COUNTERACT OF ELECTROCUTION AND INDICATING SYSTEM

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ABSTRACT:

Electricity is an unavoidable part of modern society. Occurrences of natural disasters like storms, cyclones or heavy rains results in damage of transmission and distribution lines. The main objective of our project is to prevent people from electrocution which occurs due to overhead transmission lines. This system is used to disconnect the power in the main transmission line during natural calamities which gives the workers an enhanced protection on the field work. In this system the current sensor is used detect the amount of current which flow through the distributional live wire and signal from the sensor and it is feeded as the input to controller. Controller is interfaced with global system (GSM) and the miniature circuit breaker (MCB). A GPS System is used in locating the area where the fault has occurred. Hence this helps is reducing rate of electrocution and also saves the life of the people

Keyboard: Current Sensor,GSM,GPS,Locate and fault analysis.

1.INTRODUCTION:

Electrical energy is pervasive globally for innumerous applications. They are the major resources for various industries and households for smooth functioning of day to day activities. Though they're a boon in many aspects, they do pose some threats. In reality, the current drawn by a tiny 7.5 W, 120volt lamp, passed from hand to foot across the chest is sufficient to cause electrocution. Electrocution may result from contact with an object as seemingly innocuous as an overhead power line. Transmission systems provide the delivery of electricity to consumers through electric power distribution systems. Distribution substations connect to the transmission system and lower the transmission voltage to medium voltage ranging between 2 kV and 35 kV with the use of transformer. *Primary* distribution lines are the carriers of medium voltage power to distribution transformer located near the customer's premises. Distribution transformers again lower the voltage to the utilization voltage used by lighting, industrial equipment or household appliances. Often several customers are supplied from one transformer through *secondary* distribution lines. Service drops connects Commercial and residential customers to the secondary distribution lines. Customers demanding more power may be connected directly to the primary distribution level.

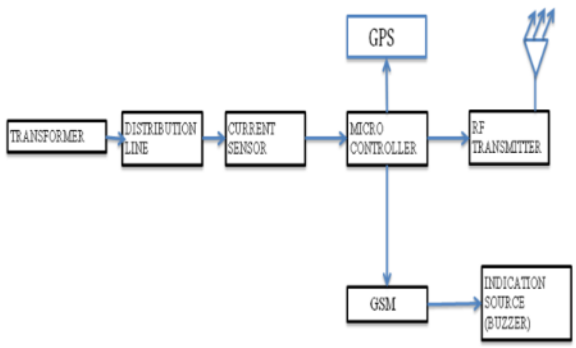

Fig.1

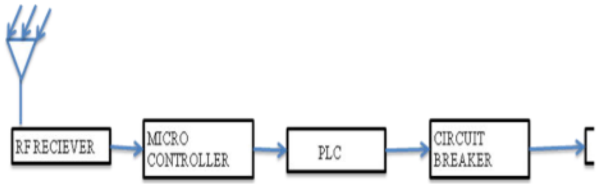

Fig.2

2. PROPOSED SYSTEM:

Electric power distribution is the final stage in the delivery of electric power. It carries the electricity from the transmission system to the individual consumers. Distribution substations connect to the transmission system and lower the transmission voltage to medium voltage ranging between 2KV and 35KV with the use of transformer. Primary distribution lines carry this medium voltage power to the distribution transformers located near the consumer's premises. In Distribution transformers, the utilization voltage used by lighting, industrial equipment and the house hold appliances. Often several consumers are supplied from one transformer through secondary distribution lines, the commercial and residential customers are connected to the secondary distribution lines through a service drop. In the current scenario, there is always more demand for electricity, which results in a further increase in production with advanced protection system. Many special protection systems are available based on volume of power distributed and often the load changes without prediction required an advanced and special communication-based system to control the electrical parameters of the generation. Current systems are reliable on application aspects, but they lack certain characteristics.

Electrical distribution will face lot of disturbance in nature, sometimes due to natural disasters like storms, cyclones or heavy rains, transmission and distribution lines may get damaged. The electrical wires falling into grounds may pose a serious threat to humans. In order to alarm and avoid such defects, this technology is used to accurately indicate and locate the spot where the fault has occurred in a current carrying live wire and it helps in preventing people from being electrocuted.

The current sensor is clamped on the secondary distributional line and signal from the sensor is feeded as the input to the controller. The signal in the controller is processed and transmitted using RF transmitter. The transmitted signal is received by using the RF receiver and it is interfaced with the controller. The signal from the controller is feeded as the input to the Global System for mobile Communication (GSM) and Global Positioning System (GPS),The signal from the sensing element is feeded as the input to Programmable Logic Controller. The PLC is interfaced with the circuit breaker. The circuit breaker is activated based the conditions in the controller. hence this helps is reducing the rate of human need to rectify the faults and also saves the life of the people.

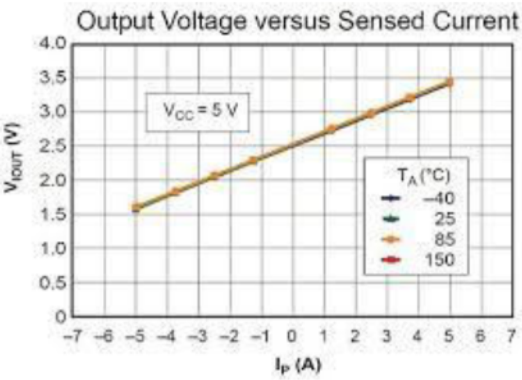

Fig.3

HARDWARE FEATURES:

3. CONTROLLING UNIT:

MICROCONTROLLER:

A Microcontroller is a compact intregrated circuit designed to gover a specific operation in an embedded system.Microcontroller based on the Atmega328.It contains everything needed to support the microcontroller,simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started and the control action begian to work

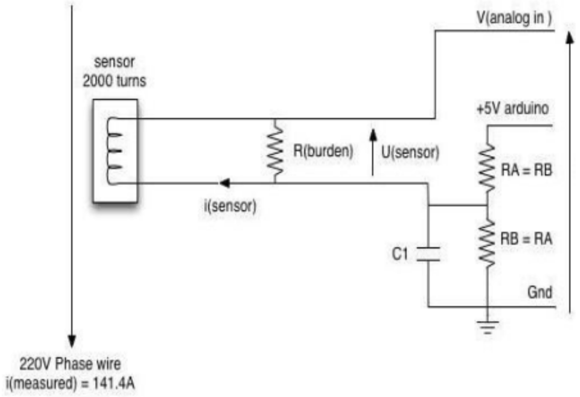

Fig.4

PROGRAMMABLE LOGIC CONTROLLER:

A Microcontroller is a compact integrated circuit designed to govern a specific operation in an embedded system. Microcontroller based on the Atmega328. It contains everything needed to support the micro controller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started.

Fig.5

5. SENSING UNIT:

NON-INVASIVE CURRENT SENSOR:

A Current Sensor is a device used to measure the electric current in the distribution wire and give the signal of the value proportional to current which has been supplied.The generated signal may neither current or voltage signal or even in the digital output form.If the generated signal is in the analog form ,then the signal is covered to digital and those digital signal is display in the module.Its can be stored for further analysis in a data acquisition system or can be used for the purpose of control.

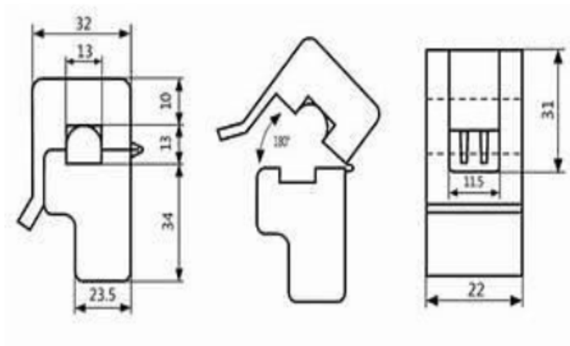

Fig.6

4. PROCESSING UNIT: RF MODULE:

An RF module is a electronic device which can able to transmit and receive radio signal between two device.The medium of choice is RF since it does not require line of sight. In and embedded system it is often desirable to communicate with another device wirelessly. RF communications incorporate a transmitter and a receiver.

Fig.7

GSM:

A GSM module is a chip or circuit that will be used to establish communication between a mobile devices.The modem (modulator-demodulator) is a critical part here.

Fig.8

MINIATURE CIRCUIT BREAKER

A Miniature Circuit Breaker automatically switches off electrical circuits during an abnormal condition of the network means in overload condition as well as faulty condition.

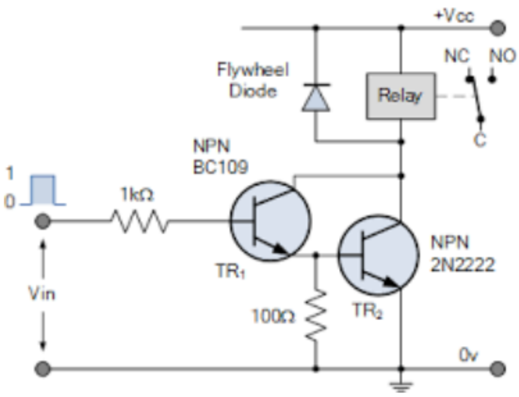

Fig.9

6.APPLICATIONS:

- Reduces the rate of electrocution.
- Detect the spot where the fault has occurred.
- Short period of response for a technical crew to rectify the fault.
- Avoids the wastage of electrical energy.

7. CONCLUSION:

This paper proposes a smart alert system for preventing people from the electrocution by giving a alert signal helps the technical crew to rectify the faults which prevent people from damage and disaster and also reduce a loss of power .It also helps the technical crew to rectify the faults which prevents the people from damage and disaster.

8. FUTURE SCOPE:

- To incorporate the GPS module in order to determine the exact fault location of the overhead transmission lines.
- To get recognized by the government and to implement in the society for a good cause.

9. REFERENCE:

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