

RFID TOKENS FOR METRO SERVICES

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Abstract: In the proposed paper, the main aim of this project is to design a system to access the RFID tokens for metro train using lcd display and the radio frequency wireless card for tracking the station data. The project consists of microcontroller with the rf receiver and the lcd display screen .the whole system is attached to the vehicle (train). The encoded RFID tags are placed in the railway stations. The microcontroller in the train is programmed in such a way that every station name saved in the chip which is having a unique code. So whenever the train reaches the station, the reader in the train receives the codes, which are transmitted from the tag and the microcontroller receives this code and checks in the look up table, saved in the chip. Whichever matches, the controller will send the command to the LCD screen to display that particular message. At the same time the train stops for about 10-15 seconds in the station and doors will also open automatically and then before leaving the station, it will again start displaying the message and the train starts to move to next station. This message is repeated till the train leaves the station.

Keywords: Railway Station, Train, Microcontroller, IC.

I. INTRODUCTION

Presently metro trains are like revolutions in transport. How will be if it is automated and secured? Our project is such a type which provides both security and automation and update of information about stations.

Our Project consists of two sections one is RFID TAG section another one is RFID reader section. There are tags placed at each station which consists of Station name details. Whenever the train enters into the particular station the RFID reader reads information from the tag and displays the station name in the LCD provided in the compartments so that the passengers can know the location

of the train. When the train halts in a particular station the door will be opened automatically so, the passengers can get down. After a few seconds door will be closed.

Along with these every passenger will be provided with Tokens instead of tickets at stations. These tokens consist of travelling details of the passenger. Means from and destination stations. At each entrance of metro compartments there will be RFID reader, the passenger should show tag at reader. If the tag shown by passenger is valid then only the door of the train will be opened. So the passenger will get in to the train from entry door. If the card is invalid then the door will not be opened. So that passengers with valid ticket can only board the train. Here start and stop switches are used for the train to start and stop. When we press the start button then microcontroller will ON the engine motor and train will start. Whenever the train reaches the particular destination station then the train will stop automatically and the passengers can get down from the exit door which will open automatically and close after some seconds. Because of tokens which contains starting and destination stations of that particular passenger. This embedded application mainly focuses on overcoming loop holes in the existing system. It is optimized to meet the cost and power consumption requirements.

Few of the metro trains network in India are as follows:

1. Delhi Metro Rail Corporation Ltd. (DMRC)
2. Kolkata metro rail
3. Mumbai Metropolitan Regional Development Authority (MMRDA)
4. Hyderabad metro rail (HMR)

1. Delhi Metro Rail Corporation Ltd (DMRC)



Figure1: Delhi metro rail (DMRC)



Figure2: Delhi metro train map



Figure3: Mumbai metro train

2. Mumbai metro by MMRDA



Figure4: Mumbai rail network



Figure5: Hyderabad metro train

3. Hyderabad metro rail (HMR)

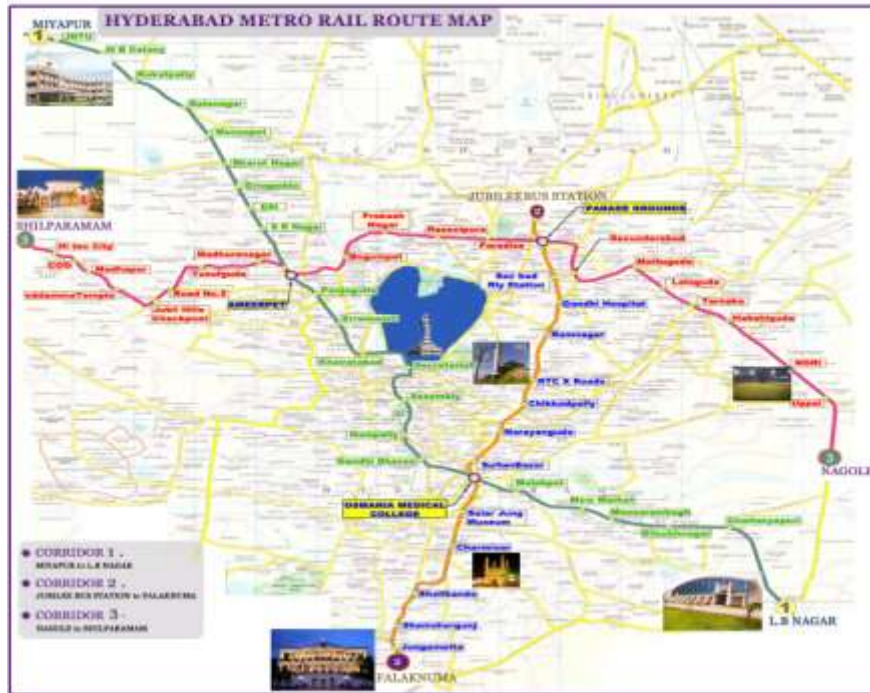


Figure6: Hyderabad metro train map

SNAPSHOTS:

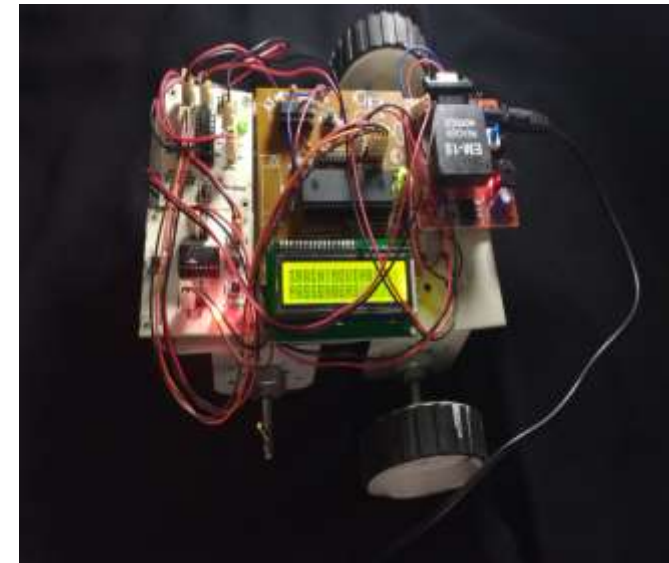


Figure7: Embedded System based on RFID



Figure8: RFID Tags

ADVANTAGES and DISADVANTAGES:

Existing vs. proposed systems

The existing system involves announcing the arrival and departure information manually in a particular station while the proposed one is an automated system with very limited human intervention. The proposed system uses relatively less expensive Tags which reduces the cost parameter of the system.

Few disadvantages of the existing system are:

- Constant human intervention
- High cost

- More Manpower is required
- Installation and integration is time consuming

The proposed system overcomes the above disadvantages and has the below mentioned merits:

- Automated system requiring less manpower
- It uses a voice chip which records and plays the desired voice
- Reusability of the recorded message
- RFID Tags and readers are contact less and do not have range limitations unlike RF receivers and transmitters
- Databases need not be maintained
- The model can also be interfaced to provide automatic opening of doors.

II. CONCLUSION

The project “**RFID TOKENS FOR METRO TRAINS**” has been successfully designed and tested. It has been developed by integrating features of all the hardware components used. Presence of every module has been reasoned out and placed carefully thus contributing to the best working of the unit. Secondly, using highly advanced IC’s and with the help of growing technology the project has been successfully implemented.

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