

# CLOUD BASED BUS PASS SYSTEM USING INTERNET OF THINGS

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**Abstract** — The Cloud based Bus Pass System Project is a real time project which is useful for the commuters who are facing problems with the current manual work of bus pass system. It makes the passenger easy to travel with the ticket QRcode with the mobile. So that even if the passenger loses the ticket at the time of checking he can show the QRcode. The TTE can check the QRcode with the Admin weather matches or not. The unique number allotted for one person cannot be the same for the other. It also increases the validity period, frequently warns to the commuters before completion of his/her validity period by sending sms or mails. His/her Renewal or Registration can be done using a credit card/debit card. Initially, commuters need to register with the application by submitting details like photo, address proof and other details and submit it online. They will verify your details and if they are valid they will approve bus pass else they will reject. You can even renew using credit card or otherwise transaction methods.

**Index Terms** — Public Transport System; login; Ticketing System; Mobile Computing; QR Code.

## I. INTRODUCTION

This project was created to provide "safe, reliable, timesaving, efficient, comfortable and affordable" services for people, although the cost for providing this service has been substantial. It makes the passenger easy to travel with the ticket QR code with the mobile. So that even if the passenger loses the ticket at the time of checking he can show the QR code. The TTE can check the QR code with the Admin weather matches or not.

The number allotted for one person cannot be the same for the other. It is heavily subsidized by the government and is reportedly in the red, like most of India's state run road transport undertakings. Even though we have lot of technology development in Tamil Nadu, we haven't got any official website for Bus Pass Registration and Renewal as many of our Neighbour states possess. Hence we got this idea that would help our people in a better way.

As per the previous system of our state people had to do each and every process manually, but this system helps people to make the work a bit faster. Customer can

register for the Bus Pass over the Internet, within the first 15 days of the month. Furthermore, customers no need to pay cash to buy bus pass because they can pay the amount using Credit Card. Hence, there is a need of reformation of the formal system with more advantages and flexibility.

## II. PROBLEM DEFINITION

The present conventional method of ticketing is tedious. Since the volume of commuters is very high, manual ticket buying concept involves a lot of time, effort and manpower. This system is highly unsuitable when there is a huge rush of commuters and many times, lot of commuter's fail to catch their trains. This is not only affecting the efficiency of people at their work place but also affecting them psychologically by less respect to co-passengers, staff members and at the end of the day at home.

## III. PROPOSED SYSTEM

The commuters of Public Transport can be categorized in to two categories namely:

1. Regular commuters i.e. Office goers, Students & Business Class
2. Short time visitors like tourist and other people visiting the city for their essential works

In this era of science and technology maximum numbers of commuters from both categories are equipped with a mobile phone subscription with them. And as this device is equipped with latest advancement of fast communication with high speed data exchange we are introducing it in a new way to use for ticketing in Public Transport System.

In Mobile Ticketing a commuter will use his or her mobile phone to access the doors at entry and exit of station. It may be done by using either prepaid or post-paid mobile subscription. The fair for distance travelled will be deducted from available balance of prepaid subscriber or will be added in monthly bill of post-paid subscriber.

Anyone can avail this service by registering for this value added service from his or her mobile in a specified registration procedure and can start travelling after activation of service. Using mobile phone for ticketing will help to overcome billing hurdles and its fast and widely available network will suitable for communication and information exchange among entry and exit stations, Transport Service Provider Data Centre and Mobile Service Provider for billing purpose.

## IV. REQUIREMENT ANALYSIS

A. Software Requirements:

- Minimum Android version 4.0

- Android Studio
- Android SDK version 19

#### B. Hardware Requirements:

- RAM : 256 MB
- Android based smart phone

### V. PROPOSED MODEL

Our work introduces a new method of generating the Bus pass through online. There are several modules:

- Registration Module
- Authentication Module
- Online Payment
- Generation of Bus Pass.
- Bus Pass Renewal.
- Notification (Message Alert).

Steps involved in maintaining the user /client information in the database. The user needs to register first by providing all the necessary information of the above fields. After registering, the user can login by entering the username and

Password. If the password doesn't match with the password in the database an error message is displayed. If the user wants to change their password they have to provide the current password and new password to confirm his/her password. The password is in the encrypted form in. After login, user has to apply for the form by providing necessary details to get the pass. The admin can check the received applications, verify and then issue the pass. Depending upon the criteria specified, the fixed amount will be deducted from users account when the submit button is clicked. Information of the applicant provided by them is displayed below which consists of the applicant's name.

### VI. LITERATURE SURVEY

This project was created to provide "safe, reliable, timesaving, efficient, comfortable and affordable" services for people is seen as having accomplished this objective, although the cost for providing this service has been substantial. It is heavily subsidized by the government and is reported in the red, like most of India's state run road transport undertakings. Because of the drawbacks that are present in the existing system, we got this idea that would help people in a better way. As per the previous system people had to do each and every process manually, but this system helps people to make the work a bit faster. Customer can buy the bus ticket over the Internet, 24 hours a day throughout the week, this solves the issue of bus ticket being misplaced or stolen. In addition, the online system lets the customers check the availability of the bus ticket before they buy bus ticket. Furthermore, customers no need to pay cash to buy bus ticket because they can pay the bus ticket by using Credit Card (e.g. Master Card, Visa Card). Hence, there is a need of reformation of the system with more advantages and flexibility. The Bus Scheduling and Booking System eliminate most of the limitations of the existing software.

### VII. SYSTEM ARCHITECTURE

Architecture of GPS supported city bus tracking & Smart Ticketing system includes:

- Architecture of Ticketing System

Following figure1 shows the architecture of Bus ticketing System:



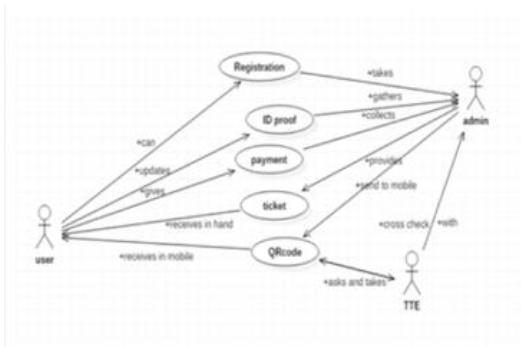
Fig shows the proposed ticketing system which consists of different parts like smart card, GPRS, palm tech machine, servers at the main station. When the person is going to enter in the bus, he/she is going to choose the way to buying ticket like by cash or by smart card. If by smart card, the smart card is going to be swap by the conductor, the data related to customer along with his/her present route will be track down and as per the station associated with the route the ticket amount will be withdrawn from the smart card.

There is data, account storage capacity along with it. We can carry out the financial activity through it. The entire data will be stored on the server database which is located at the main station in the city. The entire database of will be centralized at head office server for the storage.

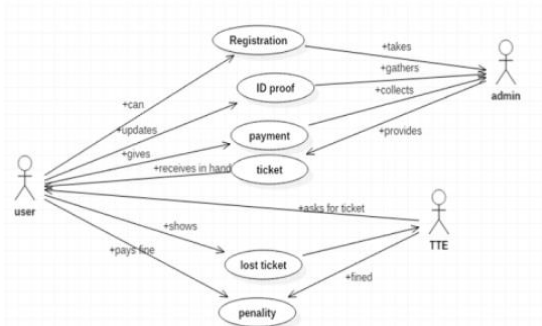
### VIII. DESIGN

#### A. Use case Diagram

A use case diagram at its simplest is a representation of a user's interaction with the system that shows the relationship between the user and the different use cases in which the user is involved. A use case diagram can identify the different types of users of a system and the different use cases and will often be accompanied by other types of diagrams as well.

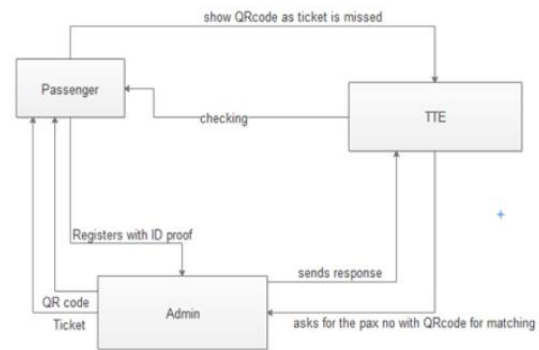


Use case Diagram for the Passenger who has QR code



Use Case Diagram for Passenger without QR code

C. Data Flow Diagram



IX. SUMMARY

- This deal with developing a good quality software with affordable time and reasonable cost.
- We have to take a mature process to determine time and cost required to produce the project.
- Software development life cycle is the key component of any software development process. This comprises a requirement phase, design phase, implementation phase, test phase, installation and check out phase, operation and maintenance phase and sometimes retirement phase.
- Here Spiral Model has been used because it includes the Risk Management along with other phases used with other traditional software.
- Each phase of Spiral model consists of Planning, Risk analysis, Development, Assessment sectors.
- The problem with this model includes lack of explicit process guidance in determining objectives, constraints, relying on risk management expertise.

When we receive a request for a new software project from the customer, first of all, we would like to understand the requirements of the project.

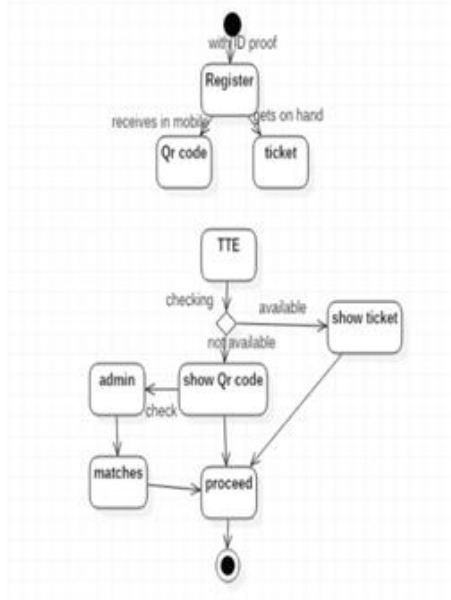
Requirement analysis is very important and essential activity we analyses refine the gathered requirements in order to make consistent and unambiguous requirements.

In spite of understanding the project we would also analyse whether it is feasible in terms of cost, technical and market. If it is not feasible in any term it will not be fruitful to develop such a project.

Initially it should also be analysed whether the requirements for the project(hardware and software) are affordable or feasible.

So before preceding further to the design issues here we will discuss in somewhat detail the requirement analysis and the feasibility study of the project.

Here we have dealt with the requirement analysis and the feasibility study which gives the better understanding of the project.



Requirement analysis determines the needs to be fulfilled and what the prepared document should do after completion. For the better understanding of the requirements we will draw the context diagram then build a prototype, analyse the requirements and lastly finalise them. In feasibility we analyse the feasibility of the project in terms of economic feasibility, technical feasibility and operational feasibility.

#### CONCLUSION

It is a real time project which is useful for the public who are facing problems with the current manual work of bus pass registration and renewal. It makes the passenger easy to travel with the ticket QR code with the mobile. So that even if the passenger loses the ticket at the time of checking he can show the QR code. The TTE can check the QR code with the Admin weather matches or not. It also increases the validity period, frequently warn the people before completion of his validity period by sending Short Message Service or mails. Their renewal or registration can be done using a credit card. In the due course of time if the user expects more than what this system provides, the new requirements can be easily by enhancing the system without making much of changes. The places and the information relating to the place can be updated. We can use E-cash system. According to our work new packages like new places developed and be added by the admin.

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