Utilizing an Adhar Card for the Smart Bus Ticketing System

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Abstract

Since public transit is the least expensive and most dependable mode of transportation in India, the public has always found it to be appealing. India's public transportation system relies heavily on buses as one of its main modes of transit. An increasing number of people depend on public transportation to get to work, school, hospitals, and other places, which has led to a progressive progression in the transportation system in daily life. A sophisticated and dependable system is still required, even though the services offered by public transportation buses have been moderately adequate. Issues with bus tickets are the main source of contention on local buses, frequently resulting in confrontations between riders and drivers. With this in mind, we're creating an Android app that will make bus ticketing quick and easy for both users (passengers) and service providers (conductors). Using QR Code technology for fast money transfers, the Android application offers an interface for the bus ticketing system. The most widely used method of storing and transferring data between devices is the Quick Response Code, or QR Code. With greater capacity than UPC codes, it is a kind of matrix bar code. Commonly scanned and decoded by a smartphone with a camera, but it can also be created or decoded by any camera device that uses QR decoding logic. With the use of this application, passengers can travel cashless, and the conductor won't have to worry about finding change for the bus fee that they paid. We can reduce the use of paper tickets by using this program, which will benefit India's environmental efforts.

Keywords: Adhar Card, Bus Ticket, Smart, Booking, Utilization, Public, Transportation

Introduction

A recently established concept for ticket creation for customers traveling in government buses is the Smart Bus Ticketing System. Sir Shree Siddaramaiah, the Chief Minister of Karnataka, introduced a scheme that serves as the foundation for the system. The Streeshakthi Yojana is a program that offers free bus tickets to women. The system assists the traveler in creating a ticket on their own, depending on the necessary source and destination. Because of both the current status of the economy and global warming, bus service is more crucial than ever. Seventy percent of Indians depend on buses to get where they're going on schedule. People require a simple means of transportation because the world is changing so quickly. Public transportation buses carry 10–15 million people every day in big cities like Delhi and Mumbai. Because so many people board buses every day, it can be challenging for passengers to obtain and keep their tickets. By digitizing the bus fare payment process, generating tickets, and storing journey information, this system leverages technology

to solve the issue of bus ticketing. By doing away with paper rolls, it also contributes to green IT and environmental awareness, making it more environmentally friendly. This smart bus ticketing system will include QR codes for safe bus ticket fare transactions, elevating the online ticketing experience to a new level.

Problem Statement

In India, everyone's life involves public transportation in one way or another. Indians travel by bus extensively as public transportation to go where they're going on a daily basis. Due to its widespread use, the Indian bus system has a great deal of issues. Since there hasn't been any precise alteration, it's likely that neither the conductor nor the passenger have changed. The conductor might not give the passenger their full refund in these circumstances. Occasionally, a passenger may misplace their paper ticket, necessitating a new purchase at full rate. The goal of this initiative is to replace the bus's antiquated ticketing system with a more effective, digital one that runs on an Android application, preventing issues and improving traveler experience. The goal of this project is to replace the bus's antiquated ticketing system with a more effective, digital one that runs on an Android application, preventing issues and improving traveler experience. This concept could make it easier for Indians to stop using currency and avoid the hassle of carrying change or taking it out of crowded transport.

The Solution

The goal of this initiative is to make ticketing easy for both passengers and conductors. The transportation system's issues in people's lives are resolved in this study. The technology saves time when purchasing tickets, eliminates the need for cash, and saves passengers' trip information, providing new, simple-to-understand ticketing experience. The projects' paperless transactions also make a minimal environmental impact. It gets beyond the issue of holding onto or returning change because the money is debited straight from the passenger's application wallet to the conductor's application wallet. The project contributes to the notion of creating digital India.

Existing System

Numerous applications linked to bookings exist, such as Red Bus, Book My Show, and numerous others. Red Bus is one of the applications that comes up when you filter for bus and ticket booking; here, you may reserve a seat based on your source and destination. Additionally, passengers in Bangalore City can renew their passes through BMTC applications by scanning a QR code that is presented in the bus. Every passenger on the bus has to be visited individually by the conductor. Next, the conductor needs to ask every passenger where they are going and manually create a ticket on a roll of paper. To collect the bus fee, the conductor must give the passenger their ticket. Conflict frequently results from passengers having to carry change for their bus fare or conductors having to return it. If the conductor finds that the customer misplaced the provided ticket, they will need to purchase a new ticket and pay the entire bus fee. All of these arguments make it abundantly evident that the current bus ticket system is insufficiently effective in terms of scheduling, customer service, and security. Due to the lack of trees in the world, utilizing paper rolls for tickets is also not environmentally friendly these days.

Proposed System

Introducing the recently developed technique for creating digital bus tickets using an Adhar card. With the use of an Adhar card, the method facilitates registration and generates free tickets for women and chargeable tickets for men. In addition to fixing the issue, this also lessens the workload for the bus's conductor and encourages passengers to obtain their tickets independently

rather than waiting for their time to board. This project's major goal is to solve the issues that every resident has with the local bus ticketing system. An Android app with a QR Code reader and a money wallet make up the suggested method. Both passengers and conductors will find the android application's interface easy to use. The application requires the conductor and passenger to register separately. The administrator is in charge of managing conductor account registration. Not everyone is able to register as a conductor, thus the administrator will supply the credentials. Registering as a passenger is simple; all you need is a username and password. To send and receive money from the application wallet, the conductor and the passenger must first log in and link their bank accounts to the app. The passenger must select their destination upon boarding the bus. The administrator has already determined the bus fare, which is based on kilometers traveled. Following scanning, the bus fare will be credited to the conductor's application wallet and deducted from the passenger's application. Travel details will be updated in the conductor's and passenger's databases. Passengers and conductors will both enjoy a seamless ticketing process in this way.

Literature Reivew

In spite of the abundance of online models, the smart bus ticketing system is still in use. [1] In a nation like Bangladesh, bus transit is still the most widely utilized form of public transportation. These days, a major worry is the improper fare appointment that arises from the traditional paper-based ticketing method, which causes hassles with the bus conductor. Furthermore, there isn't a suitable monitoring mechanism in place.[2] In light of the various difficulties the public transportation system has, such bus ticketing, route monitoring, and scheduling, this study suggests a system for monitoring the campus shuttle system in any university.[3] This study suggests a way to digitalize payments, which is a significant trend in passenger transportation and is frequently considered a prerequisite for raising the caliber of services rendered. [4] The purpose of this research is to create a mechanism that makes using public transportation during a pandemic riskier. But because of the poor financial standing of the populace, they are unable to avoid working under this circumstance. Traveling becomes necessary as a result, however safety precautions must be taken when traveling. [5] This essay explains how, in any public transportation system, a ticket becomes invalid and is eventually thrown away after a person arrives at their destination.[6] According to the Global Forest Resource Assessment document, between 80000 and 150000 trees are cut down every day worldwide to produce paper, which causes deforestation, which in turn fuels climate change. [7] This essay discusses how buses are a necessary form of public transportation in India's major cities, including Delhi and Mumbai. Between 10 and 15 million people utilize public transportation buses every day in the region of digital India.[8] According to this study, online banking fraud happens when someone uses a fraudulent account to transfer money from a person's online bank account. The identification of as many fraud steps as possible without raising too many Falls alarms is necessary to successfully avoid this. The highly unbalanced and complex data is a difficulty for machine learning. [9] The purpose of the current study is to examine user behavior and attitude when interacting with a corporate multimodel mobility sharing system that includes public transportation and battery-electric vehicles. Specifically, we looked at participant attitudes toward public transportation and battery-electric vehicle pedals.[10] This paper consistently provides bus tickets by a computerized method as opposed to a manual one. The purpose of this paper is to digitalize bus tickets and eliminate the need for paper tickets. By doing so, travelers will not have to wait as long to obtain their tickets, enabling them to do so in a matter of seconds. As we move closer to a smart bus ticket production system, it will also facilitate online ticket payments for passengers.

Methodology

The Smart Bus Ticketing System with Aadhar Card is an attempt to replace the electronic ticketing machine with a new method in which the passenger uses a passenger app to purchase a ticket for the trip and the conductor side is equipped with a Raspberry Pi display. This is an attempt to provide a conductor with a new handheld device or technology.

Conductor Side

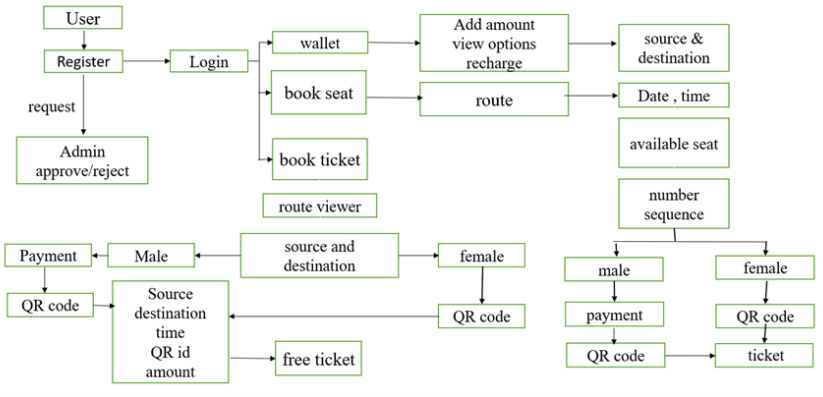
- Sign-Up Model: The conductor registers by entering the required information.
- Login Model: Scan the QR code, then enter the destination and source to obtain the ticket.
- View tickets: The conductor has access to the tickets that passengers have taken out or reserved.
- Check tickets: When a specific view changes from "pending" to "booked," the conductor can check the passengers' tickets.

The Passenger's Perspective

- Sign up: In order to use the app, a new user must register using their Aadhar card.
- Login: Use a QR code or an OTP that you received via email or SMS.
- Model of ticket booking: Enter source, destination, date and time of departure
- Payment Model: Upon entering the source and destination, the payment alternatives for men are displayed, and the 0 ticket is generated automatically for women.

Work Flow Diagram

1. Ticket Booking: By entering their Aadhaar number and choosing their preferred route and date, users can book tickets via a website or mobile app.
2. Payment Integration: When purchasing tickets online, integrate payment gateways. Several payment options are available to users, including digital wallets, credit/debit cards, and online banking.
3. Ticket Generation: Following a successful reservation and payment, the system creates a digital ticket with the user's name, Aadhaar number, seat number, destination, and boarding point included.
4. Aadhar Verification at Boarding: Passengers use biometric authentication equipment installed in buses or their Aadhar card to authenticate their identification at the time of boarding.
5. Ticket Validation: When passengers enter the bus, the system uses NFC technology or QR code scanning to validate the digital ticket.
6. Real-time Tracking: Install GPS tracking in buses so that passengers can receive real-time location information via a mobile app. Passengers can use this to estimate arrival times and plan their route.
7. Reporting and Analytics: Compile information for analysis and future planning on things like popular routes, passenger demographics, and ticket sales.
8. Customer Support: Provide customer support for complaints, questions, and help to purchase tickets via the app, website, or helpline.
9. Data Security and Privacy: To protect users' Aadhaar information and transaction details, make sure that data protection laws are followed and that strong security measures are put in place.



Conclusion

To sum up, the hybrid ticket system offers convenient, effective, scalable, safe, and all-inclusive solution for ticket administration by fusing the finest features of digital and physical ticketing. It uses technology to improve the whole ticketing experience while catering to the changing needs of the consumer.

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