

**RFID Based Prepaid Automatic Fare System for Public Transport**¹Mr. Ravikumar Jadhav, ²Ms. Ashwini Sakinal, ³Ms.Sapana Shirsath, ⁴Prof.Mrs.D.M.Yewale¹ENTC, AISSMSIOITPUNE,jadhavravi345@gmail.com²ENTC, AISSMSIOIT PUNE,ashwinisakinal@gmail.com³ENTC, AISSMSIOITPUNE,shirsathsapana@gmail.com⁴ENTC, AISSMSIOITPUNE,deepali_yewale@yahoo.co.in

Abstract —Public transport is the primary mode of transport for most of the population in India. Now a day's public transportation system uses paper ticket system, where ticket is printed through small digital machine operated by conductor. The system requires the manpower to do this process. The aim of our proposed system to provide smart way of travelling with the combined use of RFID module and GPS module. RFID card holds the data of the card holder and GPS is used for tracking the distance. Depending upon the distance tracked by the GPS the amount of money will be deducted from the card. This proposed system will reduce manpower, corruption and wastage of paper.

Keywords-GPS Module, RFID Module, PIC microcontroller, EEPROM.

1. INTRODUCTION

Significant changes in the workplace are the result of new and advanced technology. In the recent few years various things are changing digitally. There is a abrupt change in the technology. Our government has launched a project Digital India. Basically Digital India is launched by the government of India to ensure that government services are made available to citizens electronically by improving online infrastructure and by increasing internet connectivity or by making the country digitally empowered in the field of technology.

Now a day's most of the things like booking of tickets, gas booking, railway reservation, income tax, electricity bills etc. all these transactions or activities are done through internet. All these things are reducing the human efforts as well as these are the smart activities done in short time

Our project RFID based prepaid automatic fare system for public transport is making travelling in smarter way. It is converting the traditional ticket system in digital manner.

1.1 EXISTING SYSTEM

In the earlier days punching system were used in transportation service for providing tickets to every passenger. Now a day's a small handheld machine is used to print the ticket.

For both the types manpower is needed, that is conductor is required to do the process. This system has many disadvantages. Every passenger has to carry the ticket thought the entire journey, conductor should ensure that every passenger has got the ticket or not. Ticket checkers are needed at most of the stops to verify that whether passenger is travelling with valid ticket or not. Basically maximum amount of human energy is used for only ticket system. One of the important disadvantage is wastage of paper.

2. PRAPOSED SYSTEM

In the proposed system paper tickets are replaced by digital cards that are RFID. System does not require the manpower to handle the ticket system process. The system is entirely converted into digital manner.

The system consists the following components:

1. RFID Module
2. GPS Module
3. Microcontroller
4. Memory
5. LED sensors
6. DC Motor
7. External interfaces(Keypad)
8. Display device(LCD display)

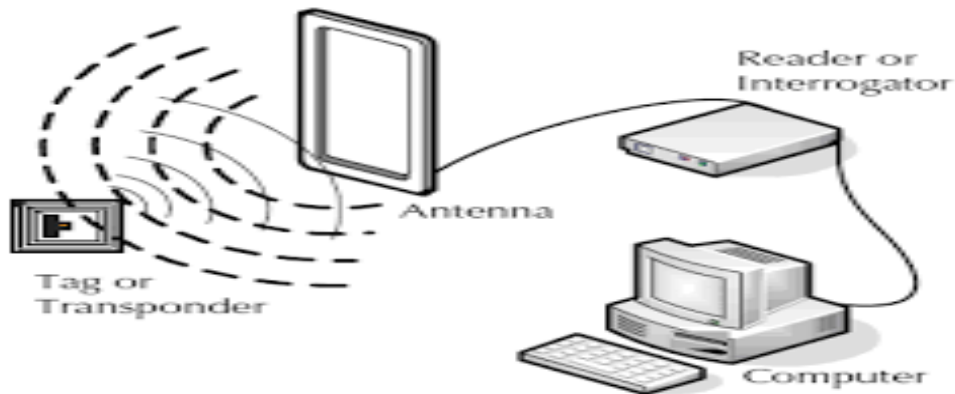


Figure1. RFID reader and tag

Tag is the RFID card; every tag is going to have unique identification. It differentiates every passenger as every passenger has to carry one separate tag.

The tag is prepaid type of card; the particular amount of money is stored in the card.

The reader is the device used to read data stored in the RF tag, that is unique id and tag is valid or not. If tag has valid money for travelling then it is valid card if not then it will be discarded.

The RFID tag and reader are shown in the figure1.

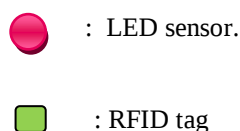
GPS module is used to track the distance travelled by every passenger, according to the distance travelled by every passenger the respective amount of money will be deducted from the card.

The system is going to have minimum two setups in the bus. The setup consists of controller, RFID reader, GPS module, keypad, LCD display, memory and connection with led sensor and dc motor.

One setup is going to be placed at the entry door and second is inside the bus. Every passenger has to show the tag in front of the reader while entering in the bus, as soon as tag is shown in front of reader it will get activated and displays on LCD whether the card is valid or not. At this moment if card is valid then first position of passenger will be tracked by GPS. At the time of exit passenger has to do the same process, now the second position of passenger will be tracked by the GPS. Now according to two positions distance will be calculated and particular amount of money will be deducted from the card on the basis of programming. Suppose in program we have amount for 1 kilometer is 5 rupee, now suppose passenger has travelled 3 km then 15 rupees will be deducted.

Now 3 passengers have shown the tag at exit setups, counter will count value 3. LED sensors are placed at the exit door; it will sense the outgoing passenger and when value will match with counter value the door will get closed. For opening and closing the door DC motor is used.

Figure 2 shows the model diagram of proposed system.



 : Setup consisting of RFID reader, GPS module, memory, keypad, LCD display, controller.

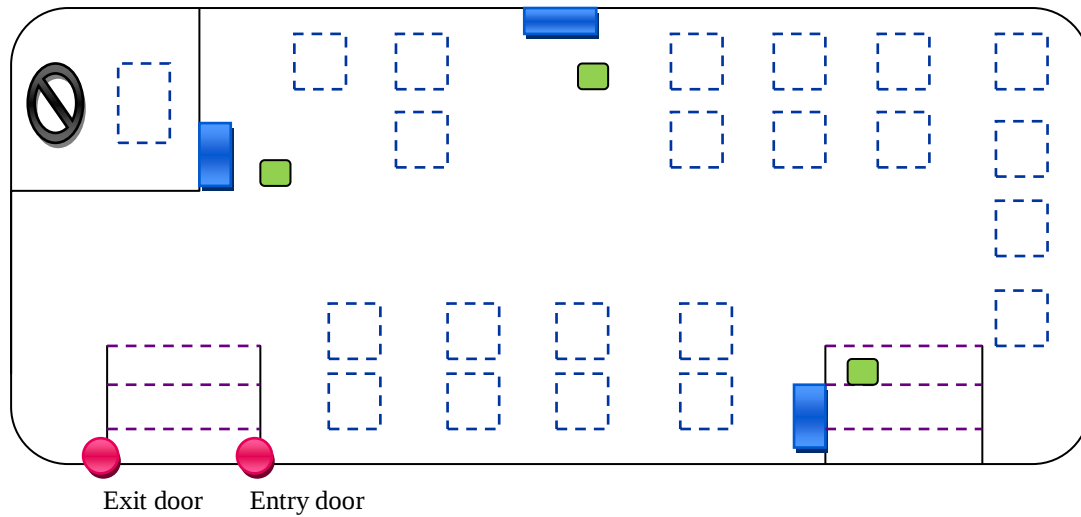


Figure 2: Proposed System

3. PRAPOSED BLOCK DIAGRAM

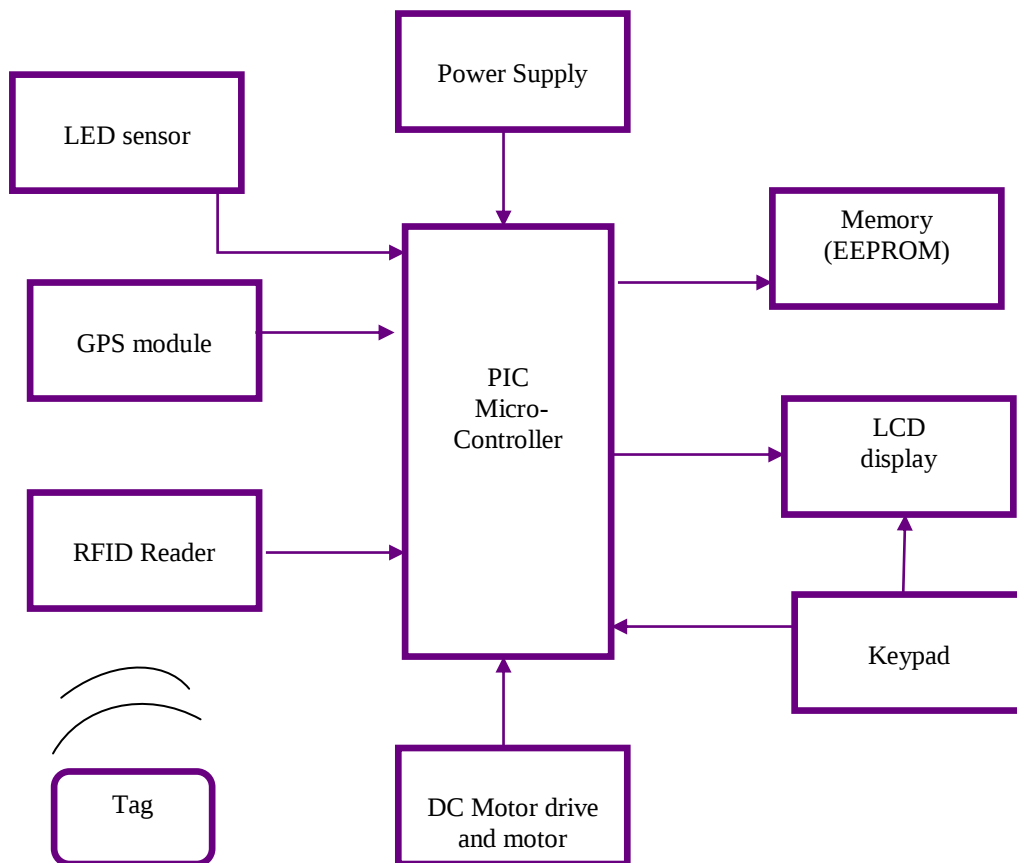


Figure 3: Proposed block diagram

4. CONCLUSION

The final project of “RFID based prepaid automatic fare system for public transport” has been successfully studied. The conclusion is it is smart ways of travelling. It reduces the manpower as well as reduce the wastage of paper.

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