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Android Smart Ticketing system using QR-code

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ABSTRACT

In today's world digitalization in every domain needs reworked and reframed. Advancement in existing systems has improved the efficiency by adding another feature to online transaction. In this work we present bus ticketing system making it easier for the commuter to travel in the bus and the ticket checker to keep exact records of the passengers. This System is a web and android based system where through an app passenger detail information and the bus with connected QRcode scanner. It is possible to set the fares and bus stops and to keep and monitor the current updates of a particular bus and passengers on it. This System has the potential of letting the admin know where the bus is exactly and how many passengers are travelling on the bus with their details. From the Passenger's point of view this system make it easier for them to travel as they need not use cash for tickets and the fare for their travel is automatically deducted from their account or wallet.

Keywords: Android, MySQL, Ticketing System, Ticket checker, , QR-code scanner

I. INTRODUCTION

An extensive use of mobile technologies has resulted in increasing interest in various sectors. Today tons of transactions are being done online by using various options for example online banking, credit card or debit card etc. In transportations and travel sector is not last in Smart phone race, today the people use Smart phone for booking the tickets online. India's population is increasing day by day, and lot of people are using buses for travelling to their desired destinations. Due to increase in the number of travelling passengers by local bus, it is time consuming and frustrating process to buy tickets in a standing queue. To encounter this, the bus corporation had introduced the concept of passes but loss or theft of passes proved to be uneconomical.

Our project deals with implementation of a smart-phone application to buy a local bus ticket which is simple and easy to use. The customer application consists of Registration and buying ticket through QR-code. Payment can be done through user's account i.e. if user is agree to buy ticket then the travel fare amount of the ticket will be deducted from the users account. After payment, ticket is generated on server side, saved in the database and also sent back to the user mobile and saved in the application's memory which serves as a ticket for the user.

The ticket checker application is used to validate the ticket by entering the serial number obtained by the user and searching in the bus database to check whether the user's ticket is valid or invalid.

Features of System

- ✓ The Commuter can go cashless and the amount is automatically deducted without any inputs given to the app.
- ✓ The Consumer can view all his previous travels.
- ✓ The Admin has all the details regarding the bus and the passenger travelling in that bus.
- ✓ Easy to track and monitor everything.
- ✓ If the passengers account has no fund the system gives an alert.

II. LITERATURE REVIEW

In review made with references, inorder to introduce the featured system as above mentioned to resolve difficulty faced in earlier system studied as under. The existing system is based on paper tickets. The value of paper-based paper tickets versus E-Ticket or Electronic Tickets has often been debated. Many studies have been conducted on both methods with the pros and cons of each explored. Simply put, the benefits of using E - Ticket or Electronic Tickets far outweigh the benefits of using traditional paper evaluations. A major disadvantage of paper ticket is the high cost associated with the process. The number of personnel involved as well as the printing, distributing, scanning, rekeying, filing and archiving is very costly. When institutions move to an E-Ticket or Electronic Tickets these significant costs can often be reduced by at least 50 percent.

Drawbacks from existing system were:

- ✓ Paper based system is highly costly and not nature friendly.
- ✓ Maintain ticket details for commuter is not possible
- ✓ Risk of loss or damage of paper which cost more to commuter
- ✓ Hardware based system need time to time maintains
- ✓ Hardware based system are difficult to carry and need addition care in buses.

III. PROPOSED SYSTEM

Need for system that provides an On Go online ticket generation without using any paper or hardware for generating and scanning the ticket. Today is the day of Smartphone where everyone have hand held devices which are enough to process the ticketing generating and scanning functionality. All users across the world are used to it. That's way we develop Android based Ticket Generation system Using QR Code. With the rapid advances in mobile communication technologies, QR code in the embedded camera devices has been used as new input interfaces. However, the previous Works for extracting QR code from an image do not consider a non-uniform background. In this paper, we implement the applications of QR code and propose an efficient algorithm to extract QR code from the non-uniform background. In contrast with prior works, our approach is of higher accuracy for QR-code recognition and more practical for use in a mobile information environment.

In the proposed system consist of following modules:

Admin:

- Add Commuter: The Admin will take few details of the User and provide him the QR code and an email will besent to the passengers email id for the password.

- Add Buses: The Admin is responsible to add busses.
- View Buses/Routes: The Admin is allowed to view buses and routes.

Ticket Checker / QR code App:

- Scans: The Scanner scans the QR code which contains destination details, commuter's id and tells the app about the passenger detail also checks whether the passenger's account has sufficient amount and deducts the amount from the passengers account for the travel. Once the QR code is scan its mark as used in server. Each QR code has an id using that it wl mark as used.

Commuter's App:

- Login: The user has to login using his id and password and he is remembered the system until he logs out.
- Add Money: The user is allowed to add money into his account using his Debit or Credit Card.
- History: The user is allowed to see his previous travelling histories.
- Generate QR code: The user can generate QR code for their route which scan by the driver app.

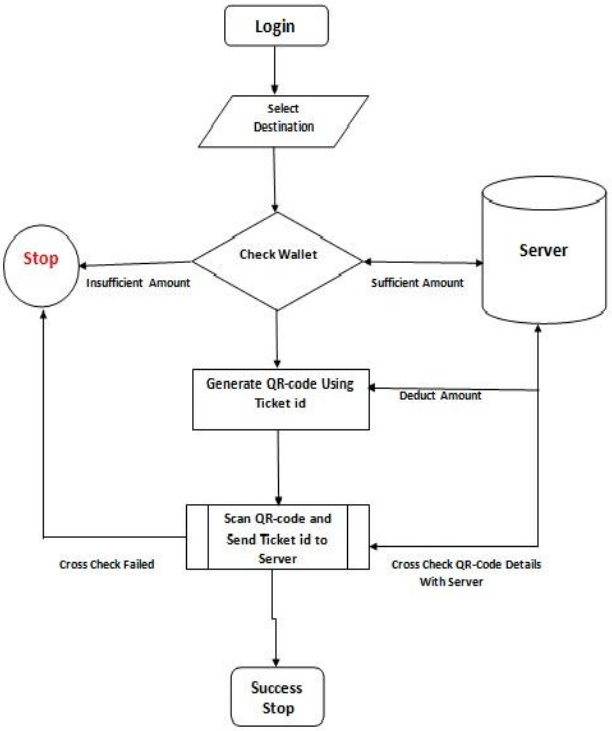

Figure 1. Flowchart for proposed system

IV. IMPLEMENTATION AND RESULTS

In the admin module we developed Web site using bootstrap and JSP. The website have different options to add bus, driver, conductor etc. We designs all the UI with css3 of bootstrap framework. Bootstrap is Responsive JavaScript frameworks which provide a support files to create a website. The beauty of bootstrap is that we can create a responsive UI interface which almost displays proper on any screen size. For the backend part we use Java J2EE and Servlet to implement service and application logic .We use JDBC to connect with database. MySQL is utilize for database and we create a schema in that with various tables to save project data like bus details, user details, conductor details, ticket details etc. for each details there is a table in MySQL. The results using the screen shots of Commuter App, Scanner App and Admin Panel are provided below.

Admin Menus:

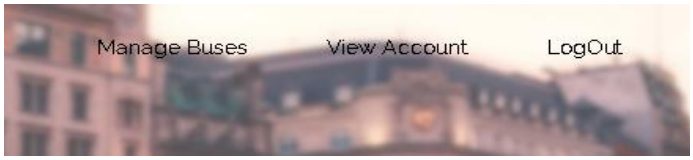

Figure 1 Admin Menus

Admin have various options to manage the application like

- Adding, updating Buses
- Adding Driver and Ticket Checker
- Commuter Details
- Account Details

Add Bus:

To add a new bus Admin needs to provide following sets of details

- Bus No, Latitude, Longitude, Amount, Source, Destination, Distance, Time.

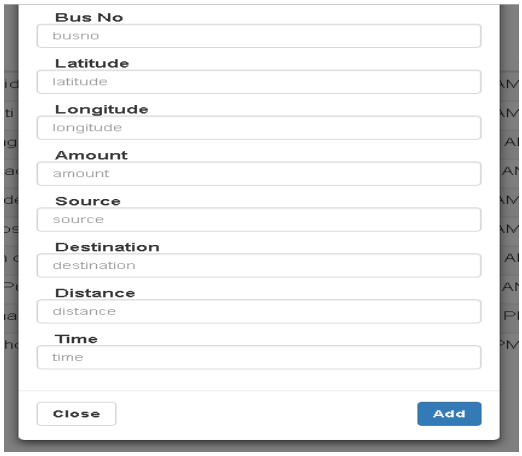

Figure 2. Add Bus

Driver& Conductor:

Admin can add driver and conductor details to any bus.

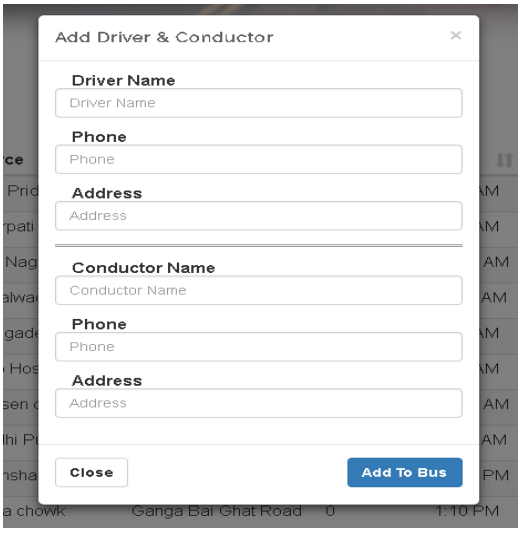

Figure 3. Add Driver& Conductor

View fare amount

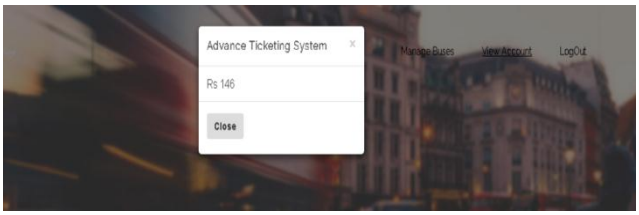

Figure 4. Fare Amount details

List of Buses with Source and Destination

Figure 5. Buses with Source, Destination and routes

Commuter App:

It needs setting to configure the server IP and Port number to fetch the details

Figure 6. Home Screen

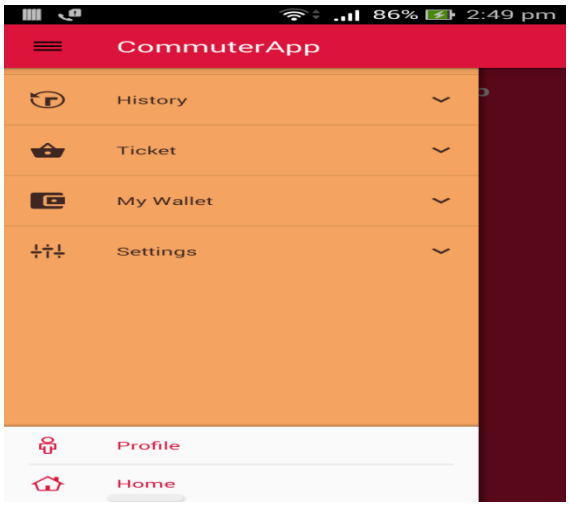

Figure 7. Dashboard Screen

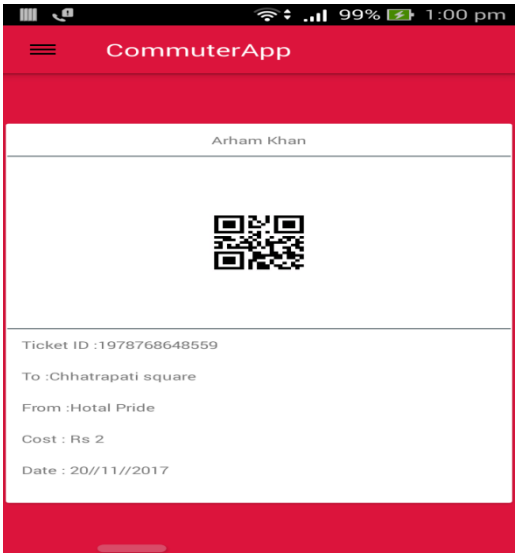

Figure 8. Ticket Output

Ticket Scanner App:

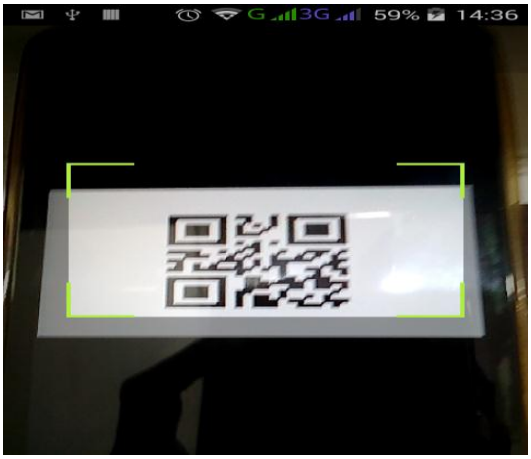

Figure 9. Scanner Screen

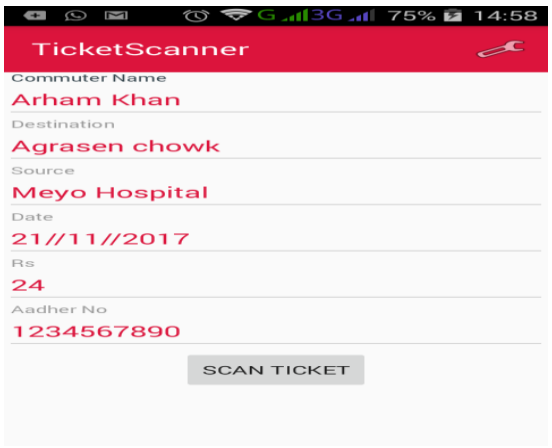

Figure 10. Scanner Result

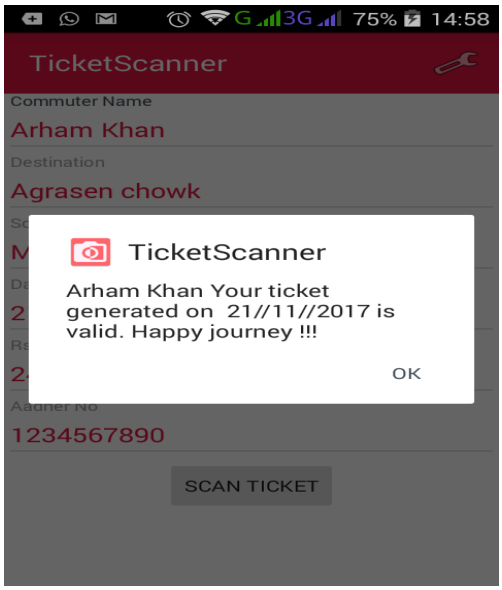

Figure 11. Valid Ticket Alert

V. CONCLUSION AND FUTURE SCOPE

The application developed will be feasible for novice users as well as professional users. The application will be used for the booking a ticket without standing in queues for travelling through local buses and it's easy for ticket checker to check whether ticket is valid or invalid. This android application reduces the manual work of both ticket bookers and ticket checkers. It is basically the transition from a manual to digital system for ticket booking of as well as ticket checking of Local buses. Application needs to implement such that different user can register using social sites account. It shall be able to delay of buses and their routes delay for booking from web application.

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