

IoT Based Smart System for Avoidance of Fire Accidents on Running Buses

Dr. S Kalyani

Assistant Professor, Department of Mathematics and Humanity,
Sri Ramakrishna Institute of Technology, Perur Pachappalayam,
Coimbatore-641 010. kalyanikarthik27@gmail.com

Abstract - Now a days, humans are using public transport system to travel from one place to another place in that way we are losing a lot of human lives and the government property .These are mainly occurring in road transport that is in buses. Suddenly causing of fire accidents in buses we are facing serve loss. So many methods are their to stop the fire accidents. In our project to stop that the fire accidents at initial stage we are implementing water sprinklers. Whenever Arduino Uno receives the signals from fire detector then it immediately sends the signals to water sprinklers to release the water. By using a GPS module it sends the coordinates to the nearest authorities who are monitoring .Finally Arduino will play a key Role in this project.

Keywords – Arduino Uno, GPS, LCD, GSM SIM900A, Buzzer ,Water Sprinkler.

INTRODUCTION

India standards second place in worlds population.Mostly when they want to go to any place they are mainly using road transportation that is buses. While travelling in the buses suddenly occurring of fire accidents. Due to that so many lives are lost and causing damage to government property.To overcome all this problem we design a prototype with help of IOT.IOT refers to internet of things which can do the work automatically through the devices by using internet.When fire is occurred in buses then it automatically detects the fire by fire sensor and send it to the arduino board it sends the signals to the water sprinkler to release and shares the location coordinates to the authority persons.

LITERATURE REVIEW

In road transportation mainly we are using buses to travel from place to another place in that mainly buses has to maintain their condition .Whenever an accident happened we have to know that in short period of time to authority.To know that what we are implemented a gsm and gps to send the message immediately with the location coordinate to the authority .This design describe that device will stop the fire at initial stage and alerts the passengers by giving a buzzer sound .

EXISTING SYSTEM

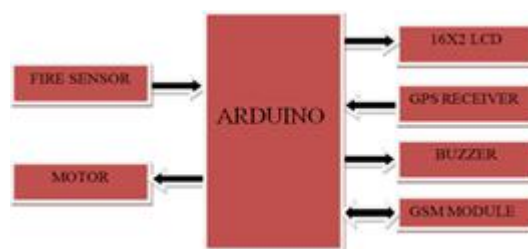
Some many methods are their to avoid the fire accidents but in this existing system we using a fire extinguisher. Whenever fire has been detected any one

of the passenger has to be stop the fire by using fire extinguisher as shown in the below figure



Figure Fire extinguisher
PROPOSED SYSTEM

In this block diagram shows the proposed prototype in following figure. In this proposed system we implemented our idea it consists of a fire detector, buzzer, water sprinkler, GSM module and GPS module. All these are connected to the Arduino uno. This is used to monitoring the bus when the range of the fire has been detected by the fire sensor automatically. Later it will sends the data to the a Arduino board it send the signals to alert the passengers by giving buzzer sound. It display fire has been detected on the LCD.



Block diagram of the system

By getting the GPS locations than the data will be shared immediately to the monitoring persons.

Hardware Components Arduino UNO Board

It is an open-source electronic device.Arduino Uno is a micro controller based on the ATmega328P.It platform is used for both hardware and software.It consist different pins. Pins are used for input and output.This can be activated by giving power to it. The code will be dumped in to this arduino board by using USB .To this board we have a reset button.



SIM900A GSM Shield

GSM means Global system for mobile communication. It use AT commands for its communication with microcontrollers. It needs a sim card to activate and communicate with the network. GSM networks operate with different types of frequency ranges.



16x2 Liquid Crystal Display (LCD)

It is an electronic device which is used to display the situation of the process. A 16x2 alphanumeric LCD is most widely used module of LCD nowadays. There are several other types of LCD available in the market also. These are low cost, easily programmable, displays large number of characters and compatible with almost all microprocessor and microcontroller. It has two horizontal line comprising a space of 16 displaying character.



GPS

GPS means Global Positioning System. GPS is also known as Navigation System with Time and Ranging (NAVSTAR) GPS. By using we can identify the location throughout the world. It has to communicate with the satellites to receive the information. It does not transfer information to the satellite.



Fire sensor



It is used to detect the fire. Detection of the fire will depend on its fitting and response time is fast compared to the other detector like smoke or heat. It can be used in industries, hospitals, etc.

Water Sprinkler

It is used to sprinkle water whenever the fire has been detected. This can be run by providing the power to it.



EXPERIMENTAL SETUP



FUTURE SCOPE

In future, this device can be integrated by connecting a camera to take the picture of the accident and to make tracking will be more easier. In this we can implement alcohol sensor whether the driver is consumed alcohol or not.

CONCLUSION

This device is one of the solution to overcome the problems of fire accidents occurring on the running buses. The efficiency also increases for tracing the

location coordinates of the accident occurred zone and we can save so many lives. This device will have huge application prospects and it may play a high role in day to day life in future.

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