

Arm11 Processor Based Metro Train Gate Control System

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ABSTRACT:

Everywhere in the level crossing between Railways and roads there are plenty of railroad Accidents happen due to negligence directory Processes or lack of workers. Therefore, this article describes the The automated control system of the train door using PIC Microcontroller to save human lives and precious Prevent further disasters on the railways. Railway This portal can be saved road users to avoid Incidents in terms of the speed of the train on the level crossing. East microcontroller use the help system Sensor. It can be divided into two parts. The first part is Concern about the development of devices that each Electronic components are included. infrared sensors X, Inductive sensors are input components for Bell, Searchlight, DC motor and LCD screens are production components. The object of this prior The control circuit. Microcontroller is an important The system unit. the input signal is received Sensors and sends the information to the motor driver door To open and close the door. In addition, the entrance Alarm signal active LCD display and a statement And it provided an additional focus as part of this

System. The first inductive sensor and infrared sensor is Fixed at a certain distance from the door and the second sensors is fixed in a particular space after Door. closed doors when the train crosses I. infrared sensor and the door opens, and when the train crosses X-infrared sensor second. This system is responsible for one of the Effective ways to avoid train accidents. Second And it is based in part on the programming software to run hardware structure. A control program train door The system is based on a microcontroller with basic science language professionals.

INTRODUCTION:

In this work the theme of contemporary relevance that is addressed. It proposes a unique and economical way Improve the safety of our crossings.Road incident level at the train door is the leading cause of death and injury Worldwide. Surveys conducted by the Rail Indian Railways and found that around 17% of total rail accidents in India is crossing Most incidents occur at railroad crossings negative rail. train doors run at level crossings are not As it can be invoked at the moment. Mainly on road users will

have to wait long before the arrival of the train, even after

leaves the train. Second place incidents usually are made from the carelessness of road users or as a result of opportunities Weather guards made more errors. Hence the importance of the train control system, automatic door. In It was found in this project, which detect the arrival of the train and warn road users about the arrival of the train if there is no obstacle to And given the green signal for the train to pass, if they are not given a warning to slow down. After clearing the obstacles, Close the door and the train is passing and we will ensure that the train is going and reopen the door. multitasking system With a couple of things. First, it is the amount of time that the door remains closed. Second, for Provide security for road users by reducing accidents. In the automatic door control station, and the level Crossing the arrival of the train is detected by sensors placed near the door. Therefore, the time is closed Lower compared with manually operated doors and also reduces lane human labor is one of the modes of transition, which plays an important role in the transport of passengers and cargo. However, railway accidents are more dangerous than other transportation accidents. Therefore, it is necessary to improve safety to greater efforts. This

system is to manage the door control system using a microcontroller train. Since the main objective of this system and is about the control system Door station and level crossing between railways and roads to reduce the associated rail and increasing security incidents. It also offers users the road safety by reducing accidents usually occur because of carelessness of road users and the errors committed by the guards. preferred rail is the cheapest means of transport in all other media. This system is designed using PIC microcontroller 16F877A avoid train accidents it occurs when the doors of rail where level crossings. The microcontroller performs all processing of any sensor, and close the open door. With the approach of a railroad train crossing from either side, and the sensors are placed at a certain distance from the door detects a train approaches and controls the operation of the door. The operation of the system after the signal received from the sensor. This signal is used to trigger the microcontroller to operate indicators door control and alarm system and light. This system can also be used in the parking control system door and a sliding door. Abstraction of this system is to provide advanced control system available worldwide

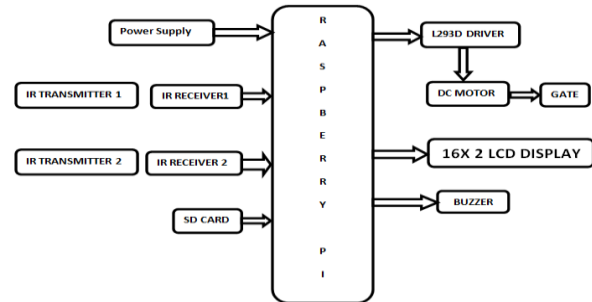
DESCRIPTION:

This project is aimed to design a system to control the metro train gate automatically by using IR sensors. Metro trains, being the cheapest mode of transportation are preferred over all the other means. When we go through the daily news papers, we come across many metro train accidents occurring at unmanned metro train crossings. This is mainly due to the carelessness in manual operations or lack of workers. In order to overcome these dangerous problems we in this project came up with a solution for the same. Using simple electronic components and a wireless communication technique we have tried to automate the control of metro train gates. The main aim of this project is automating the unmanned metro train gate i.e. the gate is closed automatically whenever the train arrives and gate is opened after the train leaves the metro train-road crossing. The arrival of train in either direction can be identified using this project. Use of embedded technology makes this closed loop feedback control system efficient and reliable. The **Raspberry Pi** is a credit-card-sized single-board computer developed in the UK by the Raspberry Pi Foundation. The Raspberry Pi has a Broadcom BCM2835 system on a chip (SoC), which includes an ARM1176JZF-S 700 MHz processor, Video Core IV GPU, and was originally shipped with 256 megabytes of

RAM, later upgraded to 512 MB. It does not include a built-in hard disk or solid-state drive, but uses an SD card for booting and long-term storage.

IMPLEMENTATION

BLOCK DIAGRAM:



WORKING:

The system comprises of two IR Transmitter-Receiver pairs. One IR TX - Rx pair is located at one end of the metro train gate. The second pair is located at another end of the gate. In each pair the TX and Rx are arranged face to face across the metro train track. i.e., TX is placed at one side of the track and the receiver RX at another side of track. The Rx should continuously get the signal from the transmitter. Whenever any train is arriving on the track, the IR signal gets disturbed due to the interruption of the train. Thus the microcontroller identifies the arriving of the train. Before closing the gate the microcontroller gives siren to alert the people. After 30 sec, the controller will close the gate by rotating the dc motor. For

the opening of the gate, the micro controller should know whether the train has left the crossing or not. The second IR pair is used for this purpose. The second IR pair identifies the train since the IR signal gets disturbed when it comes in between TX and RX. The microcontroller will wait till the last compartment and when it left the IR pair, the receiver again gets IR signal. Hence the microcontroller knows that the train left the gate. Till this time the gate is closed. . Now, after the train left the crossing, the microcontroller will open the gate by rotating the DC motor. LCD displays the status of the gate.

This project uses regulated 5V, 500mA power supply. Unregulated 12V DC is used for geared motor. 7805 three terminal voltage regulator is used for voltage regulation. Full wave bridge rectifier is used to rectify the ac output of secondary of 230/12V step down transformer.

APPLICATIONS:

- Automatic metro train gate
- Automatic gate opening
- Toll gates
- Parking areas

CONCLUSION

Control system for displaying automatic door An effective way to reduce the incidence of railway Incidents. This system

can contribute in a lot of benefits Whether to road users or to the railway management. Since the fully automated design that can be It is used in remote villages where the main station or n The man is present online. sensor bar is placed Two sides of the door. It is used to detect the arrival and The departure of the train. This system is used in the DC motor To open and close doors automatically when the rotate clockwise or counterclockwise. The the LCD shows the development of the train door control system. The system can also generate the bell The indicator light while the train passes level crossing. In this system, which is controlled by the Using a Micro controller now automated each sector occupies Applications is also reliable and accurate.

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