

ZIGBEE BASED AUTO FIRE ASPHYXIATOR IN RAILWAYS

J.MedalinRose,T.Sobiya,N.Melba,S.Nathiya

Department of Electronics and Communication Engineering

DMI ENGINEERING COLLEGE, ARALVAIMOZHI

Abstract

Train transport is major role in everyone's life. So people's expectation will be save journey. Fire accident may occur at unexpected situations in train .In this paper we introduced automatic fire detection and rescue system based on Wireless Sensor Network(WSN)

When fire detected by fire sensor the information is passed over microcontroller, GSM,GPS and LCD so that the message is passed to the railway department,medical department and fire station. By using automatic water sprinkler fire is extinguished.

Keywords: Arduino,Zigbee WSN, GPS, GSM ,LCD, Fire sensor, water sprinkler

Introduction

In past few years railway accident occurs frequently.The engine unit has a display unit and alarm too.When fire is detected the water sprinkler will automatically turn on.When the message reaches engine driver he will halt the train.

TECHNOLOGIES USED

A.Global system for mobile communicaton(GSM)

GSM is a most popular cell phone standard and is used internationally.The uses of GSM is open and digital cellular technology used for transmitting mobile voice and data services.



B. Arduino AT Mega 328

ATmega-328 is basically an Advanced Virtual RISC (AVR) micro-controller.. These features consist of advanced RISC architecture, good performance, low power consumption. , programmable Serial USART. .



C.Global Positioning System(GPS)

GPS is worldwide know device for transportation ,navigation and vehicle position tracking. By using this GSM train location,speed, compartment can be tracked.



D.Automatic Water Sprinkler

Water Sprinkler utilize water by direct application on flames and heat .It allows water enter into the sprinkler and get sprayed.



E.FIRE SENSOR

It is a electronic device.It is used to measure the physical quantity and its convert the electrical signals.Fire sensor due to presence the smoke and high temperature.The main advantage of the fire sensor is low cost.

F.BUZZER

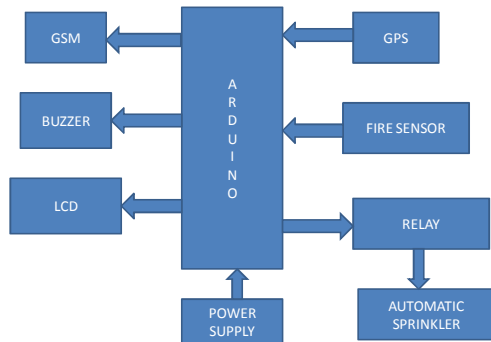
A buzzer is an audio signaling device, which may be mechanical or electro mechanical. From the arduino you can make sounds with a buzzer by using tone.



BLOCK DIAGRAM EXPLANATION

The sensor sense the fire and send the message to the controller. It alerts the passengers by using buzzer.By using GSM and GPS information is passed to all department. Arduino is the main heart of this block diagram. By using automatic water sprinkler fire is extinguished.

Fig.BLOCK DIAGRAM



LITERATURE SURVEY

1. In this system they have used automatic fire detection and rescue system they have used temperature and gas sensor.
2. This system had used temperature and humidity in each coach to be monitored. It triggers the alarm in the coaches to make alert.
3. This system had used fire sensor and LCD . LCD is used to display the message about fire.
4. The system consist of two unit compartment unit and driver unit. When fire occurs the driver will stop the driver.
5. This system had used smoke sensor, GSM modem, microcontroller. It also uses an alarm.
6. This system had used temperature and gas sensor. It also used GSM.
7. Train fire is avoided by using smoke detector. Collision is avoided by using this sensor.
8. This system measures current and load and alert the passenger my using buzzer.

9. This system had used temperature and gas sensor. A camera is also provided to monitor the human action.

10. This system had used water sprinkler to extinguish fire. When fire occurs the sprinkler will automatically turn on.

CONCLUSION

This paper is developed by using arduino to detect and control fire accident in railways. Thus the experiment was done successfully

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