

Digital Bus Pass Generation and Tracking System

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Abstract: Online bus pass generation system would be useful for all people to get bus pass on-line instead of standing in long queues to obtain their passes. This system is helpful to reduce the paper work, it takes less time and makes the process of issuing bus pass in simple and faster way. It also provides an effective solution for maintaining Bus pass information. User can print PDF for offline use. After that he can choose bus according to their need. Main objective of bus tracking system is to get real time location of the bus and bus arrival time. This system supports bus pass formation as well as renewing the existing bus pass of the user. Online bus pass generation system is a web as well as android application. We proposed bus tracking system that any passenger with a smart phone can track the bus location and manage their schedule. Passenger will enter source and destination, then available buses will be shown in mobile application.

IndexTerms – QR Code, Smartphone, Google map, GPS, online payment.

I. INTRODUCTION

Many people using public transport buses have experienced time loss because of waiting at the bus stops. In this system we proposed smart bus tracking system that any passenger with a smart phone or mobile device can track the bus location. In proposed system, user will create an account for pass. It gives service to passenger to generate pass, renew it and pay for it online. The GPS receiver system has ability of tracking current position of the bus at particular time. With the help of GPS and Google Maps current locations of the bus are displayed on the maps, and it gives the bus route information. From different existing ways, GPS devices are used to track the bus. In many cities, GPS tracking system were helpful in improving the quality of city bus services. It also gives ability to the passenger to generate the bus pass online in a quick and easy way. This system is used for bus pass formation as well as renewing the existing bus pass of the user. To get the digital bus pass, first of all, the user has to visit the web portal or the application. On the web portal users have to do the registration. For the registration the user needs to his personal details such as name, address, contact number as well as email id and the password. The email id and the password provided by the user at the time of registration are used as a unique id and the password to Login to the system. For encrypting the information provided by the user we are using Data Encryption Standard (DES) Algorithm.

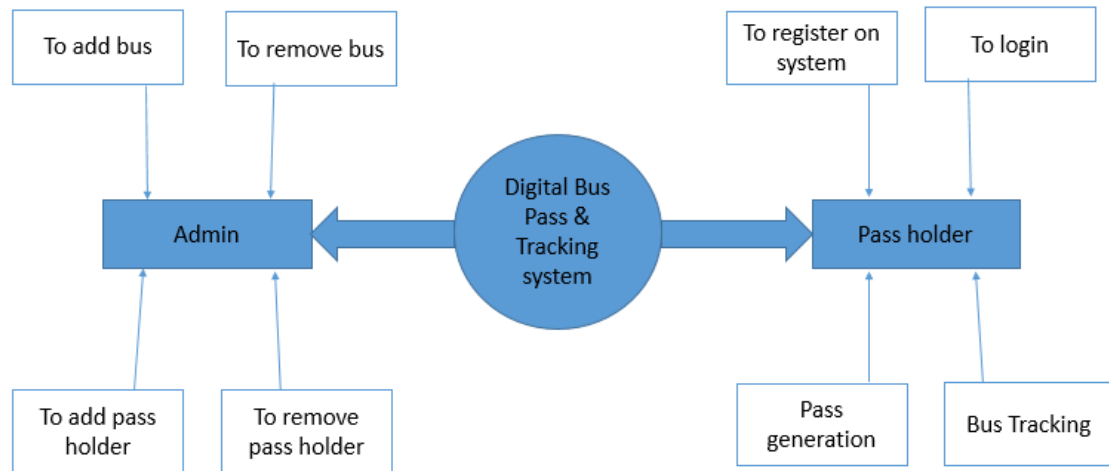
II. RELATED WORK

In Implementation of a Vehicle Tracking System using Smartphone and SMS service system, NusrathJahan, Kamal Hossen and Muhammad Kamrul Hossain Patwary introduced an android application for tracking live location of CUET bus. This application mainly makes use of GPS, Google Map, SMS gateway, web server and database server. With this application, students can get location information of the bus in both situations where internet connectivity is available and where it is not available [1]. Lack of proper public buses information system causes lot of suffering for the common public which uses buses as their only way of commutation. Even though technology has developed in width and breadth, India still lacks in providing such a system which would prove to be a boon to the common public. The Smart, public buses information system can track the location of the buses and also the arrival time and the delay time of the particular bus at the bus terminus. The current implementation and testing is restricted to the Bus Transmit Segment module [2]. Digital Bus Pass Using QR-Code provides an effective solution for managing bus pass information using a database. Our system has three login for user, admin and conductor [3]. The Development of Vehicle Tracking System using GPS and GSM Modem system will provide users with the capability to track vehicle remotely through the mobile network. This paper presents the development of the vehicle tracking system's hardware prototype. Specifically, the system will utilize GPS to obtain a vehicle's coordinate and transmit it using GSM modem to the user's phone through the mobile network. The developed vehicle tracking system demonstrates the feasibility of near real-time tracking of vehicles and improved customizability, global operability and cost when compared to existing solutions [4]. In A Smart Bus Tracking System Based on Location-Aware Services and QR Codes, SuleymanEken, Ahmet Sayar proposed smart bus tracking system that any passenger with a smart phone or mobile device with the QR (Quick Response) code reader can scan QR codes placed at bus stops to view estimated bus arrival times, buses current locations, and bus routes on a map. Anyone can access these maps and have the option to sign up to receive free alerts about expected bus arrival times for the interested buses and related routes via SMS and e-mails. The system prevents passengers unnecessarily to wait at bus stops and enables them to use their time [5].

III. SYSTEM OVERVIEW

Digital bus pass and tracking system provides an effective solution for generating bus pass online using a database. This system overcomes the problem of waiting for the bus to arrive at the bus stop. This overcomes the problems caused due to existing way of standing in the queue for getting bus pass and waiting for the bus to arrive at the bus stop. This system is able to reduce the time

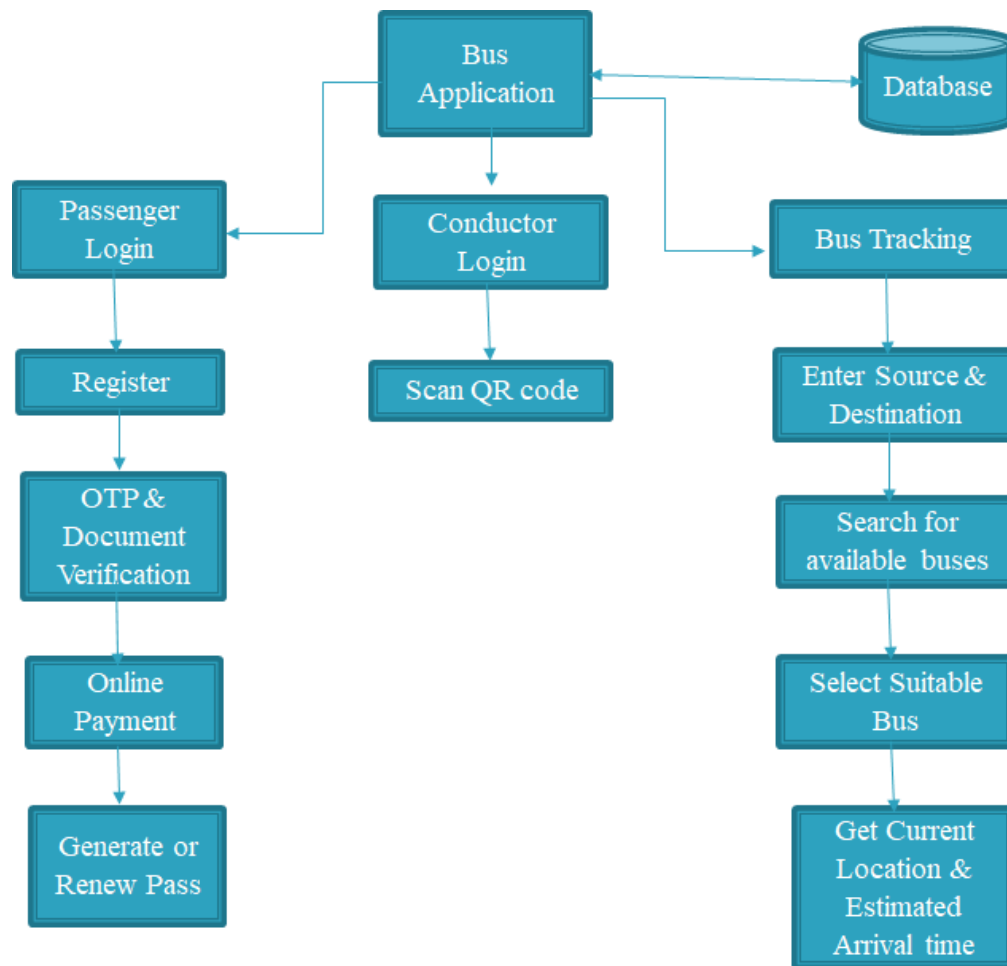
consumption of the passenger. The user can get bus pass in simpler and faster way at any time. This system provides a convenient way for getting the bus pass than the existing method. In this system we will generate digital and smart bus pass. We propose a facility to get the bus pass using an android application. It supports digitalization. Reduce the time consumption and paper work. People face the problem of waiting for the bus. Sometimes users forget the date of expiry of their bus passes. They get into the bus with expired bus pass. This system provides a convenient way for renewing the pass. When bus pass is about to expire, the users can get the notification on their smart phones. People using public transport to travel in their day today life has to face the problem of waiting for the bus at the bus stop for a huge amount of time.



IV. PROPOSED SYSTEM

The system consists of following modules

1. Registration Module
 - a. User Registration
In User Registration module user who wants to get the access to the app or apply for the bus pass will register using their personal details.
 - b. Conductor Registration
In Conductor Registration module conductor who works in a bus has to register to the system using his details.
2. Login
 - a. User Login
The registered user should login with his unique id and password to the app to get the access to the functionality of the app.
 - b. Conductor Login
For conductor to check and start scanning the passes of the passenger he must login with his phone number and the password.
3. Bus Pass Generation
 - a. In this module, user will apply for the bus pass by filling the requested information and the system will generate the pass containing the user information in the form of QR code.
4. Bus Pass Scanning and Validation
 - a. This module is used by the conductor in the Digital Bus Pass system. The conductor will scan the pass with the help of scanner provided in the application. Conductor will scan and verify the details of the user if they are valid.
5. Payment Module
 - a. In Payment module of the system user will have to pay the required amount for the pass. In Payment module user can pay online with the help of Online transaction. The user will have to pay before he gets the pass.
6. Bus Tracking
 - a. In this module the people who travel by the bus can track the location of the bus they wish to travel by. Users can see the current location of the bus at particular time and also can know the estimated arrival time of the bus.



V. DISCUSSION

This system is a real time project that would be useful for the public who are facing problems with the currently existing manual system of the bus pass issue and renewal. The proposed system would enable the people to register for the bus pass online. This system would also enable the users to renew the pass online by updating the details online and pay the required amount using online transaction. Moreover, it would eliminate the paper work that is present in the current system. Further, the verification of the validity of the pass would ensure that the fraudulent activities would not be possible by the users, because the device used for verification would connect to the database wherein the information is stored. This would ensure safety and minimize the time wastage and would make life easier and comfortable for the users acquiring the pass. Also, this system would enable people to apply for their bus passes any time in the day. That is, it would extend the time of the pass issue beyond the office hours of the public bus transport system. This paper has presented a fully automated, reliable, transparent and convenient system for bus pass generation and bus tracking system. Smart and digital bus pass are much more convenient compared to the paper based bus pass system. In this system the information and personal details of every user who registers and apply for the pass are stored on an online database. GPS service along with Google map is used for the tracking the location and predicting estimated arrival time of the bus at the bus stop. All the buses in public transport system along with their number and other information are stored on the online server which can be retrieved through the application as and when requested by the user. Also the conductor who registers on the system his details are also stored on the database. Admin of the system can also add and remove the users, conductors and buses into the system if required. As all the information is stored on online database it can be retrieved at any time according to the need of the users. Implementing this system can be seen as a step towards Digital India. System also holds bright promises towards public transportation fields, ensuring better level of quality in service.

VI. CONCLUSION

In this paper we have discussed a real time system which is useful for the public who are facing the problems like standing in a queue for bus pass. In our system we provided smart bus pass using QR code to easily verify the pass. This system provides efficient solution for maintaining all the information related bus pass using a database. By using this system user can renew the bus pass from anytime to anywhere. This system prevents passengers unnecessarily wait at the bus stop, by providing the bus tracking system.

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