



## HUMAN LIFE SAFETY SYSTEM FOR ELECTRIC SHOCK BY USING WSN TECHNIQUE

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### ABSTRACT

Electricity is an important part of our modern world and sometimes it is easy to forget just how dangerous it can be. Electricity can cause serious injuries or even death. In this method for electric shock protection by automatic disconnection of supply and the location can be identified. The shock can be occurred when a person touches a conducting surface at high potential. In case of shock, contact currents flow through various path in the body including the skin surface, creating a potential difference on the skin surface. Through the wearable sensor it identify the current range of human body. If the human affected automatically disconnection of power supply and also identify the location by using GPS and displayed on LCD display. This type of simple wearable device are used by the industrial workers, children's in as.

### INTRODUCTION

The main idea of our project is production of human life against the shock. Now a day's electrical problem occurs in many places like industries, hospital, home, power plant and other area. So the peoples are easily affected by electric shock. Electric shock occurs when short circuit and the voltage level is exceed its normal level. To overcome this problem using wireless sensor network technology is used. Here zigbee is carry the information and transmit without wire. The information is transmitted from transmitter to receiver. Here the human as a transmitter.

When the zigbee transmitter transmit the information with the help of current sensing device. The zigbee receiver receives the information. Output of the receiver is given to PIC microcontroller. Relay perform switching operation, when output of PIC is given to it. GPS is used to measure the affected area location and display the location using LCD. This project is very useful for all people.

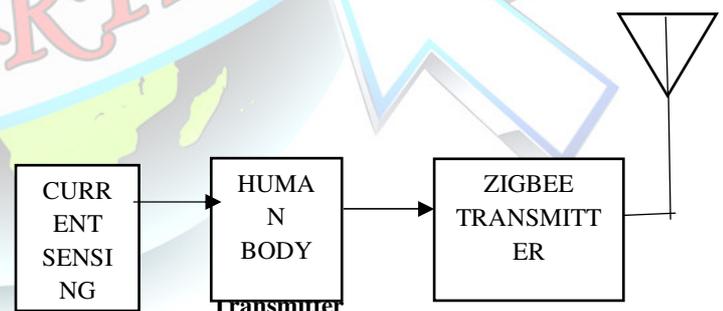
### PROPOSED SYSTEM

#### OBJECTIVE

The wireless sensor network, avoid shock through the safety system. In industrial or any other place, shock from electrical component it will easily avoid through wireless sensor network. While WNS technique using Zigbee, it will send the information from the sensor. The sensor is attached in human body. Information is collected through Zigbee in receiver side. Then the electric signal or information is goes to the control unit and power will return off. And also find the location by GPS and they are displayed in LCD display. The entire function is managed by PIC Microcontroller.

#### BLOCK DIAGRAM

##### TRANSMITTER SECTION



#### I. HUMAN BODY

Electrical energy is today the form of energy most commonly used. It is easy to transport and transform into other forms of energy. In any electrical installation the risk of electrocution (nonfatal accident), electrocution (leading to death) and fire are real. When a person is in contact with two electrodes, it passes through the body an

#### II. ZIGBEE

ZIGBEE is a low-cost, low-power, wireless mesh network standard. The low cost



allows the technology to be widely deployed in wireless control and monitoring applications. Low power-usage allows longer life with smaller batteries. Mesh networking provides high reliability and more extensive range. Its distance is 30 to 300 meter. Data transmission rates vary from 20 to 250 kilobits/second.

A specification from the ZIGBEE Alliance for a set of high-level communications protocols based on the IEEE 802.15.4 standard for a low-data-rate wireless personal area network (WPAN) comprising devices of low complexity and long battery life. ZIGBEE is designed for connecting devices in ad hoc networks over very short distances with very low power consumption - the psychological state.

## II. CURRENT SENSING DEVICE

A **current sensor** is a device that detects electric current in a wire, and generates a signal proportional to that current. The generated signal could be analog voltage or current or even a digital output.

powered. For example, computer power supplies convert AC current to DC current and are generally located at the rear of the computer case, along with at least one fan.

A power supply is also known as a power supply unit, power brick or power adapter.

In most of our electronic products or projects we need a power supply for converting mains AC voltage to a regulated DC voltage. For making a power supply designing of each and every component is essential. To discuss the designing of regulated 5V Power Supply.

## ZIGBEE RECEIVER

**ZigBee** is an open global standard for wireless technology designed to use low-power digital radio signals for personal area networks.

**ZigBee** operates on the IEEE 802.15.4 specification and is used to create networks that require a low data transfer rate, energy efficiency and secure networking.

## WORKING OF LCD

The principle behind the LCD's is that when an electrical current is applied to the liquid crystal molecule, the molecule tends to untwist. This causes the angle of light which is passing through the molecule of the polarized glass and also cause a change in the angle of the top polarizing filter. As a result a little light is allowed to pass the polarized glass through a particular area of the LCD. Thus that particular area will become dark compared to other. The LCD works on the principle of blocking light. While constructing the LCD's, a reflected mirror is arranged at the back. An electrode plane is made of indium-tin oxide which is kept on top and a polarized glass with a polarizing film is also added on the bottom of the device. The complete region of the LCD has to be enclosed by a common electrode and above it should be the liquid crystal matter.

## RECEIVER SECTION:

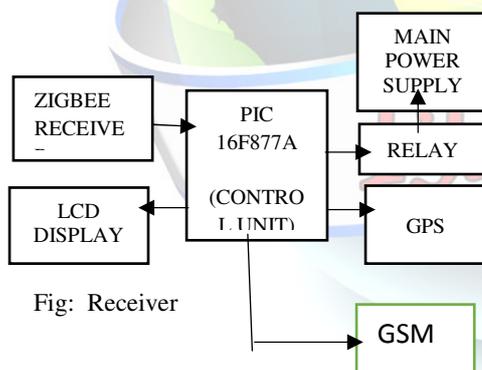


Fig: Receiver

## POWER SUPPLY

A power supply is a component that supplies power to at least one electric load. Typically, it converts one type of electrical power to another, but it may also convert a different form of energy – such as solar, mechanical, or chemical - into electrical energy.

A power supply provides components with electric power. The term usually pertains to devices integrated within the component being

Next comes to the second piece of glass with an electrode in the form of the rectangle on the bottom and, on top, another polarizing film. It must be considered that both the pieces are kept at right angles. When there is no current, the light passes through the front of the LCD it will be reflected by the mirror and bounced back. As the electrode is connected to a battery the current from it will cause the liquid crystals between the common-plane electrode and the electrode shaped like a rectangle to untwist. Thus the light



is blocked from passing through. That particular rectangular area appears blank.

#### **PIC MICROCONTROLLER**

PIC microcontrollers are a family of specialized microcontroller chips produced by Microchip Technology in Chandler, Arizona. The acronym PIC stands for "peripheral interface controller."

The PIC microcontroller PIC16f877a is one of the most renowned microcontrollers in the industry. This controller is very convenient to use, the coding or programming of this controller is also easier. One of the main advantages is that it can be write-erase as many times as possible because it use FLASH memory technology. It has a total number of 40 pins and there are 33 pins for input and output. PIC16F877A is used in many pic microcontroller projects. PIC16F877A also have many application in digital electronics circuits.

PIC16f877a finds its applications in a huge number of devices. It is used in remote sensors, security and safety devices, home automation and in many industrial instruments. An EEPROM is also featured in it which makes it possible to store some of the information permanently like transmitter codes and receiver frequencies and some other related data. The cost of this controller is low and its handling is also easy.

Its flexible and can be used in areas where microcontrollers have never been used before as in coprocessor applications and timer function.

#### **CONCLUSION**

This project is to provide the protection against the electric shock. In this method using wireless sensor network (WSN).The result of this project is automatically turn OFF the power supply. The current sensing device directly send information to zigbee transmitter and its output is given to zigbee receiver wirelessly. Output of the receiver is given to PIC microcontroller. Relay perform switching operation, when output of PIC is given to it. GPS is used to measure the affected area location and display the location using LCD. This project is very useful for all people. So that greatly reducing electric shock, reducing the

development costs and these technique have a good application value

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