

Automatic Railway Train Safety System

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Abstract

A classification of accident by their effects derailments. Head on collision one type of train accident is when two trains collide front face with each other or train colliding on the same track from opposite ends called head on collision. Rear end collision the other kind is when a train collides into the other that is in front of it called a rear end collision. When the train arrives in a particular direction the transmitter IR senses and generates appropriate signal then at the same time the IR receives the signal and generates an interrupt. When interrupt is generated the stepper motor rotates in clockwise direction. When the interrupt ends the stepper motor rotates in anti-clock wise direction. The ministry of railways has taken steps to reduce the consequential train collisions accidents and level crossing accidents.

Keywords: GPS; GSM; Cell Phone; Google Map; Arduino

I. INTRODUCTION

Automatic Railway Safety System can sense the presence of fire and smoke and generate a series of alarm driven events after it. When the fire is detected it turns on a motor which is depicted in the project as breaking system or chain pulling mechanism. Thus by this the train can be stopped and the passengers and other payloads can be safeguarded thereafter. Along with breaking, the system sounds a buzzer that would alert nearby people around it so that they can be cautious about the presence of fire in the Train. Also, an SMS is sent to the Railway Authorities which will help them to take quick decisions to take control of the fire and in evacuating the Train. Hence this project offers a very robust mechanism for safety in the Railways which works automatically with the help of microcontrollers and sensors.

II. SCOPE OF THE PROJECT

A. Safety of Train

Nowadays train safety issue is increasing day by day. Fire accidents cause a lot of harm to human life so it is needed to stop such accidents. Hence this project is to show that we can develop a system that can stop the such accidents and at least save the lives of passengers.

III. WORKING OF THE MODULE

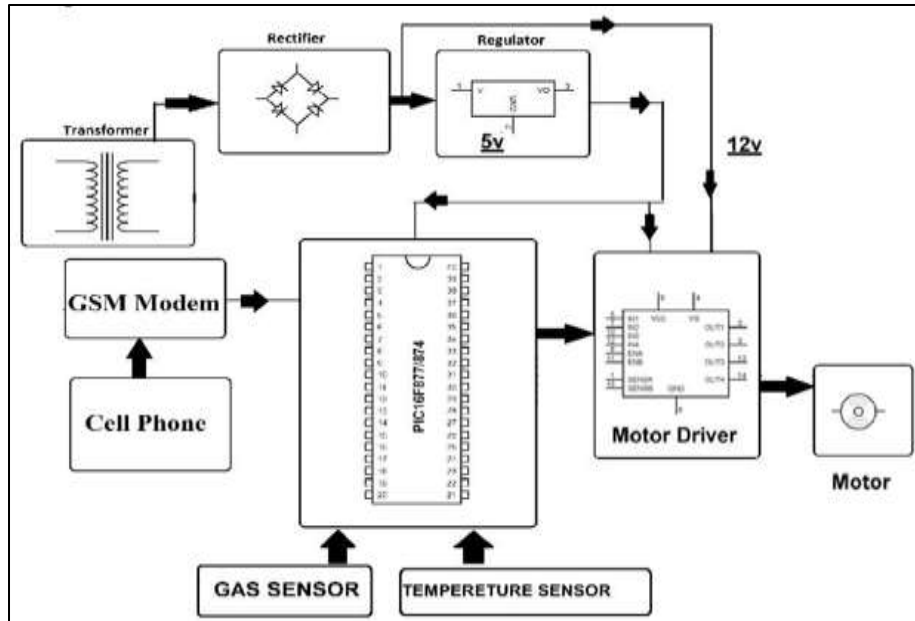


Fig. 1: Block Diagram of the System

A. Hardware Specifications

- PIC Microcontroller
- GSM Modem
- Gas Sensor
- Temperature Sensor
- Motor Driver
- DC Motor
- LCD Display
- Buzzer
- Resistors
- Capacitors
- Diodes

B. Software Specifications

- MPLAB
- Programming Language C

IV. SOFTWARE DESIGN

A. Algorithm

- 1) Start
- 2) Detect either smoke or fire.
- 3) If detected then send SMS to the registered number.
- 4) Buzzer will turn on to inform passengers as well as driver.
- 5) Stepper motor will turn on to pull the chain and train will be stopped.

V. CONCLUSION

This project is about the train safety security system. LPG is usually in many application because of desirable properties like home, industries etc. So we can use to avoid the many accidents. This project can be extended for future use and other sensors also can be used here.

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