

# Auto Train Shuttle Between Stations with Automatic Barcode Scanner

Kishore K<sup>1</sup>, Ashritha P<sup>2</sup>, Prithvi Honna<sup>3</sup>, Yashwanth S D<sup>4</sup>, Chandrashekar Murthy B N<sup>5</sup>

<sup>1,2,3</sup>*Student of Automotive Electronics Dept. of Electronics & Communication Jss science and technology university, Mysuru*

<sup>4,5</sup>*Assistant professor, Dept. of Electronics & Communication JSS Science and technology university, Mysuru*

**Abstract - the aim is to develop a professional type model for an automatic opening door closing system in a very wide railway coaches doors and to manage autonomous driving of the train. This train is controlled by a controller that allows the automated running of the train from one station to a different. This proposed system is eliminates the necessity of any assistant. Thus, there is no human error is ruled out during this project Arduino Uno has been used as main units controller. When the train arrives the station it stops automatically because it sensed with a IR sensor and which is equipped with a passengers counting section, which counts of the quantity of passengers leaving and entering the train coaches and it is monitor by use of Ir sensors .The proposed model is uses infrared sensors to detect the entering and leaving of the stations of trains at the railway stations and The most important objective of this project is to assist our railway department to automated process. Also develop the need tools needed in this safe travel. Thus, automation of the doors operations at the railway for passengers to enter the train with universal bar code ticket reader.**

**Index Terms - ir sensors, Arduino Microcontroller, dc motor.**

## I.INTRODUCTION

The automated system for a railway system is an integrated application which has been implemented for the existing railway system which is relevant to existing system like. station information when the train reaches a particular station and it give the information about how the train has been starting and the stopping of the train using the embedded system the process out come as been mainly focuses on overcoming loopholes in the existing system.

It is cost effective and power efficient. Introduction Automatic educate manage [1]- As definition, the ATC refers back to the whole gadget which incorporates one-of-a-kind computerized features. the Automatic Train Operation (ATO), Automatic Train Protection (ATP), and Automatic Train Supervision (ATS) [6] should have to in ATC gadget. The above referred to are the 3 operative regions of the ATC; they may be rapidly characterized as; Automated educate operation (ATO) [6] - This subsystem lays the outstanding position of the automated operation of manage and brake moves to place the trains in movement and halting at stops. Automatic Train Protection (ATP) [6] – This subsystem performs the role of shielding the educate in hazardous situations and taking necessary measures to save you accidents. Automatic Train Supervision (ATS)[5]- This subsystem plays the position of centralized management and authority of educate movements such as office control server features related to educate protection. Automatic Train Control (ATC) guarantees using all of the equipment beneath ordinary mode to carry out the educate operation. ATC procurement specs range significantly beneath the situation of technique and degree of detail; however, the fashion with inside the more recent structures is close to a extra quantitative shape of specs, especially for accuracy; assert ability, and availability requirements. This subsystem reduces the involvement of human with inside the operation of trains. There exists a call for adequate and adept shipping gadget with all of the growth in population. The driver less trains offer powerful answers to many

troubles which include time postpone or irregularities, excessive capability and price etc. This assignment's goal is to broaden a prototype educate and permit it with a CPU to carry out the normal operations automatically.

[7] Arduino micro-controller is hired as CPU; its position is to obtain the automated operation and additionally the automated establishing and remaining of door. IR sensors are organized close to the door to rely the wide variety of passengers getting into or leaving the educate, the prototype is likewise enabled with impediment detecting unit which detects any barriers in advance of the educate and halts it.[14] The different goal of this assignment is to lessen the losses incurring to the Indian railways because of the unauthorized passengers access into the educate coaches, via way of means of incorporating a safety gadget on the doorways of the educate coaches this is the Bar- code scanners that scans the passenger price price tag and if the information suits with that of the information stored with inside the database, then the door is allowed to open accordingly.

## II. PROPOSED BLOCK DIAGRAM

The proposed block diagram as show it explain how the working of the model and it tell what components are consists of and it is a working model block diagram.

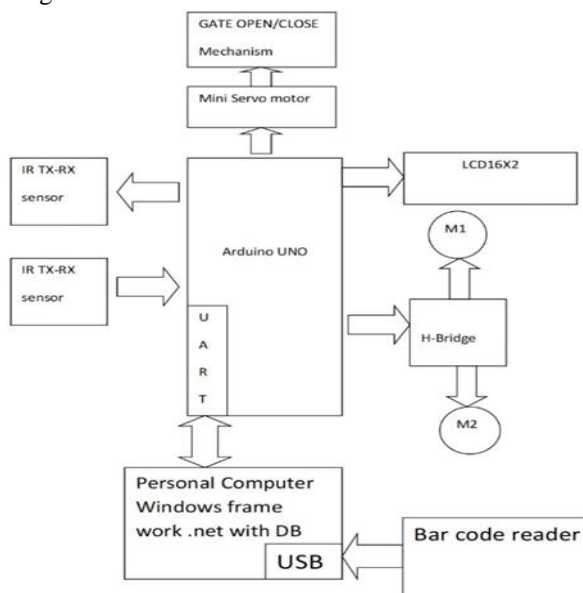


FIG1: Proposed Block Diagram

Arduino UNO which acts as a CPU is responsible for the automatic operation of train that is, it is responsible for the automatic start and stop of train. IR Sensors, DC motors, servo motors, LCD are interfaced to this Arduino UNO to perform the specific operations. Also a Bar-code reader is connected to the computer consisting of database of each passenger which in turn connected to the Arduino through . In order to perform the automatic closing and opening of the door based on information obtained through scanned tickets.

## III.METHODOLOGY

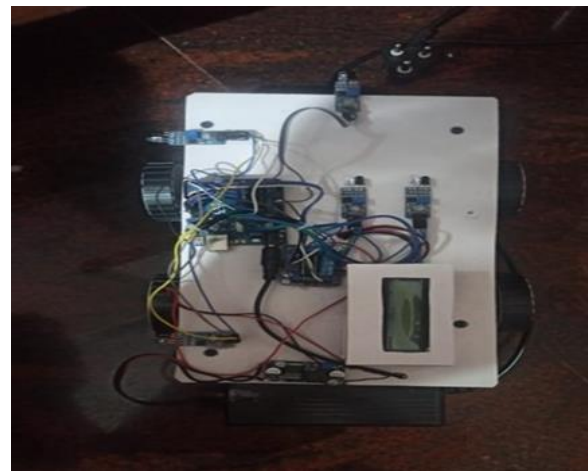


FIG2: Main project

The working model for the concept of auto train stop with stations with bar-code ticket reader for gate automation works as such:

- When the model is switched on, it moves with the help of motors fixed to the controller with the help of H-bridge.
- It goes to the station and stops there for particular time limit as per programmed and then moves to the other place and this operates in the way
- As when the station is approaching, the first IR sensor as and when it senses the station, the speed gets reduced in steps that slow-downs the train few meters before the station.
- when the next sensor senses the station, the train is stopped exactly at the station that means when the second sensor senses the obstacle i.e. station, all the motors get turned off ensuring the complete stop at the station.

- If In case any obstacle is sensed in-front of the train may be a Human or animals or any other, the front sensor senses them and slow downs the speed of the train and thus stopping the train and preventing the accident.
- The counter is placed at the doors in order to take the count of incoming and outgoing passengers so to achieve this, the two more sensors have been placed adjacently at the door.
- And the number of authorized passengers entered and left are displayed through the LCD
- The database of each passenger is maintained and updated using .Net and Microsoft access soft wares where the name, place, train no., ticket no., platform no., number of passengers, amount all are fed.
- Train door is equipped with bar code scanner so, when passenger ticket, which has a bar code is scanned, the door opens automatically for the time interval guided by the controller according to the number of passengers getting in and out.

#### IV.RESULTS

Here we came to know the aim as been achieved it can be used in real time application.

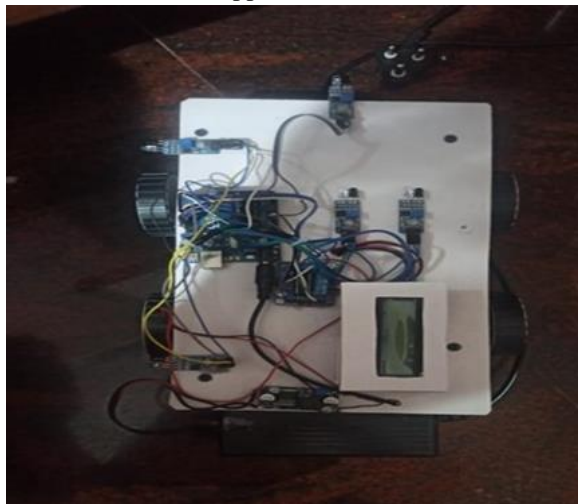


FIG3: Automatic start and stop

1.The objective of automatic start and stop of train model as well as the automatic open and close of door is achieved with the help of controller by using the ir sensor and by abstracts.

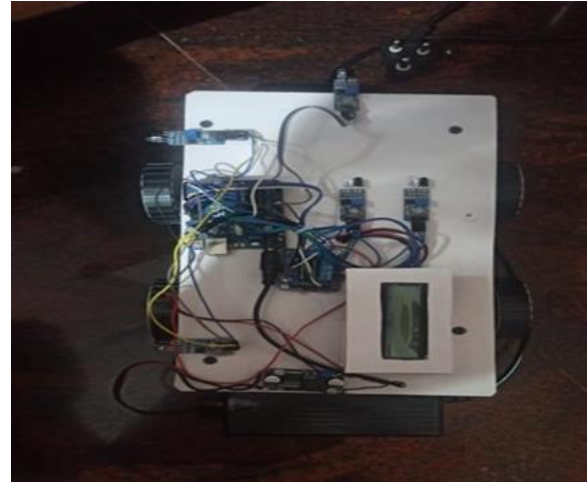


FIG4: Automatic counter

2. The counter is added to control the passenger count and in this to control the counter entries by use of ir sensors

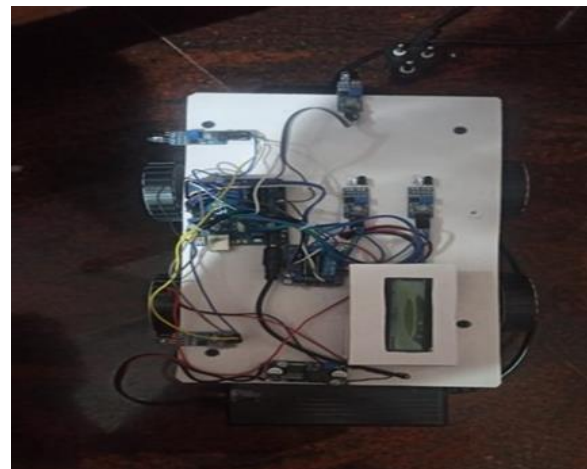


FIG5: Automatic control of authorised entries

3.The Bar code scanning security system is employed at the doors effectively. Overall this model is effective in saving the travelling time and prevention of unauthorized passengers entry into the coaches

#### V.CONCLUSION

This project describes the designing of autopilot where the accurate Timing control of the train on station arrivals and departures can be achieved and importantly there will be reduction in accidents caused due to human errors. Also avoiding unauthorized entry being a main objective, is achieved through the bar

code scanning system and hence thereby this proposed project finds an effective way in reducing losses to the Indian Railways.

#### VI.FUTURE WORK

Here can use RFID instead of bar code system and we can use other micro controller instead of, Arduino uno To take the count of the luggage the new system(by adding Ir sensor by weight propagation )can be used

#### REFERENCE

- [1] N.M. Girinivas et al, International Journal of Computer Science and Mobile Computing, Vol.4 Issue.3, March- 2015, pg. 201-207.
- [2] Karthick SI, Velmurugan, —Android suburban railway ticketing with GPS as ticket checker||, IEEE; 2013. p. 1–4.
- [3] International Journal of Computer Applications (0975 – 8887) National Conference on Advancements in Computer Information Technology (NCACIT-2016).
- [4] Wallace Jackson's (2011) "Android Apps for Absolute Beginners" Apress Publication
- [5] Wallace Jackson's (2011) "Android Apps for Absolute Beginners" Apress Publication
- [6] Ram Kumar, International Journal of Innovating Research in Electrical, Electronic, Instrumentation and Control Engineering, vol 1 Issue 9, December 2013
- [7] International Journal of Scientific and Research Publications, Volume 4, Issue 12, December 2014 1 ISSN 2250-3153.
- [8] International Journal of Technical Research and Applications e-ISSN: 2320-8163, www.ijtra.com Volume 2, Issue 3 (May-June 2014), PP. 169-174.
- [9] N.M. Girinivas et al, International Journal of Computer Science and Mobile Computing, Vol.4 Issue.3, March- 2015, pg. 201-207.
- [10] Dong Li ,Yuhao WANG , Member, IEEE, Lin li Hu , Jing Li , Xuezhao Guo , Jiance Lin and Jie Liu. "Client/Server Framework-Based Passenger Line Ticket System Using 2- D Barcode on Mobile Phone"
- [11]B. Rosas-Flores, A. Hernandez-Zavala, J. Huerta-Ruelas. "Lightweight obstacle detector based on scattered IR and Lock-In filtering"
- [12]N. Brandenburger. A. Nauman. "On Track: A Series of Research about the Effects of Increasing Railway Automation on the Train Driver"
- [13]I.Zafar,U.Zakir,E.A.Edirisinghe. "Real Time Multiple Two Dimensional Barcode Reader"
- [14]Toshihiko Wakahara ,Noriyasu Yamamoto . "Image Processing of 2-Dimensional Barcode"