, text or time as if the images are floating in the air. Actually the floating images emerge by synchronizing LED'S blink to form an image at particular time and rate.Propeller Clock is a clock, displayed by a mechanically rotating bar of Light Emitting Diodes (LEDs). In the display, the LEDs are not illuminated constantly. The LED s turn on and off at precise intervals, one after another, extremely rapidly while being rotated with several thousands of rounds per minute (RPM). Human eye is an integrating optical sensor that has about 0.1 s integration time. Hence, the human eye, registers an image as an integral of photons reached to the eye about 0.1 s time. This phenomena is known as Persistence of Vision (POV) that gives the illusion of a static stable display. POV of human eye has been used as the basic principle in this project.

Scrolling Led Display with 8051 Micro-Controller

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Abstract: LED-based moving-message displays are becoming popular for transmitting information to large groups of people quickly. These can be used indoors or outdoors. We can find such displays in areas like railway platforms, banks, public offices, hotels, training institutes, etc. An LED matrix display consists of a matrix of LED's arranged in a rectangular configuration. The desired character or graphics can be displayed by switching ON /OFF a desired configuration of LED's. LED dot matrix can be used in simple display applications where the resolution is not a big concern. .Any individual LED or a group of LEDs in the matrix can be activated by switching the required number of rows and columns.

Fire Fighting Robot

NehaVerma, AditiJalan, Rigved

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Abstract: The fire fighting robot is designed to search for a fire in a small floor plan of a house, extinguish the fire and then find other spots of fire. This mission is divided into smaller tasks, and each task is implemented in the most efficient manner. The navigation of the robot throughout the house is achieved by data provided by an IR sensors, fire sensors and transducers. The device used to extinguish the fire is simple ac pump. Along with fire extinguish task it also perform obstacle detection for efficient operation. It also prevents itself from falling from high surfaces with the use of IR sensor. In this robot we are using pic microcontroller for controlling all operations, IR sensors are used for obstacle detection and also used for preventing itself from falling and fire sensors are used for fire detection mechanism. The main operation of this robot is to reduce the loss of lives while rescuing people during fire accidents. We place this robot on the floor which is on fire, we place it on the entrance and further it will navigate according to the data provided by different sensors. Fire sensor detects fire and accordingly our robot will move in that particular direction and operate in fire detection mode. If there is any obstacle in its path it operate in obstacle detection mode and if there is theft of falling then it will operate in antifalling mode and overcome different situations automatically. When it reaches the place of fire, it stops at some distance from fire spot and extinguishes it with use of ac pump by spraying water on it. After that it continues to find other fire spots on the floor. Fire fighting robot is vast technology

in robotics as well as electronics field. This project works like a man. This type of robotics car can find out fire automatically via sensors and move in only one direction. Now a day with the advancement of technology the possibility of accidents are also increased to great extent. Most of these accidents are due to short circuit and lead to large fire flames which can damage many lives. And many lives are lost in rescuing the fire victims. This robot is just an effort to save those lives.

Accident Detection Using GPS and GSM

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Abstract:A vehicle tracking system combines the installation of an electronic device in a vehicle, or fleet of vehicles, with purpose-designed computer software to enable the owner or a third party to track the vehicle's location, collecting data in the process. Modern vehicle tracking systems commonly use Global Positioning System (GPS) technology for locating the vehicle, but other types of automatic vehicle location technology can also be used. Vehicle information can be viewed on electronic maps via the Internet or specialized software. In this project we are also using GSM modem by which if our vehicle met with an accident on the road this automatically sends the location and car no. to the predefined mobile no.

Fingerprint Based Biometric Attendence System

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Abstract: Fingerprint identification is one of the most well known and common biometric identification systems. Because of their uniqueness & consistency over time, fingerprints have been used for identification over a century, more recently becoming automated due to advancement in computing capabilities. So, here we are using the fingerprint identification technique for maintaining the attendance record. We plan to maintain a record of the prints of the various students in the database, and they shall be matched and marked present when they swipe their fingerprints across the scanner.

Solar Energy Based Warehouse Control System

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Abstract: Nowadays, are the days of automation in this project, we are making system which can be used in the fields, ware houses, kitchens and industries etc. But we are making it specific for use in warehouses.It can be used to detect various atmospheric and other conditions e.g. rain,light, smoke etc. So, this project is very useful for commercial or homely uses.

Wireless Electronic Menu

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Abstract: Communication Systems are playing a vital in our personal and professional life. It is a key area of development from last centenary.Earlier we use wired communication mediums those are very costly and bulky but with the development of last technologies a new mediums of communication has been built.RF is the most leading communication medium in today's life.It's possible to transmit data through the radio frequency over a short distance. We have used RF frequency in this project to design a Wireless Electronic Menu. In this project data is transferred one end to another end

through RF.Data will be transmitted by 433 MHz RF transmitter.At the receiving side these codes will be received by 433 MHz RF receiver.We use AT89S52 microcontroller. This controller is basically a 40 pin IC . We are using 204 LCD in this project. At the receiver end RF module receives the encoded data and generates the actual form and display it on the display.

Human Detection Robot

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Abstract: It is a remote controlled human detection robot which detects the presence of a human body at the times of some war,earthquake or any other natural calamity.We are doing this with help of a PIR sensor.It contains a box having first aid box, automatically detects darkness and switch on the LEDs present on it, detects fire and sets an alarm for the same and it detects a pit or some hollow area on its own so that it does not fall in it.We are controlling this with a remote control using RF module.

Automatic Electric Control System

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Abstract: It is a very useful system to save power in public places especially in palaces. In this system an intelligent system (microcontroller) keeps the track on gathering. If the gathering is zero then it switches off all electrical appliances and save the power. To read the gathering of people we use two pairs of IR sensors one at entry and second at exit gate. As the person enter enters, microcontroller increment the counter and compare it with the defined values of gathering so that it can trigger the appliances according to the gathering of people as the gathering increases lightening increases. At the same time microcontroller read the status of exit gate,

whenever it detects a input at exit gate it decrements the counter and check to switch off the lights.We use relays to trigger the appliances because relay is a electromagnetic switch by the use of relays we can switch the 220 V AC by microcontroller. But relay operates at 9V DC so we used a different power source to power up the relay. As we know microcontroller operates at 5 V dc and relay operates at 9V DC so we used opto-couplers, which acts as a bridge between the relay and microcontroller.