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Master Card for Ticketing with GPS tracking
using Android App.

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Radio Frequency Identification based Smart Master Card for Ticketing with GPS tracking using Android App.

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Abstract— The paper presents a system which is automated for ticketing and based on passenger identification. This is a user-friendly system, which automatically identifies the user and deduct the user's fare according to the path travelled [1]. Radio Frequency Identification Technology has been proven the best for many industrial Applications. RFID technology refers to where the data is digitally encoded in a tag and it is read by the reader through the radio waves. RFID tag contains electronic information stored in it. The unique ID in the RFID cards are stored in a database with the help of internet along with personal data and creates accounts for every person. By accessing to the account, it is possible to identify the user, check his/her account and deduct the fare from his/her account.

In this research, an effort is taken to develop the existing smart card system by adding few new features to the ticketing system. In this study with the smart card system for ticketing of bus train and metro we have used an android application which is connected to the system for tracking the location of the user after the transaction and the transaction message is sent to the user and its guardian as a backup data. For enhancing our project, we have used PLA plastic for coating through 3D printing technology as it is evolving in future.

Keywords— RFID, guardian, 3D

I. INTRODUCTION

The transport system remains the major source of income in most of the developing countries like India. But now faces malfunction and security problems. Controlling the traffic is one of the important and the major issues [2]. There is a lot of confusion between the passengers regarding fares which lead to quarrels and corruption at that moment [1].

The ticketing system suggested in this prototype model will not only automatically deduct the passenger's fare according to the path covered but also detect the passenger's identification. It is seen when RFID cards can be used to make the transaction and travelling very precise. This paper basically deals with the identification and ticketing of the passengers travelling by the bus, metro and train.

RFID has been an evolving technology in recent years. RFID technology can be effectively seen in number of applications. The system of RFID consists of two components: the reader

and tag. RFID has a great advantage as it is considered to be an integral part of Internet of Things (IoT).

For enhancing the system, we use 3D printing technology which prevents rusting and it is easily accessible. The whole system acts to bring out the consistency in the transport system and that will conclude in uniform access of the system of passengers in daily journey through an automated server being updated every time the passengers travel.

II. PROBLEM STATEMENT

The main hindrance of using the public transport in our daily life is uncertainty of waiting at the stops or in long queues, there are also ticketing problems and malfunctions which causes chaos at the stops and station. So our developed smart master card would solve our problems and reduce the time that we spend at stations in long queues.

III. EXISTING SYSTEM

In the existing system the transportation has less transparency and less security which do not meet the passenger needs. It ensures that every passenger should have printed ticket throughout the journey. This will take more time and waste of human resource as well as energy. Even handheld ticketing machine is comparatively slow and need trained person to operate it.

IV. PROPOSED SYSTEM

After the text edit has been completed, the paper is ready for the template. The main motive behind usage of RFID Card technology is reusability which is very efficient than the traditional paper-based ticketing system. It will not only eliminate the human efforts required for fetching, but it will also contribute to the seam-less travel experience. This project provides concept of e-currency and it reduces the human effort. To implement this smart card, RFID technology is used to detect the smart master card and the distance travelled by the passenger and keep a check source and destination of the user.

In our daily life, we travel by public transport and we face problem like long queues for ticket and chaos at the stations. So this smart master card would solve our problems and reduce the time that we spend at stations in long queues. Also, we look forward to reduce the frauds by our proposed system which ensures maximum safety and security. The

system which gives fare calculation and transaction providing-tickets via messaging stating the status of transaction via messages to the user and guardian on the registered mobile number. The Card reading system in our system will be 3d printed using PLA material, as it is the most evolving technology in future.

V. LITERATURE SURVEY

This paper presented an 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 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. 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. [3]

This paper presented RFID based ticketing in public transport system, prevailing in the megacities which introduces severe malfunction in the system, malicious argument among public, corruption and most of all traffic jams. This paper suggests a much more public friendly, automated system of ticketing as well as the credit transaction with the use of RFID based tickets. The total system mainly acts to bring out the consistency in the public transport system that will conclude in uniform access of passengers in daily rides through an automated server being updated every single time the passengers travel by carrying the RFID based tickets.[4]

This paper presented on ticketing and identification of the passenger in the public transport. In the metropolitan city like Mumbai, Kolkata there is severe malfunction of public transport and various security problems. Usually there is a lot of confusion among the passengers regarding the fares and also due to the negligence there is traffic jam in the road which also causes security issues. This paper suggests a user-friendly automated ticketing system which will automatically deduct the passengers fare according to the distance travelled as well as detect the vehicles identification. This could be only possible by use of RFID tickets and GPS can be used to make the transaction and travelling very precise. This paper basically deals with the identification and ticketing of the passengers sitting in the bus. [5]

VI. BLOCK DIAGRAM

In our project we are going to develop a system which will help people to remove tickets for their journey without standing in long queues and will get maximum security.

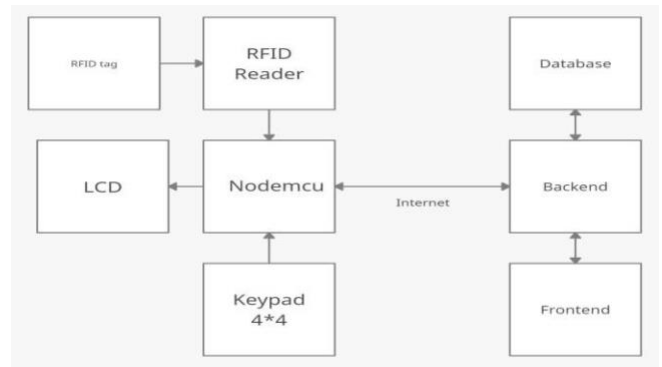


Fig. 1. Block diagram of the proposed system

The system is designed in such a way that when the user scans the card the reader module reads the data and fetches the information from the passive tag and the hardware is turned on which then operates and the LCD screen displays “Enter the guardian number”. After entering the guardian 10-digit number using the keypad it uses internet http protocol and send the API requests to backend which fetches the data from the database and stores it and then the procedure is carried forward if the transaction takes place and the ticket is issued and SMS is forwarded to user and guardian on their registered number.

VII. CIRCUIT DIAGRAM

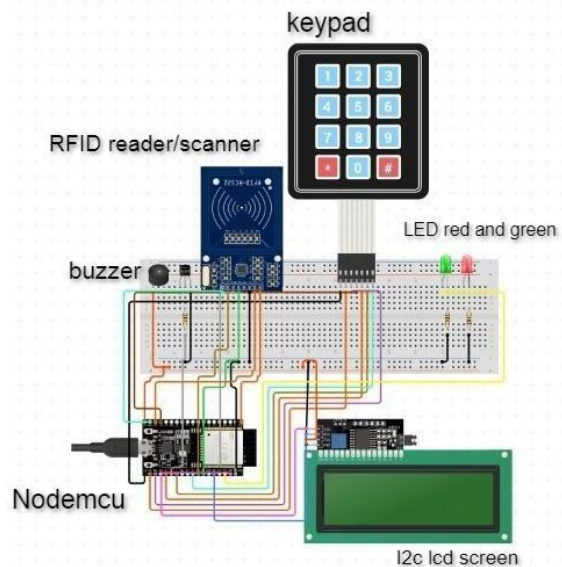


Fig. 2. Circuit Diagram of our proposed system

In this prototype we fix one path like Andheri to Vile Parle

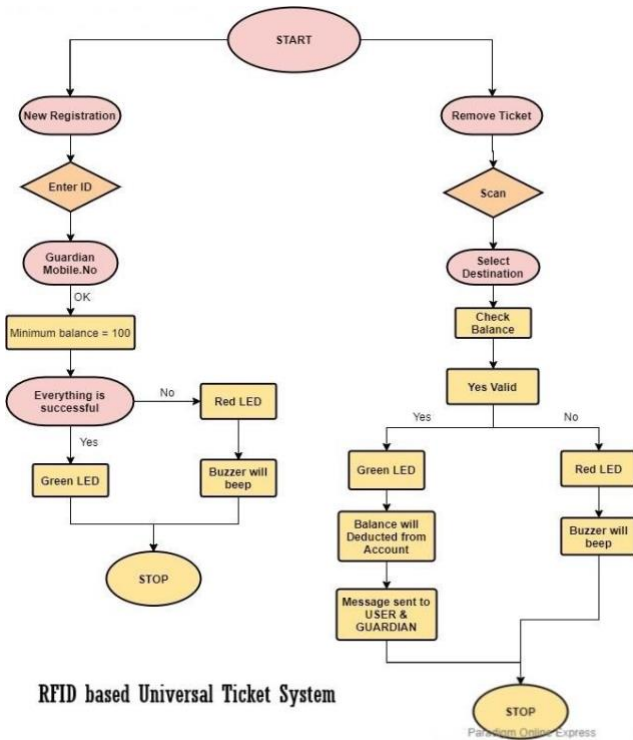
1. When user enters in from that location to destination two switch press & ticket bill show on LCD. Then RFID get activated
2. If valid user, then balance deducted from account & message will send to user and guardian.
3. If invalid users then LCD shows invalid user transaction gets cancel, buzzer will beep.

VIII. APPLICATIONS

System can be implemented in following:

1. Bus
2. Train
3. Metro.

IX. FLOWCHART



X. CONCLUSION AND FUTURE SCOPE

The system is expected to be fully automated, reliable, transparent and convenient. The cards being reusable, they are much more convenient compared to the paper-based ticketing system. The card also can be used to be a universal travel pass card that will allow any transportation on any route. Any unwanted events can be avoided as all the person carrying RFID tickets are monitored every time they travel. In future we can use the similar card by modifying at shopping mart, toll, parking, etc.

XI. REFERENCES

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