



# RFID BASED BUS TICKET GENERATION SYSTEM USING IOT

**Koushik R<sup>1</sup>, Jeevan K P<sup>2</sup>, Surabhi M V<sup>3</sup>**

Student, Department of CSE, VTU CPGS MYSURU , Karnataka , india<sup>1 2 3</sup>

**Abstract:** This paper is based on ticketing and identification of the passenger in the public transport. In the urban city we have a severe malfunction of public transport and various security problems. Firstly, there is a lot of confusion between the passengers regarding fares which lead to corruption. Secondly, it is used to authorize the passenger travelling in bus. Thirdly passengers do not have to carry money with them. All the record of transaction will be updated automatically. Moreover, the doors of bus will be opened only when passengers had generated their ticket. This paper deals with identification, bus ticket generation and bus ticket checking.

**Keywords:** IOT, RFID, ARDUINO, WIFI MODULO, SERVOMOTOR.

## I. INTRODUCTION

Now days the public transport system needs to be smart. However, public transport buses in India have always been an area where such new advances have turned their faces out. Passenger convenience needs to improves the performance of existing public transport is driving, demand for intelligent system in market. There are no methods to authenticate a passenger travelling in the bus. Automatic fare collection system is currently being used in many urban cities around the world. In addition, this system integrates ticketing system inside the public transport only. We are going to decrease use of paper and will use smart technology for bus fare system. It defines how IOT can be used effectively to generate the ticket automatically. It eases the pressure on passenger of buying a ticket in rush to travel in local buses. The project also shows that how we can ensure that a passenger with valid ticket can only be allowed to travel in a bus. The project is implemented using RFID card and Ardiano and servomotors. The system uses Ardiano microcontroller, as it is very much advance so certain applications such as automatic opening and closing of doors on basis of RFID cards can be easily implemented. This paper shows how RFID cards can be used to generate bus ticket. With the help of this RFID cards a passenger can be authenticated, leading to an effective step toward security of passengers. In system passenger will carry RFID cards which will be scanned at respective bus and asked for destination. Passenger will choose their destination and automatically respected amount will be deducted from their respective account and their ticket will be generated. As the ticket will be generated doors of the bus will be opened for 30 seconds for passenger to enter in bus.

## II. SYSTEM ANALYSIS

### Existed system:

In present system ticket is issued by conductor. In present system handheld machines are used to print tickets.

Disadvantage of existed system :

- A passengers have to carry their ticket until they reach their destination.
- Sometimes conductor charges extra money from the passengers who are unknown to the fares.
- Sometimes passengers misuse this system by not buying tickets and travelling for free in bus.
- This ticket system also shows the wastage of papers as in a day about millions of paper tickets is generated.
- Sometimes cash issues occur in this kind of system.
- In this system there is no way of authorizing the passenger who are travelling in buses.
- while travelling in local bus there is lot of rush of tickets which create problems for passengers.
- There is lot of confusion between the passengers regarding fares which lead to corruption.



### 3.3 Proposed System:

The proposed system consists of 3 parts:

- a) Recharge Function.
- b) Ticket Generation Using RFID Cards.
- c) Ticket Checking.

#### a) Recharge Function

Scan the card at RF reader 1.

Use Push Button 2 to select recharge and push button 3 to increase amount.

#### Travel Function

- Now scan the card at RF reader 1.
- Gate will not open if balance is less than 50rs.
- Gate will open if Balance is greater than 50.
- Use Push button 1 to increase distance.
- Scan the card at RF reader 2
- Gate will Open and amount will be deducted based on distance travelled.

#### b) Ticket Generation Using RFID Cards.

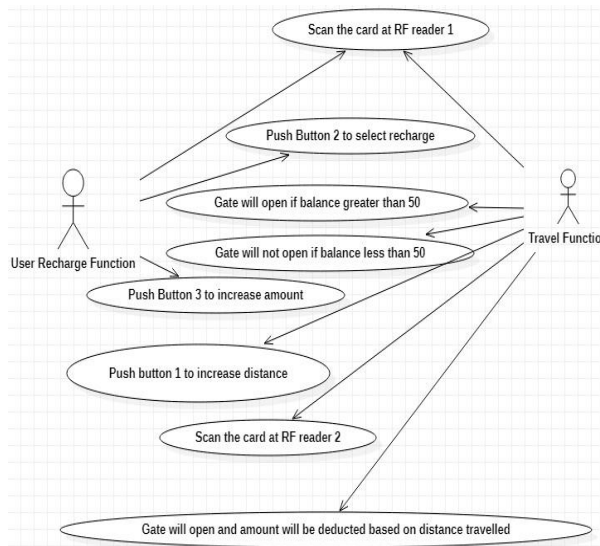
This system works upon RFID cards system. After a passenger had issued a RFID card. He or She only had to scan this card under RFID Reader attached at the entry of bus. The RFID Reader will read data and send it to web server through WIFI modulo.. According to the chosen destination the bus fare will be deducted from passenger account. If passenger do not have sufficient balance, then a message "Insufficient balance" will be shown to passengers. This system will ensure that there is no unfair means in ticket generation such as bus conductor demanding more money than the actual bus fare for particular destination.

#### c) Ticket Checking.

The proposed system to check tickets are automatic opening and closing of doors. The proposed system says that after generation of ticket by the RFID cards doors of bus will be opened for 240 seconds in which the person must enter in the bus. The gates of bus will be opened only if a valid ticket is generated otherwise doors of the bus will remain closed. This can be approached using servomotors.

### 3.4 Advantages of Proposed System:

- Each passenger travel with ticket.
- Less time consumption in taking ticket.
- Authorization of person helps us in the case of accident to identify.
- No case of corruption.



**III. REQUIREMENTS**

- EMBEDDED C
- ARDUINO IDE

**HARDWARE REQUIREMENT**

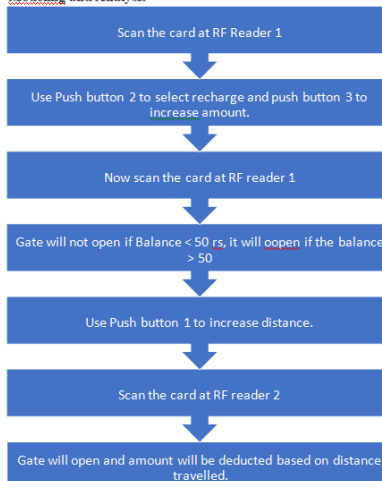
- ARUDINO UNO
- RFID MODULE
- Servo Motor-gates
- Push buttons – controlling
- LCD display
- WIFI MODULE
- SIM MODULE

**IV. FUTURE SCOPE**

- We can find the location of the passenger entrance and exit by using a smart card instead of rfid with gps. We may calculate the distance and amount travelled by using the location.
- By combining gps with a smart card, a microcontroller may be utilized to programmed this system. Using this strategy, the use of loose currency can be reduced, and effective ticketing can be achieved.
- While addressing the issue of ticketing, our project saves time and manpower. Apart from buses, this idea can be used in a variety of other public transportation services such as trains and metros.

**V. RESULTS**

Modeling and Analysis



**VI. TESTING****SYSTEM TESTING**

The purpose of testing is to discover errors. Testing is the process of trying to discover every conceivable fault or weakness in a work product. It provides a way to check the functionality of components, subassemblies, assemblies and/or a finished product.

It is the process of exercising software with the intent of ensuring that the Software system meets its requirements and user expectations and does not fail in an unacceptable manner. There are various types of tests. Each test type addresses a specific testing requirement.

**VII. CONCLUSION**

This paper shows the power of RFID. This paper presents the most convenient and reliable way of generating tickets. This paper shows how effectively one can use this system to generate tickets. This paper also shows how one can provide security to the travelling passengers. Also checking of tickets become easy by automatic opening and closing of door. Moreover, automatic fare collection ensures conductors does not overcharge to the passengers. Gate will Open and amount will be deducted based on distance travelled.

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