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SMART BUS TICKETING SYSTEM USING AADHAR CARD

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ABSTRACT

Public transport is the cheapest and most reliable transportation system in India, hence it has always been popular with the masses. Buses are an integral means of public transport which plays an vital role in transportation in India. The advancement in transport system has been increasing in day-to- day life as more and more people rely on public transport to go to work, school, hospitals, etc. Even though the public transport buses have been providing fairly satisfactory services, there is a need for smart and reliable system. The major problem in local buses are about issuing bus tickets, which often leads to conflict between the passenger and the conductor. Keeping this in mind we are developing an android application which will provide an efficient and smooth bus ticketing experience for both the user(passenger) and the service provider(conductor). The android application provides an interface for the bus ticketing system combined with the technology of QR Code for quick money transfer. QR Code or the Quick Response Code is the most dominant form of storing and exchanging information between devices. It's a type of matrix Bar Code and has more capacity than UPC Codes. Typically scanned and interpreted by camera enabled smartphone, but also can be interpreted or generated by any camera device implemented with QR decoding logic. The passengers can go cashless using this application, neither the conductor has to worry about returning change for the paid bus fare. By this application, we can minimize the usage of paper tickets which will also help in green India.

I. INTRODUCTION

The Smart bus ticketing system is a newly introduced concept of generation of tickets for the passengers travelling in the govt. buses. this system helps the passenger to generate tickets on its own based on the source and destination required. Bus service is an important mode of transportation now more than ever because of global warming as well as the state of the economy. 70 percentage of India's population rely on buses to get to their destination on time. Due to fast moving world, humans are in need of effortless transport system. In metropolitan cities like Mumbai and Delhi, 10-15 million people travel through public transport buses daily. As a large number of people board buses everyday it is often difficult for passengers to get the ticket and maintain it. So this system, applying the benefits of technology will solve the problem of bus ticketing by digitalizing the process of money transfer for bus fare, ticket generation and storage travel details. It also make it eco-friendly by eradicating the usage of paper rolls for a contribution towards Green IT and environment awareness. This smart bus ticketing system will lift the online ticketing system to a new level by introducing QR code for the purpose of safe transaction of bus ticket fare.

II. PROBLEM STATEMENT

System meant to help passengers to generate ticket using Aadhar card specially women to generate a ₹ 0 ticket as per the Stree Shakti Scheme. The main objective of the project is to help the conductors and the passengers of a bus and help them to generate ticket. This smart bus ticketing system will lift the online ticketing system to a new level by introducing QR code for the purpose of safe transaction of bus ticket fare. . this system helps the passenger to generate tickets on its own based on the source and destination required.

III. LITERATURE REVIEW

The use of smart bus ticketing system is still in use even though there are numerous online models.

[1] This paper for bus transport remains as the most commonly used transportation service in country like Bangladesh. Due to the traditional paper-based ticketing system, there exists an inappropriate fare appointment with which it hassles with the bus conductor have been a major concern nowadays. Moreover, there is no proper monitoring system in existence.

[2] This paper proposes a system that monitoring campus shuttling system in any university is a serious issue when considering the numerous challenges faced by the public transportation system such as bus ticketing, route monitoring, and scheduling.

[3] This paper proposes a method to digitalisation of payments is a major trend in passenger transport, and is very often seen as a condition for improving the efficiency of the services provided.

[4] The aim of this paper proposes an system during pandemic situation, travelling in public transport vehicles become riskier. But due to bad economic condition of the people they can't avoid to work during this situation. So travelling becomes mandatory but precautionary measures have to be followed during travel.

[5] In this paper presents the system in any public transport system, once the passenger reaches the destination, the ticket is no longer useful and in eventually thrown away.

[6] This paper Global forest resource assessment as stated that nearly 80000 to 150000 trees are chopped down globally daily for paper production which leads to deforestation which in turn contributes to climate change.

[7] This paper presents Buses are an integral means of public transport in India in Metropolitan cities like Mumbai and Delhi 10 to 15 million people travel through public transport buses daily today in the area of digital India.

[8] This paper presents Online banking fraud occurs whenever you criminal can Seas accounts and transfer funds from an individuals Online bank account successfully preventing this requires the detection of as many fraud steps as possible without producing too many Falls alarms this is a challenge for machine learning earning to the extremely imbalanced data and complexity.

[9] The paper present study aims to investigate user attitude and behaviour when user interact with a corporate multi model mobility sharing system consisting of battery electric vehicles FedEx and public transport we analysed participants attitude towards battery electric vehicles pedals public transport.

[10] This paper presents this paper is constant with using a digital rather than a manual approach to providing bus tickets the goal of this paper is to digitalised bus tickets and to get rid of the need for paper based tickets passengers will be able to acquire their tickets in a fraction of a second by decreasing the need to wait for paper based tickets it will also make it easier for passengers to pay for their tickets online as we advance towards a smart bus ticket generation system.

IV. EXISTING SYSTEM

There are many booking related applications like Book My Show, Red Bus and many more. When filtered to the applications related to the bus & tickets booking, we have Red Bus, where you are allowed to book the seat based on the a source and destination And we have BMTC applications in Banglore city where the passengers are allowed to renew their passes by scanning a QR code displayed in the bus. the conductor in the

bus has to visit each passenger one by one The conductor then has to enquire each passenger about their destination and develop a ticket manually on a paper roll. The conductor has to issue the ticket to the passenger to collect the bus fare. The Passenger has to carry change for bus fare or the conductor has to return the change, which often leads to conflict If the given ticket is lost by the passenger, when checked again by the conductor, the passenger has to buy the ticket again paying the full bus fare All these points clearly indicate that the existing method of busticket system is not efficient enough in terms of time management, service and security. Also using paper roll for tickets is not ecofriendly nowadays as there is scarcity of trees.

V. PROPOSED SYSTEM

Introducing the newly, Digital Bus ticket generating system(using Adhar card).The system works with registration system using Adhar card and help to generate free ticketfor womens and helps to generate a charge-able ticket for men. The not only rectifies the problem's solution but also helps in reducing the work lpad of a conductor in the bus and alsowe have a positive impacts on the passengers to get their ticket on their own rather than to waitfor their turn and get their to travel. The main idea of this project is to overcome the problems faced by every citizen in bus ticketing system of local buses. The proposed system consists of an android application with QR Code reader and a money wallet. The android application has an user friendly interface for both the passenger and the conductor to use.The application consists of separate registration for both passenger and conductor. The conductors account registration is controlled by the admin itself. The admin will provide the credentials for conductor so that not everyone can register as conductor. Passenger registration is easy, anyone can register as passenger with a username and password. Once logged in, both conductor and passenger has to link their bank account to the application, so that they can transfer add and withdraw money from application wallet. While boarding bus, the passenger has to choose from and to destination. The bus fare from one place to another, with the basis of kilometer is already set by the admin. After scanning, the mentioned bus fare will be debited from passenger's application and get credited to the conductor's application wallet. The passenger's and the conductor's database will get updated with travel details. In this way both, passnger and conductor will have a smooth ticketing experience.

VI. METHODOLOGY

The Smart Bus Ticketing System using Aadhar Card is the attempt to replace the electronic ticketing machine with the new approach where the conductor side is provided with Raspberry Pi display and the passenger is takes the ticket for the journey using passenger App

This is an attempt to give a conductor a new technology based device/hand held device.

1.Conductor Side :

- Sign-Up Model : Entering the necessary details for the conductor to register
- Login Model: Scan the QR code and enter source and destination to get the ticket
- View tickets: The conductor can view the tickets that are taken/booked by passengers
- Validate tickets: The conductor can validate the passengers tickets when the particular view turns from "pending" to "booked"

2.Passenger Side:

- Sign up :The new user must register using their Aadhar card to use the App
- Login: login using QR code, logging in through OTP received by email or message
- Ticket booking Model :Enter source, Destination ,Departure Date and time
- Payment Model: After entering source and destination it will shows the payment options for male and directly generate the 0 ticket for females.

VII. MODELING AND ANALYSIS

Software Requirements:

Required operating_system : Windows 7

Programming -Language : C#, xamarin

Front_End Technology : HTML,CSS, Javascript

Tools :Visual Studio

VIII. DATA FLOW DIAGRAM

The data flow diagram with seven processes and seven datastores. The three entities which are passenger, admin and driver. For registration process, passenger, and admin will be involved and for login process all entities will be involved. As for individual entity, passenger involves in the process register, login and check trip and purchase ticket. For admin, processes involved is registration for bus driver, add trip or destination. Each data store saves details based on the processes involved. For data store D1 Users, the processes the involve are register and login from the entity Passenger. For data store D2 Drivers and D3 Admins save the details from login processes for each entity. For data store D4 Buses, The bus over 12 years used need to be removed also admin can add new buses and update bus information.

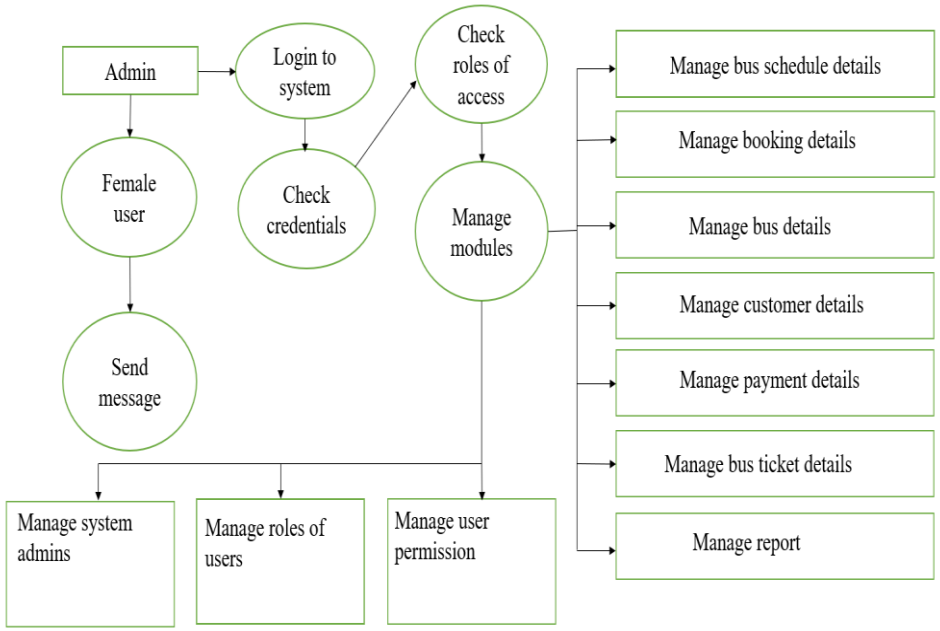

Fig 3.1 Work Flow diagram

IX. USE-CASE DIAGRAM

The application user can only view trip and ticket details, and manage their own user account.

1. **Login:** Users can log in to the system using their username and password.
2. **Manage User:** Users can manage their account information, such as their name, email address, and password.
3. **Manage Bus Root:** Admins can manage the bus routes in the system, such as adding new routes, deleting routes, and updating route information.
4. **View Trip Details:** Users can view the details of a trip, such as the departure and arrival times, the bus route, and the price of the ticket.
5. **View Ticket Details:** Users can view the details of a ticket, such as the passenger name, the departure and arrival times, the bus route, and the price of the ticket.
6. **Generate Report:** Admins can generate reports on the system, such as a report of all the trips that have been taken, or a report of all the tickets that have been sold.

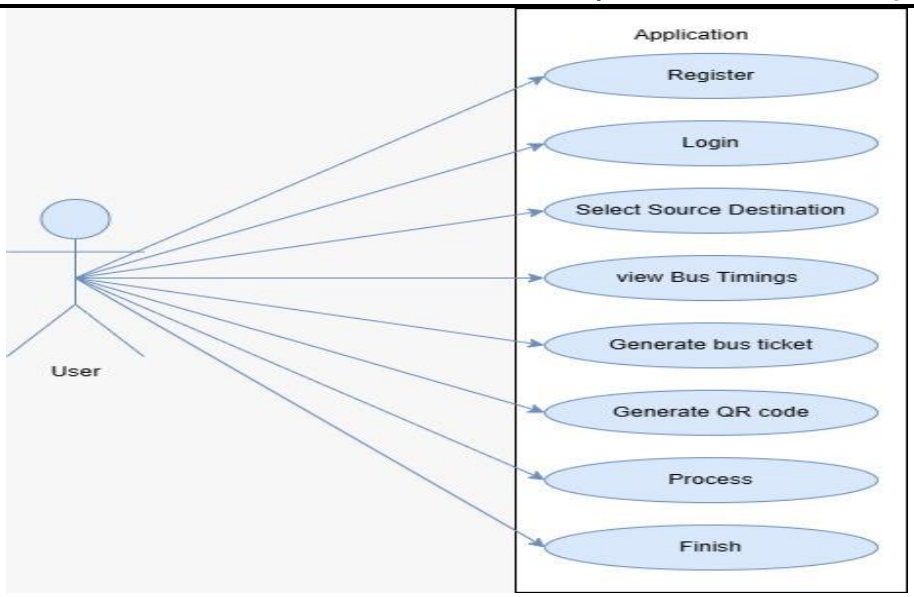

Fig 4.1 Use case diagram of user application

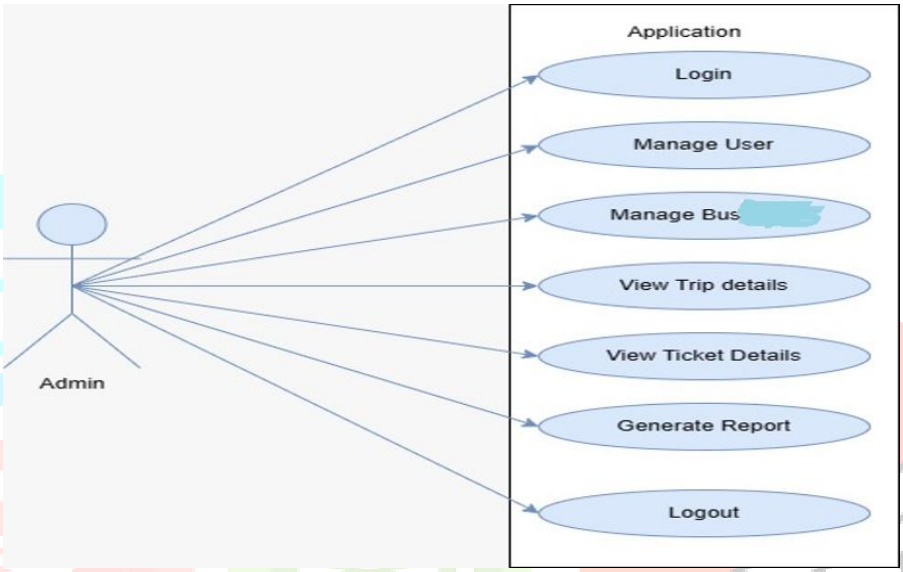

Fig 4.2 Use case diagram of admin application

X. WORK FLOW DIAGRAM

1. **Ticket Booking:** Users can book tickets through a mobile app or website by providing their Aadhaar number and selecting the desired route and date.
2. **Payment Integration:** Integrate payment gateways for online ticket booking. Users can pay using various methods like credit/debit cards, net banking, or digital wallets.
3. **Ticket Generation:** After successful booking and payment, the system generates a digital ticket containing details like the user's name, Aadhaar number, seat number, boarding point, and destination.
4. **Aadhaar Verification at Boarding:** At the time of boarding, passengers verify their identity by presenting their Aadhaar card or through biometric authentication devices installed in buses.
5. **Ticket Validation:** The system validates the digital ticket either through QR code scanning or NFC technology when passengers board the bus.
6. **Real-time Tracking:** Incorporate GPS tracking in buses to provide real-time location updates to passengers through the mobile app. This helps passengers plan their journey and estimate arrival times.
7. **Reporting and Analytics**: Gather data on ticket sales, passenger demographics, popular routes etc., for analysis and future planning.
8. **Customer Support:** Offer customer support through the app, website, or helpline for ticket booking assistance, complaints, or queries.
9. **Data Security and Privacy:** Ensure compliance with data protection regulations and implement robust security measures to safeguard users' Aadhaar information and transaction details.

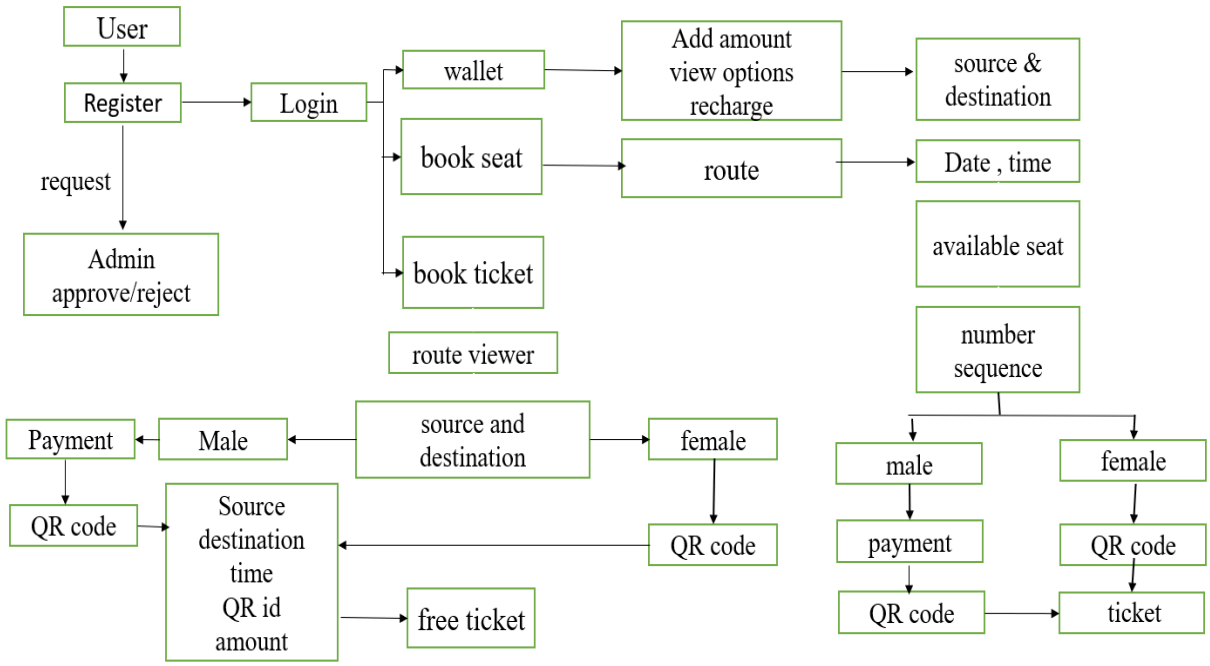

Fig 5.1 Work flow diagram

XI. CONCLUSION

In conclusion, the hybrid ticket system combines the best aspects of physical and digital ticketing, providing a convenient, efficient, scalable, secure, and inclusive solution for ticket management. It addresses the evolving needs of customers, while leveraging technology to enhance the overall ticketing experience.

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