

AUTOMATED WALKING TRACK GATE

Aditya Gurav¹, Sushmit Jha², Prathamesh Kamble³, Manoj Kanade⁴, Ankur Ganorkar⁵

^{1,2,3,4,5}Rajiv Gandhi Institute of Technology, Juhu Versova Link Road, Andheri (West), Mumbai 400053

Abstract- This research recollects about the researches and recommendations on elements which affect automated metro ramp design. As the technology is advancing, we are witnessing automation in various field. People often think or wish to have automatic control over the various electrical appliances like fan, light, computer, railway doors metro as well as the footover bridges etc. So, this proposed work "Automated walking track system specially designed for metro" present a solution which helps in accomplishing the task successfully. The proposed work is divided into two sections. The first part i.e. hardware part includes automation of ramp using Arduino Code and RFID, LED, buzzers etc. Also, the second part i.e. software part contains the control of the ramp and DC motor and monitoring windows etc.

Key Words: Arduino, RFID, DC Motor.

1. INTRODUCTION

In the rapidly flourishing country like ours, accidents due to overcrowding at the platform are increasing day by day. No fruitful steps have been taken so far. Our Project deals with automatic ramp operation by Detection of train as it approaching the ramp can be sensed by means of four sensors placed on either side of the Track. Train arrival and departure sensing can be achieved by using infrared sensors. When the wheels of the train moves over, both tracks it cuts the infrared sensors this acts as a signal to Arduino indicating train arrival. RED signal appears at the platform for the passengers, once the train cuts the sensor placed before the 1Kms from platform. A buzzer is made on as a pre cautionary measure for the passengers on the platform. When there are no vehicles, it automatically produces signal to operate motor through relay circuit and hence opens the ramp. This can be implemented in order to reduce the problem of overcrowding at a particular platform. Ramp is automatically operated by means of a motor obtains the voltage from the regulated power supply .forward and reverse operation of the motor is achieved by using a DC motor and hence the closing and opening operations of motor can be achieved.

2. LITERATURE SURVEY

A literature survey or a review on literature in a very project report is that part that depicts the assorted analysis created within the field of your attentiveness. A literature review is that effective analysis of depute documents on hunt subject-matter.

[1] Automatic Railway Gate Controlling System, the railway gate can be operated to prevent the accidents at the level crossing in terms of speed of the train.

[2] Automatic Railway System, this automatic railway system reduces the waiting time of road passengers at the railway crossings since it will identify the arrival of the train and there by closing the gate when needed.

[3] Automatic Railway Gate Control System Using 8051micro Controller, two powerful IR transmitters and two receivers; one pair of transmitter and receiver is fixed at upside

[4] Automatic Railway Gate Control System Using Microcontroller, the automatic railway gate control system using PIC microcontroller for saving precious human lives and preventing major disasters in railway track

3. OBJECTIVES

1.To make the Automated Ramp control framework So That the Crowd is similarly dispersed among both the stage

2.Least time of activity guaranteeing wellbeing

3.Work just when train Leaves the Station

4.Mishap avoidance

5.Initial a caution is activated and afterward the door is worked and decrease the opportunity of the mishap.

6.Time and fuel sparing

7.Less support

8.Quick Response

4.1 SYSTEM BLOCK DIAGRAM

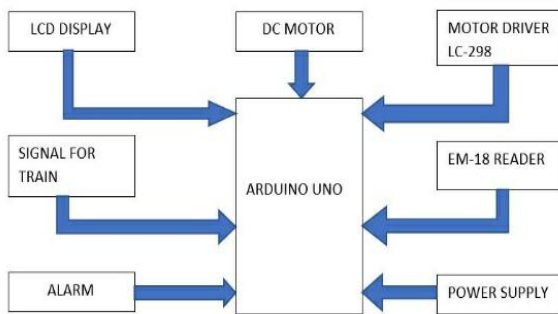


Fig1: - Hardware concept Block diagram

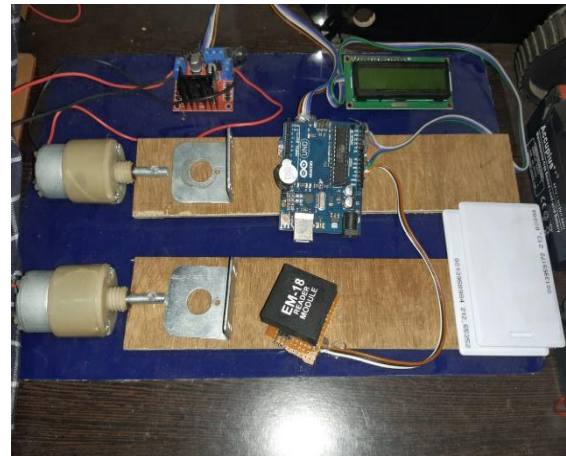


Fig 2: -Complete working model

The automated ramp system is controlled by two powerful DC motors with the help of motor driver that can handle the overall weight of the aluminium ramp that is being deployed between the platforms. The weight of aluminium ramp is about 96 kg and it can easily handle approximately 90,000-1,20,000 kilograms.. And the microcontroller Arduino is interfaced with a LCD Screen which will display the status of the Ramp.. The EM- 18 Reader sends the signal to the Arduino when Rfid tag passes over it that is attached to the train and accordingly the motor drivers will close the ramp and the buzzer will be activated. When the Ramp is open state then the led will turn red which will act as a signalling system for the motorman thus ensuring full safety.

5. HARDWARE IMPLEMENTATION

In hardware part the main components are Arduino-uno, to control the motors it will be done by two Rfid Tag and Two RfidReaders. For this we first connect Arduino-Uno model to the Rfid Readers and then the hex code of the Rfid tags are used accordingly. LCD display here is used to show the status of the ramp when it is connected to the platform it will display the message "WALK". When the ramp is closed it will display "STOP" and the buzzer is used to indicate before the ramp is closed, Program is uploaded in Arduino for proper flow of this entire mechanism. The flow of the hardware concept is shown in following fig.

A motor driver circuit is used to drive the Ramp motor for opening and closing Ramp. This system uses buzzer and light signal for warning the Platform users. The Arduino controls all the system, The Ramp control system consists of two Rfid Readers. The sensors are fixed at the certain distance on both sides of the Track at a certain distance from the platform. When the sensor1 senses the train, microcontroller can control the drive of the Ramp control motor. At the same time, the light signal on the platform changes from Green colour to Red colour when the ramp is opened and if train arrives then the train signal will be red until the ramp gets closed. A buzzer gets activated when the train is About to Arrive and The Ramp is closed. When the train passes through sensor2, the Platform is changed from Red colour to Green colour and. At the same time, the ramp is opened. LCD display is constantly used to show the status of the ramp.

The Arduino code is written in C++ language with an addition of special methods and functions, C++ Is a Human Readable programming language. The Serial monitor of the Arduino IDE is used to get the Hex Code of the RFID tags and by using the Hex Code we assign the open and close mechanism.

6. APPLIANCES IMPLEMENTED

This section discusses the appliances where the testing of the proposed work is implemented to make a complete automation system using RFID tags and Arduino for the automated ramp system.

6.1 AUTOMATED RAMP

Automated ramp system which is been used between the two metro tracks is been used for the management of the crowd present on the metro station.

These ramps can be used like the foot-over bridge for crowd management and can be the precaution for the stampede that would be taking place due to platform crowding as well as the bridges overcrowding.

Ramps can be also used for the easy transfer of the handicap people as well as for the emergency exits from one platform to the other side of the platform.

7. FUTURE SCOPE

Ramp design developed can be further implemented at various transportation platforms like mono rail station, railway stations etc for effective control and movement of crowd.

8. CONCLUSION

It is a test to control the group during busy time in our nation. It is attempted to computerize different activities identified with opening and shutting of railway ramp right now lessens the holding up time of travelers holding up at the platform. The present framework is a proto sort model which can be extended to be operational in genuine ongoing frameworks.

9. ACKNOWLEDGEMENT

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