

**RFID Based Ticketing System For Public Transport System**¹Vidya Subhash Patil, ²Sayajirao Dilip Gayakwad, ³Rohit Manoj Deogaonkar,⁴Virendra Shrishail Mangule, ⁵Aishwarya Shankar Yadav¹Electronics and Telecommunication, JSPM NARHE TECHNICAL CAMPUS, Savitribai phule Pune University²Electronics and Telecommunication, JSPM NARHE TECHNICAL CAMPUS, Savitribai phule Pune University³Electronics and Telecommunication, JSPM NARHE TECHNICAL CAMPUS, Savitribai phule Pune University³Electronics and Telecommunication, JSPM NARHE TECHNICAL CAMPUS, Savitribai phule Pune University

ABSTRACT:- This paper represents a automated system for ticketing in the Public Transportation System (PTS) which automatically identifies passengers and issues tickets. The system will itself calculate the fare of each and every passenger based on the miles covered by them. The Radio Frequency Identification (RFID) Card is used for identifying each and every commuter and the area covered by the person accurately. The main motive behind usage of RFID Card is reusability which is very efficient than the traditional paper-based ticketing system. The exclusive ID in the RFID cards are mapped to the individual details of the commuter and they are all compiled and saved in the Main Controller Directory. So, every time when a commuter travels in the PTS his/her records are fetched from the directories and subsequently the fare is charged on their account. Keeping the records of each and every passenger will not only eliminate the human efforts required for fetching, but it will also contribute to the seam-less travel experience of the commuters enormously. Ticket Prices of the respective destinations are pre-decided with the help of distance measurement. And the commuters are charged with the help of switches installed. So, the revised fare variations made by the Transport Department will not create any hustle amongst the commuters. Separate GSM module is used for informing the customers regarding the fare. LCD and Buzzers are used for supervision purposes.

KEYWORDS: RFID, Transport, Fares, Commuter.

INTRODUCTION

Public Transportation Departments have been one of the prominent sectors providing rich source of income in many major cities across the globe. If operated efficiently this sector can give a major boost to the economy. But like every sector, Transportation sector also has its own set of problems which it has to deal with. First of all, whenever the Government implements changes in the fares there is a lot of turmoil and misunderstandings created amongst the passengers which contributes to the bad customer experience. Nowadays the PTS have become soft targets for the anti-social activists who create unnecessary issues. Our system is designed to deal with these sort of problems which will not only provide a paperless automated tickets but it will also identify each and every passenger boarding the bus and if situation arises it raises an alarm if any criminal or anti-social element is present on board.

I. Pune, one of the fastest growing metropolis has become hub for many industries and population of the city is increasing day-by-day.

The traditional paper-based ticketing systems are still in use for Urban Transportation Systems which includes buses and trains. These ticketing systems create long queues and traffic jams during the peak hours due to which the commuters have to face many hardships and ultimately results in monetary losses and wastage of time.

II. The RFID based ticketing systems can be used to solve many of the problems. This will help in saving customer's time and money. Moreover as compared to traditional ticketing systems, this system provide many benefits which include: high reliability, modest operating costs, high safety and superior passenger travel experience.

III. People carrying RFID Cards will be able to travel in any of the bus or train service in the city. All he/she has to do is select the destination from the keypad provided, which is present at every stop. These customer selections are then fed to the main microcontroller which is present at the center and the corresponding customer's data is fetched and his/her account is debited once they reach the destination by the detection of their RFID Card. By doing so, we are eliminating the need of bus conductors and TTE's. This will ultimately reduce any misunderstanding or confusions the customers face when the fares are revised and also save valuable time for the daily commuters.

interrogator signals and also receives authentication replies from passive tags. An Active Reader Active Tag (ARAT) system uses active tags awoken with an interrogator signal from the active reader.



RFID Reader

Fixed readers are set up to create a specific interrogation zone which can be tightly controlled. This allows a highly defined reading area for when tags go in and out of the interrogation zone. Mobile readers may be hand-held or mounted on carts or vehicles.

3. GSM Module

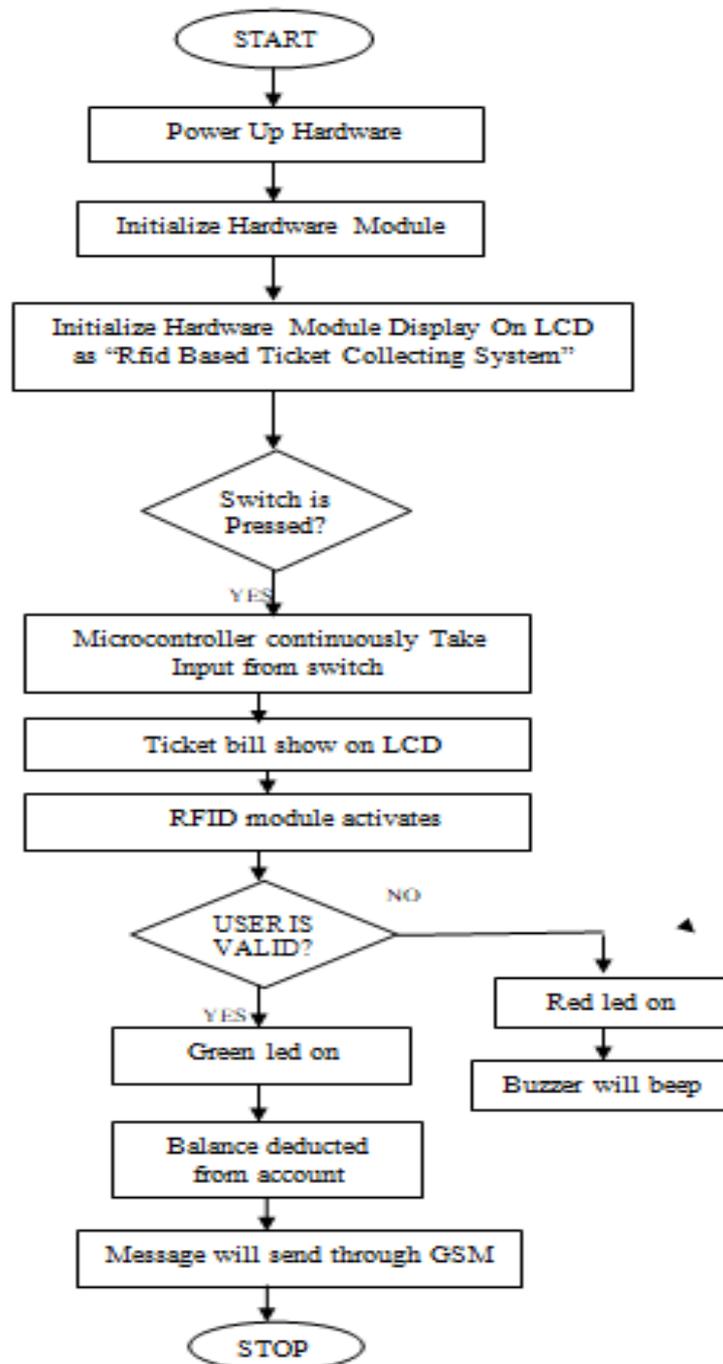
The module is managed by an AMR926EJ-S processor, which controls phone communication, data communication. In addition, the GSM900 device integrates an analog interface, an A/D converter, an RTC, an SPI bus, an I²C, and a PWM module. The radio section is GSM phase 2/2+ compatible and is either class 4 (2 W) at 850/ 900 MHz or class 1 (1 W) at 1800/1900 MHz.



GSM Module

GSM module is used in many communication devices which are based on GSM (Global System for Mobile Communications) technology. It is used to interact with GSM network using a computer. GSM module only understands AT commands, and can respond accordingly. The most basic command is "AT", if GSM respond OK then it is working good otherwise it respond with "ERROR". There are various AT commands like ATA for answer a call, ATD to dial a call, AT+CMGR to read the message, AT+CMGS to send the sms etc. AT commands should be followed by Carriage return i.e. \r (0D in hex), like "AT+CMGS\r". We can use GSM module using these commands.

SOFTWARE DESCRIPTION



Flow chart of RFID e-ticketing system

CONCLUSION

The system combines various inputs from the RFID Cards of the commuters and relays this vital information to the main ARM Microcontroller which will use the GSM Module and LCD Module for providing the fare, destination details and elapsed time to the commuters.

The RFID cards can be programmed with the Airport System which can be then used for International air travels and they can also be integrated with the Highway Toll Collection Booths which will thereby eliminate long queues of vehicles.

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