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Smart communication system for human life safety system in industry

Arunkumar .V[1], Jeeva Raj.A[2], Kathiravan.R[2], Sakthivel .P[2], Sarathkumar .P[2]

[1]Professor, Dept of EEE, Nandha Engineering College, Erode, Tamilnadu, India

[2]Under Graduate, Dept of EEE, Nandha Engineering College, Erode, India

ABSTRACT

An electric shock is the effect of passing an electric current through the body. The minimum current a human can feel is thought to be about 1 milliampere (mA). The effect can range from minor tingling to muscle spasms, tissue damage, fibrillation of the heart, loss of consciousness, and even death.

INTRODUCTION

A device providing for discharging static electricity between a person and an grounded object to prevent un pleasant static shock to the person. An electric shock preventer provides electrical shock protection for human, which consist of shock sensing element and transceiver module. A current sensing circuit includes a power transistor, a sensing transistor configured to copy a current flowing through the power transistor at a predetermined ratio, a current sensing resistor configured to detect a voltage from the current copied by the sensing transistor.

EXISTING SYSTEM

An ELCB (earth leakage circuit breaker) in that they are intended to trip when the current is not confined to the An current carrying conductors. Another name used is current balance circuit breaker. These are all used with grounded power supplies.

PROPOSED SYSTEM MODEL

The total power unit of a factory or department which prevents human life To avoid injury by an electric shock, the embedded based shock preventer is used where it controls from electric shock.

Author for correspondence:
Dept of EEE, Nandha Engineering College, Erode, Tamilnadu, India

PROPOSED SYSTEM BLOCK DIAGRAM

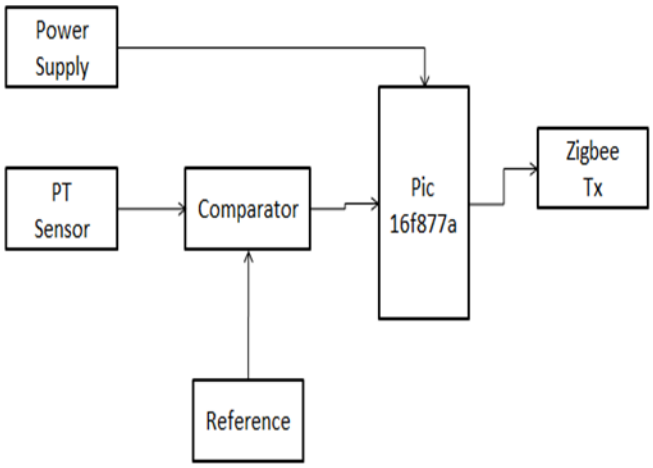


Fig 1: Block Diagram of Transmitter Diagram

TRANSMITER BLOCK DIAGRAM

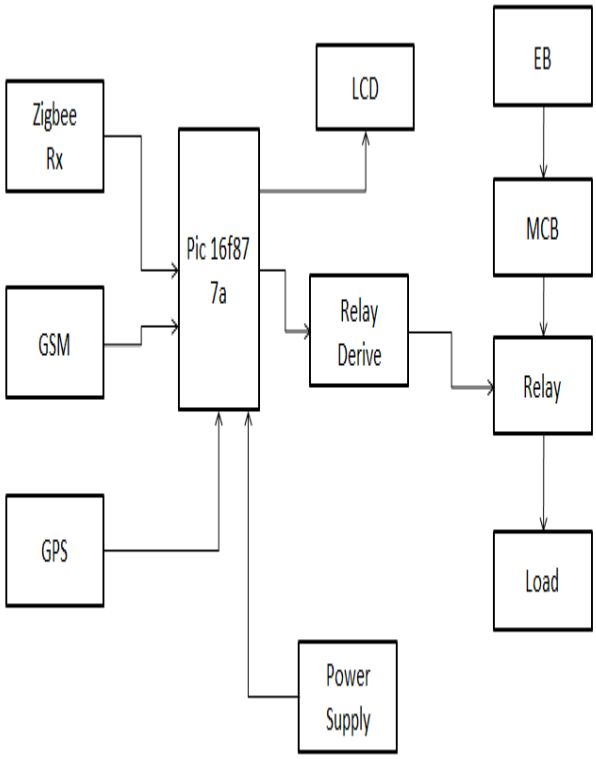


Fig 2: Block diagram of proposed model

Receiver block diagram

GSM Sim 900A

GSM/GPRS Modem-RS232 is built with Dual Band GSM/GPRS engine- SIM900A, works on frequencies 900/ 1800 MHz. The Modem is coming with RS232 interface, which allows you connect PC as well as microcontroller with RS232 Chip(MAX232). The baud rate is configurable from 9600-115200 through AT command. The GSM/GPRS Modem is having internal TCP/IP stack to enable you to connect with internet via GPRS. It is suitable for SMS, Voice as well as DATA transfer application in M2M interface. The onboard Regulated Power supply allows you to connect wide range unregulated power supply . Using this modem, you can make audio calls, SMS, Read SMS, attend the incoming calls and internet act through simple AT commands.

Fig 3. SIM900 GSM Module

ZigBee

ZigBee is a wireless networking standard that is aimed at remote control and sensor applications which is suitable for operation in harsh radio environments and in isolated locations.

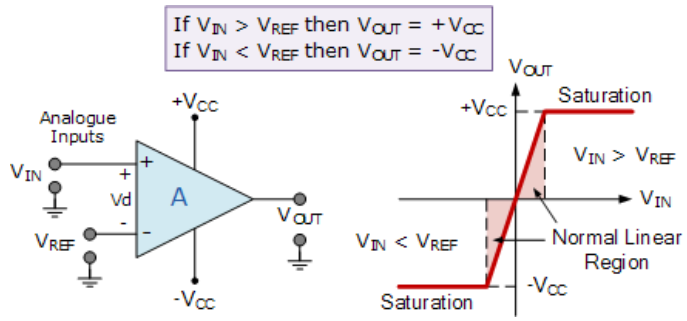
ZigBee technology builds on IEEE standard 802.15.4 which defines the physical and MAC layers. Above this, ZigBee defines the application and security layer specifications enabling interoperability between products from different manufacturers. In this way ZigBee is a superset of the 802.15.4 specification.

With the applications for remote wireless sensing and control growing rapidly it is estimated that the market size could reach hundreds of millions of dollars as early as 2007. This makes ZigBee technology a very attractive proposition for many applications

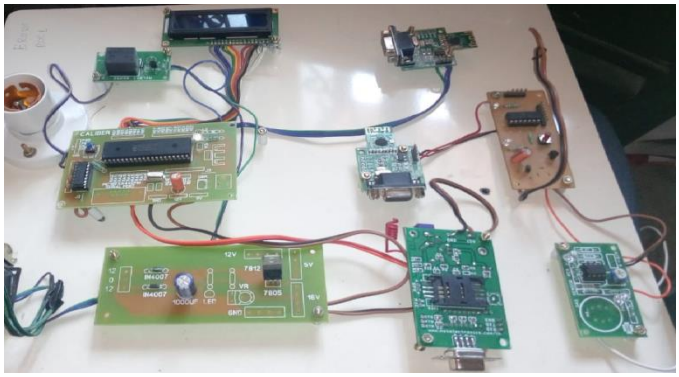
Op-amp Comparator

The **Op-amp comparator** compares one analogue voltage level with another analogue voltage level, or some preset reference voltage, V_{REF} and produces an output signal based on this voltage comparison. In other words, the op-amp voltage comparator compares the magnitudes of two voltage inputs and determines which is the largest of the two.

We have seen in previous tutorials that the operational amplifier can be used with negative feedback to control the magnitude of its output signal in the linear region performing a variety of different functions. We have also seen that the standard operational amplifier is characterised by its open-loop gain A_O and that its output voltage is given by the expression: $V_{OUT} = A_O(V+ – V-)$ where $V+$ and $V-$ correspond to the voltages at the non-inverting and the inverting terminals respectively.



RESULT



CONCLUSION

- Detection and prevention of electrical shock hazards is an ongoing program of great importance.
- The current field tests of the monitoring equipment will yield information as to actual operating environment characteristics of the system. It is apparent that effort is needed to arrive at a viable way to determine possible shock hazard conditions.

REFERENCES

[1]. Trevor W. Dawson, Krys Caputa, Maria A. Stuchly, and R. Kavet, "Electric Fields in the Human Body Resulting From 60-Hz Contact Currents", IEEE Transactions of Biomedical Engineering, 48(9), 2001.
[2]. Giuseppe Parise, "A Summary of IEC Protection Against Electric Shock", IEEE Transactions on Industry Applications, 34(5), 1998.
[3]. LaRocca, R.L., "Personnel Protection devices for use on appliances", IEEE Transactions on Industry Applications, 28(1), 1992.
[4]. Theodore Bernstein, "Electrical Shock Hazards and Safety Standards", IEEE Transactions on Education, 34(3), 1991.
[5]. Biegelmeier G., "Discrimination and nuisance tripping of residual current operated devices in domestic and similar installations", Proceedings of Third International Conference on Installation Engineering Designing and Maintaining Successful System, 1988.