

Models and Technology Used in Smart Grid

Mansi G. Kulkarni¹, Sanjana V. Bhavane², Neha F. Rathod³, Prof. Pallavi M. Mankar⁴

UG Student, Department of Electrical Engineering, P. R. Pote (Patil) College of Engineering and Management,
Amravati, Maharashtra, India^{1,2,3}

Assistant Professor, Department of Electrical Engineering, P. R. Pote (Patil) College of Engineering and
Management, Amravati, Maharashtra, India⁴

ABSTRACT: A smart grid is an electricity network enabling a two-way flow of electricity and data with digital communications technology enabling to detect, react and pro-act to changes in usage and multiple issues. Smart grids have self-healing capabilities and enable electricity customers to become active participants. This paper has proposed data Envelopment Evaluation Model for the technical and allocative efficiency evaluation of smart grid. This paper presents condition assessment concept for smart grid equipment which reflects the physical state of the electric grid equipment, which may significantly affect its performance. In this paper we discussed blockchain technologies used in smart grid.

KEYWORDS: Smart Grid, Condition Assessment Model, Data Envelopment Evaluation Model, Block Chain.

I. INTRODUCTION

A Smart Grid is an electricity network that can cost efficiently integrate the behavior and actions of all users connected to it – generators, consumers and those that do both – in order to ensure economically efficient, sustainable power system with low losses and high levels of quality and security of supply and safety. A smart grid employs innovative products and services together with intelligent monitoring, control, communication, and self-healing technologies. The smart grid principle is rather based on a hierarchical structure and on the acceptability of intermittent resources such as renewable energies. SG acceptability of the choppy different renewable energy sources and its power outage self-healing capability are the major advantages over traditional power grid. Electric power grid includes three main generation systems with similar assets; systems that are responsible for the production of electricity from fossil fuel, renewable energy sources such as solar and wind, and nuclear power through centralized power plants that may include generators, diesel engines, gas turbines, step-up power transformers, motors, compressors, pumps, switchgear equipment, etc. Smart grid enhancements include various technologies used to improve the stability and reliability of the generation in addition to intelligent controls and generation mix consisting of various renewable energy resources.

Condition assessment in smart grid could be the first step in a more formal asset management system, which allows utilities to reflect the physical state of different electric grid equipment, estimates remaining useful time of the electrical equipment for a more reliable smart grid, and identifies future maintenance requirements. It also provides an analysis of functional and physical deficiencies of electrical equipment for equipment replacement program and for making timely decisions about electrical equipment rehabilitation. In process of its construction, the advanced technology is the key factor for the development of the grid in the intelligent direction. The impact of the assessment technology is significant for the smart grid. From the point of technological progress and technical efficiency, analysis of this effect is the main research idea at home and abroad. In economic management science, the technical efficiency is the ability of maximum output under the fixed input factors of the production unit Data Envelopment Analysis (DEA) has been used to evaluate the technical efficiency and scale efficiency of the power network. Some scholars also use DEA to evaluate the technical efficiency of the hydroelectric power enterprise or transmission and distribution system. The focus of smart grids is to facilitate local production and consumption by prosumers and consumers. By stimulating local energy production and consumption, the transmission losses are reduced. Prosumers and consumers, should be able to trade electricity with each other in a peer-to-peer fashion. To manage these transactions between consumers and prosumers participating within the smart grid in a centralized manner would likely to be very costly and would require complex communication infrastructure.



IOT Based Smart Energy Meter for Domestic Use

Dr. Sanjay Warkad¹, Devanshugayki², Nikita Mungane³, Pallavi Manne⁴, Moresh Sambare⁵,
Srushti Isokar⁶

Assistant Professor, Department of Electrical Engineering, P R Pote college of Engineering and Management,
Amravati, India¹

Department of Electrical Engineering, P R Pote college of Engineering and Management, Amravati, India²³⁴⁵⁶

ABSTRACT: Internet of Things (IoT) has opened a myriad of applications in many areas, including medical and healthcare networks, smart home control, and environmental surveillance. IoT is supposed to bring about a large amount of progress within the ubiquitous computing sector. IoT-based energy management programs may allow a big contribution to energy conservation. Therefore, this paper focuses on the planning and implementation of an online of Things based household electricity energy monitoring and electric bulb remote for the reduction of electrical wastage using ESP 32-bit microcontroller. The ESP 32 microcontroller was used as the brain of the whole system which processes the energy consumption. The ESP32 microcontroller also handles the web connectivity via its inbuilt WIFI module so as to transmit the real-time energy consumption, and electric bulb remote control over the internet. A UBIDOS app was designed to serve as user interface for monitoring the household electricity energy consumption and electric bulb remote via UBIDOS cloud server from Math Works and also monitors the electricity consumed by the pressing iron and therefore the hand blower. Whenever, the electricity consumption exceeds the set threshold on the UBIDOS app, a notification is sent to the user's Email. The system might be used for reducing the wastage of electricity within the house by proper scheduling and monitoring of the appliances.

KEYWORDS: ESP 32 microcontroller, IOT, UBIDOS Application, UBIDOS server WIFI module.

I. INTRODUCTION

Energy meters are combination of analog and digital components working together to offer the output within the sort of digital readings that's what the entire power consumed by any industrial or residential building. Because the use of electricity round the world progressed, the worth for electricity has become competitive. The necessity for accurate measurement of the electricity consumed has become vital issue both for the consumers also because the electricity board. Utility companies started feeling the pressure for better instruments. Utility companies are being forced to seek out solutions which will demand more sophisticated energy measurement methods, providing greater amount of data on the consumer's power consumption. The Smart Energy Meter is that the best solution to face the present-day scenario of urgent need of accurate and user friendly electrical consumption measuring instrument. The energy consumption are often monitored by using an Electric device called energy meter. The value and therefore the regular Usage of Power consumption are informed to the user to Overcome high bill usage. The Energy meter shows the quantity hi of units consumed and transfers the info to both the customer and to the electrical board so this helps in reducing man-power. The user can check their Power usage from anywhere and at any interval. The IoT is employed to show on/off the household Appliances using relay and Arduino interfacing. The target of this technique is to watch the quantity of electricity consumed. The distributor and therefore the consumer both are going to be benefitted by eventually reducing the entire Power consumption

II. LITERATURE REVIEW

A new concept of energy meter are getting to be discussed, where maximum demand of energy of a consumer are getting to be indicated within the meter employed by the customer. After exceeding the utmost demand, the meter and hence the connection will automatically be disconnected by an embedded system inserted within the meter itself. Wi-Fi module ESP32 for controlling devices over the web. It can work with a micro-controller just like the Arduino with the assistance of this we will communicate between load circuit and utility side. The system consists of the electricity meter which measures the electricity bill and informs the buyer about the amount of units consumed and associated



A Smart Helmet for Improving Safety in Mining Industry

Babasaheb S. Jadhav¹, Rushikesh V. Chore², Akash S. Jaybhaye³, Akshay D.Gharde⁴, Shubham J. Katore⁵, Ashish S. Laged⁶, Vaibhav P.Bhagwat⁷, Prof.S.A.Jalit⁸

UG Students, Department of Electrical Engineering, P.R.Pote (Patil) College of Engineering and Management,
Amravati, Maharashtra, India^{1,2,3,4,5,6,7}

Assistant Professor, Department of Electrical Engineering, P. R. Pote (Patil) College of Engineering and
Management, Amravati, Maharashtra, India⁸

ABSTRACT: A smart helmet has been developed which includes various features such as the two way communication, detection of the hazardous gases, providing notification in the case of helmet removal, collision (miners are struck by an object), panic switch for emergency situations, continuous monitoring of the environmental conditions such as temperature and pressure in the mining industry and GPS is provided to track the location of the miner. Once the poisonous gas is detected the helmet opening gets closed and the oxygen supply is provided within the helmet for the miners by the opening of solenoid valve of the oxygen cylinder. Panic switch is provided for the safety of the miners and it is used to provide alert signal to the control room during any emergency situations. Temperature and Pressure sensors are used for the continuous monitoring of environmental conditions. The information are sent to the control room through wireless network. The layout of the visualization was completed and displayed in the control room with the help of a Lab VIEW software. This paper presents the undertaken design detailing solutions to issues raised in previous research.

KEYWORDS: mining, environmental condition, collision, hazardous gases.

I. INTRODUCTION

Mining is a multifaceted industry which includes complicated operations carried within the tunnels, underground etc. This involves various risk factors which affects the health of miners. The Chasnala mining disaster that took place near Dhanbad in the Indian state of Jharkhand almost killed 372 miners. This was considered as one of the worst disasters in the mining industry. Miners may not be aware of the external conditions such as rise or fall of temperature, pressure etc. Sometimes Miners collide with the heavy objects like mining objects, hard rock which risks their life. Another factor that affects the miners is the inhalation of hazardous gases that provokes them in danger. In this situation miners are not able to communicate with the outside world. In this case, the smart helmet system becomes an essential and helpful measure to protect the miners from various accidents. This project aims at designing a smart helmet for hazardous event detection, monitoring the surrounding environmental conditions and updating information like GPS location and sensor data to the central console for easy tracking and providing oxygen supplements to avoid the inhalation of poisonous gases. This secures the life of miners in mining industries.

From the Survey, various information are gathered One death every third day in India's most dangerous job is Mining. According to the International Labour Organization (ILO), while mining employs around 1% of the global labour force, it generates 8% of the fatal accidents China has the largest mining industry producing up to three billion tons of coal each year. Though China accounts for 40% global coal output, it is responsible for 80% of mining deaths around the world each year. This survey clearly shows that the requirement for safety measure must be extended to save the life of miners. This survey motivated us for initializing this project.

II. SYSTEM OVERVIEW

The system includes various sensors such as the temperature, pressure, force, IR sensor and gas sensor. Temperature and pressure sensor is used to monitor the surrounding environment. Whenever the miners collide with the heavy



Home Automation Using IOT

Yugant P. Chikte, Shrikant S. Ogale, Sumit Wankhade, Ankit Tayade, Rushikesh Pimpalkar, Vinay Uike, Bhushan Taywade, Prof. S. V. Sonkhaskar

Department of Electrical Engineering, P. R. Pote (Patil) Education & Welfare Trust's Group of Institutions, College of Engg. & Management, Amravati, (M.S.), India

ABSTRACT: With the increase in consumption of energy and population, we need to conserve our energy in every way possible. The ability to access and control the equipment from remote locations is one of the major reasons for energy loss. The users to give instructions to these systems use a voice or an android application. This system can make use of a host of communication methods such as Wi-Fi, GSM, Bluetooth, ZigBee. Different controlling devices and configurations can be found in active systems. Such systems are present already in many places for a wide variety of equipment. This paper presents a survey of all such systems.

General Terms -Embedded Systems, Remote access Systems, Mobile Applications, Web Applications and Home Automation System

KEYWORDS: Energy Conservation, Raspberry Pi, Portability, Physically Challenged, Electrical and Electronic Devices, Home Automation.

I. INTRODUCTION

The concept of Internet of things (IoT) was introduced by the growth of the widely used global network known as the internet along with the deployment of ubiquitous computing and mobiles in smart objects which brings new opportunities for the creation of innovative solutions to various aspects of life. The concept of Internet of things (IoT) creates a network of objects that can communicate, interact and cooperate together to reach a common goal. IoT devices can enhance our daily lives, as each device stops acting as a single device and become part of an entire full connected system. This provides us with the resulting data to be analyzed for better decision making, tracking our businesses and monitoring our properties while we are far away from them. As the paradigm of IoT is growing, it is stepping into every aspect of our lives. This leads to an easier life through wider range of applications, such as electronic health care solutions and Smart city concept. The concept of Smart city aims to making a better use of resources, increasing services quality offered to the citizens, and reducing costs of the public administrations.

The paper will also compare and contrast all the systems and look at their various features and disadvantages. A wide variety of options are available for the home automation systems. All of these will be examined at length.

II. METHODOLOGIES

2.1 GSM based Home Automation System

The system proposed 3 means to control to the home: the GSM network, the Internet and through speech. The real time monitoring has been an important feature that can be used in the home automation systems. As a change in the status of the devices occurs, the user can be informed in real time. The user commands are transferred to a server which is usually done by a PC. The server processes the user commands and sends them to the relevant units. This can help control the appliances. GSM is used as a communication medium to help establish connection in places where there may not be proper internet connectivity. The server uses AT commands to communicate with the GSM modem. The mobile interface is developed using J2ME. The server has 4 engines running – the web server, database, main control program and speech recognition program. The system can be controlled using SMS. It can send confirmation messages. Speech processing is done with a dynamic time wrapping algorithm. The voice activation has been tested and found to be too impractical. As a more stable alternative, the voice input can be activated through a wireless unit



IoT Enabled Solar Power Monitoring System

Prof. Atul Ghute¹, Shrirang Futane², Rushikesh Dambale³, Athar Shaikh⁴, Nikhil Bhawe⁵,
Vaibhav Chaurse⁶

Assistant Professor, Department of Electrical Engineering, P. R. Pote (Patil) College of Engineering and Management
Amravati, Maharashtra, India¹.

UG Students, Department of Electrical Engineering, P. R. Pote (Patil) College of Engineering and Management
Amravati, Maharashtra, India^{2,3,4,5,6}.

ABSTRACT: Solar power plants need to be monitored for maximum power output. This helps regain economical power output from power plants whereas watching for faulty solar panels, connections, dirt on panels lowering output and different such problems moving solar performance. Therefore here we've a bent to propose machine-driven an automatic IOT based solar power watching system that permits for automated solar power watching from anyplace over the online. We are using Arduino based mostly system to observe a 10 Watt solar array parameters. Our system perpetually monitors the solar battery and transmits the power output to the IOT system over the online. Here we've a bent to use IOT lizard to transmit solar power parameters over the online to the IOT lizard server. It currently displays these parameters to the user exploitation an honest graphical interface and conjointly alerts users once the output falls below specific limits. This makes remotely seeing of solar plants simple and guarantees the simplest power output.

KEYWORDS: Internet of Things (IoT), NODE MCU, Arduino, Solar panel, Things Speak.

I. INTRODUCTION

Internet of things (IoT) is playing a serious and crucial role within the lifestyle of humans by enabling the connectivity of the many and most of the physical devices through internet to exchange the data for monitoring and controlling the devices from a remote location, where the devices become intelligent. This technology can connect a wide range and varieties of things such as animals, humans, smart transport, smart grids, virtual power grids, smart cities, vehicles, heart monitoring systems, environmental sensing, shopping systems, home automation, energy utilization, helping for disabled and elderly individuals, cochlear implants, tracking of things, equipment manufacturing, agriculture, emergency monitoring systems, electronics tool collections systems, vehicle control etc. according to the survey there is an increase of 30% i.e. 9.2 billion internet connected devices from 2017-2018. In 2020, the connected device might be increased to 30 billion by 2020 and which makes the business market around 7.1 trillion dollars. By using the IoT we are capable of enabling the machine to machine communication M2M or device to device communication without human intervention. In the modern life electricity became the important and essential part of the life. For any work now, each day we require electricity like lighting, heating, refrigeration, cooling, transportation systems what not all the house appliance works on electricity. Nowadays the consumption of electricity is increasing at each instant. To compete with the demand of the public of electricity is to be generated and give to the end users. As the population increases the consumption also increases.

Principal
P. R. Pote (Patil)
College of Engineering & Management
Amravati

Received
H.O.D. (Elect. Dept.)
P. R. Pote (Patil) College of Engg. & Management
Amravati.



Simulation of Hybrid Electric Vehicle Battery by Using MATLAB-Simulink

Prasad Raut¹, Mohit Mehare², Kartiket Kadu³, Manali Waghade⁴, Vishal Bagade⁵,

Prof D.A Shahakar⁶

U.G. Student, Department of Electrical Engineering, P R Pote Engineering College, Amravati, Maharashtra, India^{1,2,3,4,5}

Associate Professor, Department of Electrical Engineering, P R Pote Engineering College, Amravati,

Maharashtra, India⁶

ABSTRACT: Electric vehicle's (EVs) are probable to be an choice to be an preferred mode of transportation for the future as it has a excellent capacity to minimize the consumption of petroleum based and different excessive CO2 emitting transportations fuels. In this study, the aspects of the BEVs machine had been mentioned and a mannequin of BEV on the MATLAB-Simulink platform used to be simulated. Moreover, the relevant electrical system components as well as its corresponding equations for verification were identified. Furthermore, all simulation consequences have been considered. This work may gives a basic for greater researches.

I. INTRODUCTION

One of the best challenges that is going through the surroundings in the world is energy conservation. Many difficulties is being facing by our global energy environment. Although no one is aware of precisely the future of the energy, we nevertheless trust that transportation will play a predominant function in saving the future strength.

Today, Electric Vehicles (EVs) are one of the technological development outcomes that have contributed proceed to make contributions in order to make our lives simpler and safer. Because EVs not just use energy, however they additionally produce, store, and transport electricity. That is what makes them an incredible choice for the traditional fuel based vehicles. Moreover, they are greater reasonably priced and eco- pleasant in contrast with the typical motors that use fuel or diesel gas due to the fact they have a reversible electricity storage system .

In this study, MATLAB-Simulink used to be used in order to layout the BEV elements and integrating the complete system. Moreover, it used to simulate the BEV and its equations.

This paper mentioned the simulation of the BEV, its applicable electrical system aspects and its corresponding equation for verification. In addition, it examines all simulation results. The BEV components are Transmission, Battery Charge Controller, Driver Model, Driving Cycle, Electric motor and Longitudinal Vehicle Dynamic Model

II. BATTERY ELECTRIC VEHICLE COMPONENTS

Transmission Model

The Transmission prototype controls the vehicle's moving necessities for the duration of gear change. It shifts torque from motor prototype and braking pressure into the front and rear traction forces from driver model. The inputs of the longitudinal vehicle dynamic prototype are the two forces of the transmission outputs calculations, cell balancing, and State of charge (SoC). Based on IRIZ battery, this prototype covers a easy battery pack. The condition of charge (SOC) is calculated using the following equation :

Automation of E-Wheelchair for Physically Challenged People

Monali Mundane¹, Nayan Garade², Vaishnavi Pawar³, Vaishnavi Shete⁴, Ujwal Shende⁵, Dr. S.B. Warkad⁶

^{1,2,3,4,5,6}Department of Electrical Engineering, P.R. Pote (Patil) college of Engineering & Management, Amravati 444602, Maharashtra, India

Abstract - Automation is the technique of making an apparatus, a process, or a system operate automatically. With respect to automation a smart idea is developed towards the handicapped people, and physically challenged people. This paper proposed an idea and model to ease those persons, who cannot perform hand movements in a way that can move a wheelchair. Several studies have shown that both children and adults benefit substantially from access to a means of independent mobility. This paper describes the design of a smart, motorized, voice-controlled wheelchair using embedded system. Proposed design supports voice activation system for physically disabled persons incorporating manual operation. This system consists of hand gesture-controlled wheelchair using image processing through web camera which not only recognizes hand gesture but also control the wheelchair according to the hand movement. It includes HSV shading space method to discover hand motion thought picture preparing. This paper utilized the raspberry pi board and sensors to detect obstacles lying ahead in the way of the wheelchair that can hinder the passage of the wheelchair. This designed wheelchair in prototype form is tested and get accurate output and efficient framework for the users with low power consumption.

Index Terms - Wheelchair, Raspberry Pi, Image processing, IOT technology, Ultrasonic sensor

I. INTRODUCTION

Wheelchair based on electric power have become increasingly important an assistive technology and rehabilitation device and the number of users has grown considerably [1-2]. Hand signals are incredible human to human correspondence channel which pass on a significant piece of data move each life. Hand signals are the nonverbal correspondence media between individuals happens through hand

development. Hand motion acknowledgment is an interaction of comprehension and grouping significant developments by the human hands. In this paper we present a methodology for a human PC collaboration (HCI), where we attempted to control the wheelchair development by utilizing hand signals. Hand signal procured utilizing a camera dependent on motion recognition strategy [3-4]. Our objective is to make a wheelchair development utilizing web camera to collaborate with the motion recognition in easier to use way that can be diminishes the social issues of the general public [5-7] from that Machine and Human interface is only the HMI show screen in the present market. In any case, it is essential to make the actual contact with the machine if client needs to work it. Gesture discovery is only recognition of the hand development as indicated by the clients. It needs to recognize constantly and to quantity of fingers. In this system wheelchair move remotely according to the information given by the client.

Utilization of ARM11 processor is feasible to distinguish the hand signal development and finger discovery likewise conceivable on Raspberry Pi with its on board GPU module. By identifying the finger, it is feasible to move the wheelchair explicit way like forward, opposite, left, right bearing. By utilizing distinctive calculation finger location and following it is feasible to move the wheelchair according to the commands. Considering the finger client needs to take the action. This system depends on to identify fingers of hand based on the better identification you can make the move. framework will plan for wheelchair control.

Development of wheelchair depends on the quantity of fingers will distinguish i.e. finger one is identify that will be appeared in the LED pointer at that point push the wheelchair ahead, turn around, left, right as per the

PARKS-HILBERT TRANSFORMS STATISTICAL PARAMETERS APPROACH TO CLASSIFY ANN NETWORK

Prof P. R. Rane^{*1}, Abhishek Charthal^{*2}, Sanjana Kushwaha^{*3}, Rutik Shishte^{*4},
Sayali Kale^{*5}, Rajshree Thakare^{*6}

^{*1}Assistant Professor, Department of Electrical Engineering,
P R Pote college of Engineering and Management, Amravati, India

^{*2,3,4,5,6}Students, Department of Electrical Engineering,
P R Pote college of Engineering and Management, Amravati, India

ABSTRACT

Due to the cardinal features like robustness, efficient load handling, reliability etc the Induction Motor is foremost used for number of applications. While working environmental conditions, mechanical stresses etc cause fault like bearing fault, inter-turn short circuit fault, rotor bar crack. These faults should be eliminated and categorized as early as possible to avoid harm. There are list of techniques are accessible for the fault catalogue of I.M. The Artificial Neural Network is the best solution over other existing techniques. The motor line currents recorded under varied faults conditions were analyzed using ANN.

Keywords: I.M., Park's-Hilbert Transform, FFT, Statistical Parameters, ANN (networks)

I. INTRODUCTION

Nowadays, Induction Motor has their wide usage in industrial and commercial sectors. But the induction motor undergoes several drawbacks while working due to mechanical stresses and environmental conditions. Failure survey have reported that the percentage of failure by components of induction motor as, [3]

- (1) Stator related-38%
- (2) Rotor related-10%
- (3) Bearing Related-40%
- (4) Other-12%

These faults conditions should be detected classified and clarified as much as possible. The fault should be clear in its minor state for maintaining its reliability, minimizing losses and expenses, etc. The fault may cause unexpected and sudden breakdown of motors.

There are ample techniques and methods of classification of faults have been developed now. But ANN is accepted as one of the best working techniques. The obtained result gives the crystal clear idea about its suitability of proposed techniques to acquire 100% accuracy for multiple fault categorizations.

The foremost behoof of ANN is that it derives the online cognition libidinous the kind and size of culpability outside possessing very daedal mathematical models. If the element of Neural Network flops, it can wage without whichsoever exigency by their parallel disposition.

II. PARK'S-HILBERT TRANSFORMATION

2.1 Park's Transform:

Acquisition of three phase currents (I_A, I_B, I_C) at different loading and faulty conditions. As a function of mains phase variables (I_A, I_B, I_C) the motor current park's vector components (I_D, I_Q) are, [1] [5] [6]

$$I_D = \left(\frac{\sqrt{2}}{\sqrt{3}}\right) I_A - \left(\frac{1}{\sqrt{6}}\right) I_B - \left(\frac{1}{\sqrt{6}}\right) I_C \text{----- [1]}$$

$$I_Q = \left(\frac{1}{\sqrt{2}}\right) I_B - \left(\frac{1}{\sqrt{2}}\right) I_C \text{----- [2]}$$

The Park's transform is a simple and efficient diagnosis method. It is based on the spectral analysis of Park's Square Vector (PSV) that is computed as,

$$PSV = \sqrt{I_D^2 + I_Q^2} \text{----- [3]}$$

INTELLIGENCE AMBULANCE – TRAFFIC MANAGEMENT SYSTEM

A REVIEW ARTICLE

**Prof P. R. Rane*¹, Manjiri Kalambe*², Pragati Bobade*³, Ayushree Wankhade*⁴,
Ragini Atram*⁵, Avantika Kale*⁶**

*¹Assistant Professor, Department of Electrical Engineering, P R Pote college of Engineering and Management, Amravati 444602.

*^{2, 3, 4, 5, 6} Students, Department of Electrical Engineering, P R Pote college of Engineering and Management, Amravati 444602.

ABSTRACT

India is one of the most populated nations of the world. Road traffic congestion is one of the most challenging issues that current road authorities are facing. The current traffic system is running same over the past few decades. As number of vehicles on the road increases, this system is failing to serve traffic congestion problems; on the intersections. Among these impacts the delay of an ambulance to the hospital is the censorious due to incurred cost in terms of death and injuries. In this review, there is brief discussion about different ways to tackle the traffic; providing lane to the emergency vehicles. The proposed frame work is modelled by the means of tentative setup using microcontroller, various communication module and LED displays which simulates a true time scenario. This paper focus on diverse methods of traffic control system and health monitoring system.

Keywords: Traffic congestion, smart health, communication medium, microcontroller.

I. INTRODUCTION

From the beginning of twenty first century there has been a tremendous growth in industrialization and suburbanization. As a result population increases and there is gradual rise in number of vehicle. Today every individual owns a vehicle. These facts to high traffic queues in big metropolises. Traffic jams pose a serious challenge towards the metropolitan infrastructure facilities and are also affecting the socio-economic lives of the people by adding their working hours waiting in traffic. The serious effects of the traffic congestion are faced by the emergency vehicles like; ambulances, police cars, fire-brigade; foremost to increased death ratio on roads and considerable financial risk.

One of the biggest concerns with traffic congestion is delayed ambulance services. Many a times, ambulance consist of serious patients which needs to be taken to the hospital in minutest quantity of time providing proper cure to the patient so that chances of surviving rises in critical situation. For this, it is needed that the vehicles on the lane to make path for the ambulance. But sometimes, the ambulance gets trapped in the traffic which in turn wastes a lot of time; for the traffic to get clear. In future, this problem may get worse; it needs abrupt consideration. The main aim is to make it possible for an ambulance to reach a particular location without making it stop anywhere until the destination is reached.

To cover this problem, many schemes have been projected under different systems and prototypes [1-11]. In all these works, good efforts are made to plan the solutions which meet the various necessities: smart traffic system, smart health, automated system, traffic management system that reduces jamming.

II. LITERATURE REVIEW

The main objective is to study existing traffic control system and health monitoring system; to discover out the finest system that is efficient, defined, less time consuming, flexible and suitable for chosen application. The different Traffic control system and health monitoring system studied in various papers are stated below:

Et al [1] the system is going to be image handling based adaptive signal controlling. Proposed system is going to be braced out-dated system together with automated signal via Artificial intelligence. Digital camera is mounted on the motor for turning. This faces the tracks and gets the nous of the traffic. The vision is captured with the assistance of the camera. The camera's direction changes within the steps of right angle controlled by the PC through microcontroller. Load of the traffic on each lane is estimated by Image processing systems. The

POWER QUALITY ANALYSING AND FAULT DETECTION UNIT

Ashutosh R. Ghulaxe*¹, Karan S. Ahir*², Pawan Pokale*³, Himanshu Paliwal*⁴, Anurag Bhisane*⁵, Prof. D. A. Shahakar*⁶

*^{1,2,3,4,5}Department Of Electrical Engineering, P. R. Pote (Patil) college of Engineering And Management, Amravati, Maharashtra, India.

*⁶Prof., Department Of Electrical Engineering, P. R. Pote (Patil) college of Engineering And Management, Amravati, Maharashtra, India.

ABSTRACT

In this paper we propose a model for DVR called as Dynamic Voltage Restorer to stable change from input power supply. Generally DVR work on 3 stage power supply, to analyze our proposed model dependent on programming blocks in MATLAB. We utilized adaptation of 2013 SIMULINK to plan our squares portrayal for DVR model. Here we utilized DC to DC connect with non-direct burden to get change from input side and test are yield side of proposed model. Essentially unique voltage restorer is mix of a force source with inductive and capacitive segment it likewise contain inverter circuit and delicate burden. We utilize nonlinear burden when contrasted with delicate burden. In a transmission line DVR at a vital job since this model will change infusion of voltage and recurrence with required qualities. will likewise exhibit the deficiency discovery of any stage, it additionally identify flaw as for Ground in transmission line of three stage so if any Phase got defective our model will demonstrates its waveform changes appropriately.

I. INTRODUCTION

It Compensate voltage hang and voltage grow and improve the guideline. On the off chance that the voltages diminishes, the issue made is known as loot and assuming the voltage expands, the condition is known as swell. So it contains two end sending and accepting end, the get in contact in is current and impedance. We need to make an info source that is called as infused voltage which will be the other way of drop of voltage support the course has been dropped. That is the reason I getting and is around equivalent to the sending voltage. This thought is taken from days of yore in DC generator. We additionally utilized drop in opposition and a little arrangement generator is an injector in line. In DVR a piece of inverter and DC needed by the capacitor given from the fuel hotspot for TV framework and CFL. Inverter changed over DC into AC. DC required a capacitor from the fuel source during the time of loot infused voltage is arrived in a job.

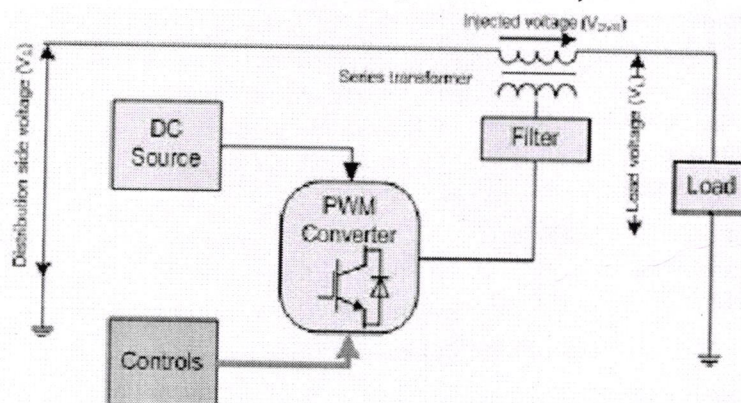


Fig -1: Basic Block Diagram

During the time of hang when I get the voltage accepting and voltage will be acceptable. Drop possibly there because of deficiency in the close by line so when there is an impermanent issue in the term I can infuse the voltage and keep up player voltage for this installer it is a great idea to have channel in the yield of the inverter so the infused voltage will be a sine wave if channel isn't there the infused voltage will be rotating square wave which will influence the force nature of the accepting Framework needs firing beats that will give



IoT Based Accident Detection and Rescue System

Prof. P. R. Rane, Mrunali Bhagawatrao Chaudhari, Tanaya Anil Bhombe, Saurabh Pravin Mishra,
Aaditya Vijayrao Mankar, Arpita Gajanan Gadekar, Shruti Raju Dongre

Department of Electrical, P.R.Pote College of Engineering and Management, Amravati, India

ABSTRACT: Now a days, large number of accidents are taking places and due to lack of safety chain people are facing situations which are causing severe unwanted incidents. Sometimes lack of safety chain affecting fatal injuries and also life of humans. Avoiding severity of road accidents is one of the most challenging task our authorities are facing these days. As the number of vehicles are increasing day by day, count of number of accident are also increasing. In these review, we are discussing about the solution on lack of safety chain by providing signals to control the delay time of safety chain. The proposed framework is a setup of Node MCU with various sensors which will help us to understand the type of accident and also the severity of accident at time instant. This paper focus on the time control in safety chain to avoid unnecessary situation.

I. INTRODUCTION

The world is moving towards development with speed and human life is getting faster day by day. And the world population is also increasing rapidly. Result of increasing population also increasing the gradual rise in the use of vehicles. Road transport is essential as it provide mobility to people and goods. Today almost every individual has there own vehicle. Increase the use of vehicles also increasing the number of accidents on daily basis. Many of the time accident takes places when visibility is quiet low while some accident takes place on valleys and hilly areas. In such condition it is difficult to get the information about the location and severity of the accident.

One of the biggest concern is in lack of safety chain which causing the increase in the severity and the delay occouring in emergency situation. After any accident occurs, it is important to get the correct information about the accident type and its location. This will also help to understand the requirement of emergency tools for safety purpose which will cover most of the time in safety chain.

Numerous scholars suggested different kind of solution on accident warning system in research literature. Offering the numerous methodologies to shortcoming the duration and to solve the problem in order to insure human safety and to save the lives. Accident detection system works on Global Positioning System (GPS) technology, various sensors and mobile application. Every vehicle must have installed the accident detection system.

II. LITERATURE REVIEW

Prof. S.R. Jagtap also proposed a system "Intelligent system for vehicular Accident detection and notification" in the year 2014. In this system they were suggesting about the solution of medical emergency after an accident. The location of mishap was send to desired person such as police, doctor or any other person through GSM along with accident location. also there was a camera in vehicle which was observing the patients condition.

Naji Taaib Said proposed "Mishaps detection and prevention system to decrease traffic hazards utilizing IR sensor" in 2018. His system worked on accident detection and prevention IR sensor that will recognize the alarm and it will send message to imputed member by GSM module. Also for prevention of accident they were using the system that will recognize the distance between 2 vehicle by IR sensor.

In 2017, Chunxiao Liao proposed a system which was based on Mobile edge computing named as Shrewd Traffic Accident Detection system. His framework was working on



IoT Based Energy Management System

Bhagyshree Bun, Sakshi Thote, Prajvali Meshram, Pranali Bobade, Shrutika Bijwe,

Prof. Smita Kalmegh

Department of Electrical Engineering, P.R. Pote College of Engineering and Management, Amravati,
Maharashtra, India

ABSTRACT: Nowadays manufacturing circumstances, rising energy costs, increased concern for the environment, and changes in the practice of consumers promoting green manufacturing organizations. The remarkable increase in modernization in recent years requires an economical, productive and smart solution such as transportation, management, the state, personal satisfaction. Energy demand for IoT applications is growing. In this particular situation, energy management is an important issue because of high energy savings and efficient energy crisis reasons. At that time, we will provide a structure for combining reservations and increasing energy efficiency in energy management based on IoT. The energy management planning and the second include wireless power transfer from IoT implements in the energy management. The situation energy management industrial facilities have shown as a contextual analysis including progress considering the balance of energy supply and demand, unsolved issues also discussed in the field of IoT based energy management system. In one another research, researchers have developed Android based Smart home system for monitoring the usage of power to avoid any kind of anomaly.

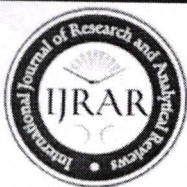
KEYWORDS: Internet of Things, IR sensor, Arduino nano, LDR .

I. INTRODUCTION

As rapid change in technology always aims to serve the mankind, the expectation for living a simple yet advance life keeps on increasing. Internet has become an important part of human's social life and educational life without which they are just helpless. The Internet of things (IoT) devices not only controls but also monitors the electronic, electrical and various mechanical systems which are used in various types of infrastructures. These devices which are connected to the cloud server are controlled by a single user (also known as admin) which are again transmitted or notified to the entire authorized user connected to that network. Various electronics and electrical devices are connected and controlled remotely through different network infrastructures. Web browser present in laptop or smart phone or any other smart technique through which we can operate switches, simply removes the hassle of manually operating a switch. Now a day's although smart switches are available they prove to be very costly, also for their working we required additional devices such as hub or switch. As there is rapid change in wireless technology several connectivity devices are available in the market which solves the purpose of communicating medium with the device and the micro-controller. Starting from Bluetooth to Wi-Fi, from ZigBee to Z-wave and NFC all solve the purpose of communicating medium. RF and ZigBee are used in most wireless networks. In this project we have taken ESP8266 NODE MCU Wi-Fi module which is programmed through Arduino UNO to control various devices. This will save lots of electrical energy. The system also uses solar panel and wind turbines to charge batteries. In this way this system will manage energy for right duration using IOT techniques.

II. METHODOLOGY

In the existing system, Street lights and water irrigation usage is done by human workers. This requires a number of workers to manually ON and OFF street light and water Pump. In case of any delay energy and lots of water will waste. It can be time-consuming, restricted and slowed down due to adverse environmental conditions in which workers may not be able to visit some areas. These eventually increase the energy provider's operation cost which trickles down to electricity bills being increased. This project introduces a solution to address the problem. This work uses the IOT technique and the features of embedded systems in order to implement the desired functionalities. The Arduino and IR sensors are used to detect presence of human or vehicle. This will automatically switch ON streetlights when vehicle or person detected. A user can turn ON or OFF streetlights using smartphone application. In case of any network fault or failure in embedded system manual operating also available. There is automatic irrigation used for watering plant using



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Self Defense Device for women safety

Jagdish Pote*1, Gauri Khate*2, Divyani Aher *3, Sarika Chavan*4, Dr. A.S.Telang*5

Professor, Department of Electrical Engineering, P R Pote (Patil) College of Engineering and Management, Amravati, India

Students, Department of Electrical Engineering, P R Pote (Patil) College of Engineering and Management, Amravati, India

Abstract: Today in the current global scenario, women are facing many problems like women harassment. We propose to have a device which is the integration of multiple devices, hardware comprises of a wearable "Smart band" that endlessly communicates with sensible phone that has access to the web. This paper covers descriptive details about the design and implementation of "Smart band". The device consists of a trigger, microcontroller (ATmega2560), GSM module (SIM900), GPS module (Neo-6M), IOT module (ESP-12E), Neuro Stimulator, Buzzer and Vibrating Sensor. In this project, when a woman senses danger she has to hold ON the trigger of the device. Once the device is activated, it tracks the current location using GPS (Global Positioning System) and sends emergency message using GSM (Global System for Mobile communication) to the registered mobile number and nearby police station. IOT module is used to track the location continuously and update into the webpage. Neuro Stimulator will produce non-lethal electric shock in emergency situations to detect the attacker, buzzer is used as an alarm to alert the nearby people so that they may understand that someone is in need and vibrating sensor will send the last location in case if the device gets defected. The main advantage of this project is that this device can be carried everywhere since it is small.

Key words: GPS Tracker and GSM Module, Arduino, IR Sensor

I. INTRODUCTION

In Today's World the safety of women is in danger especially in India. The rate of crimes against women is not decreasing but in fact increasing at an alarming rate especially harassment, molestation, eve-teasing, rape, kidnapping and domestic violence. Many preventive measures have been taken by the government to stop these misbehaving activities but still has not affected the growing rate of these crimes and has remained unaffected. The problem of sexual harassment in work place is increasingly coming out day-by-day. Sexual harassment at a workplace is unwanted behavior of a person that causes discomfort, offence or distress to the other. Majority of such cases are happened to woman by men working at high position in an organization. Women is getting kidnapped at every 44 minutes, raped at every 47 minutes, 17 dowry deaths every day. The fear of harassment against women is not only the condition at outside but it may also happen at homes, Women are not so physically fit as compared to men so in case of a need a helping hand would be a boon for them. Students face incidents like child trafficking and kidnapping, when they are waiting to embark or disembark a school bus. Loaded with security apps for women, your smart phone can help you send emergency alerts to chosen people and also let people know about your whereabouts if anything goes wrong. Sometimes here might be a situation that when women had an accident in the late night and there are no one to help them, in such situations the person will not be able to tell the situation that he/she facing. And they do not know the basic first-aid details and to know the person where the incident has happened. Nowadays though there are many apps and devices evolved for women safety via smart phone which can be activated only by a touch or one click or shake the mobile.

Women are the backbone of any economy primarily shaping future of the country. She who earlier stayed at home to attend her domestic duties is now maintaining work and home simultaneously, participating in the process of economic development on an equal footing with men. The Government of India, meeting a longstanding demand for gender parity in the workforce, has approved an amendment in The Factories Act 1948 to allow women employees to work in nightshifts. The amendment suggests that nightshift for women shall be allowed only if the employer ensures safety, adequate safeguards in the factory as regards occupational safety and health, equal opportunity for women workers, adequate protection of their dignity, honor and transportation from the factory premises to the nearest point of their residence are met. Nightshifts have been in existence for a long time, however for India it was only recently through an amendment to the Factories Act 1948 that it was allowed under the law for women to work nightshifts. Women are participating in almost all the spheres of economic activity. From village to city, we can see number of women workers and entrepreneurs contributing towards the national income of the country. Garment units already employ 60% of women workforce; and with growth in this industry the number this will go up tremendously.

Principal
P. R. Pote (Patil)
College of Engineering & Management

H.O.D. (Elect. Dept.)