

# A Review on Smart Bus Ticketing System using QR-Code

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**Abstract**— The biggest challenge in the current ticketing system is QUEUE. In this growing world we have to stand in the queue for purchasing tickets. Tickets can vary i.e., movie tickets, bus tickets, railway tickets, etc. The technology is growing quickly, therefore this should be modified. Smart Bus Ticketing Destination Announcement System Using QR-Code is mainly use to buy bus tickets which is most challenging when compared to book the long journey tickets with the existing system. With our system ticket can be booked with just a smart phone application and ticket information is stored in the form of QR code. In future travelling in bus is very easy with our application so that user can travel without more hard work. With the help of application user can search and plan there work flow easily? We are proposing this system for better performance to passengers. Existing system having manual work for ticketing system. That was very time consuming. Because of this system is useful. It is basically developed for passenger convenient. This application reduced passengers waiting time. And successfully reach their destination.

**Key words:** Ticketing System, QR-Code

## I. INTRODUCTION

Public transport bus services are generally based on a regular operation of transit buses along a route calling at agreed bus stops according to a published public transport timetable. So peoples wait for the bus on bus-stop as they are unaware about timings of buses which lead to time wastage. Another is conductor required to conduct fare collection & passenger may face cash problems. Like these, there are many problems faced by the current system. To overcome these all we come up with a new system using android application which will reduce waiting time for passengers as well as many other problems. Due to growing world & importance of the time in day to day life there is need of effortless transport. So we are providing an Android application which will provide the information of vehicle location tracing and monitoring. It also includes the feature of density measure for the user convenience and nearest bus available on the route and will make the user up to date as bus moves.

As we know the lots of work is done previously on this system to provide the user what they need & is to solve the various challenges. We develop android based project. Now a day's android is popular Concept. In this application we use QR-Code add money travelling details balance book ticket after that conductor scan QR Code. Admin having authority to add conductor, update conductor, Delete Conductor, Maintain Conductor Details, Maintain User Details. We develop this application because now a day's passenger facing lot of problems regarding to tickets. We develop our web as well as android based app here travelling details, passengers QR-Code stored. QR-Code is generate on passenger information it will contain passenger information like route information, destination information etc. Loan facility is also provided in this application.

## II. RESEARCH BACKGROUND

QR code (abbreviated from Quick Response Code) is the trademark for a type of matrix barcode(or two-dimensional barcode) first designed for the automotive industry in Japan. A barcode is a machine-readable optical label that contains information about the item to which it is attached. A QR code uses four standardized encoding modes (numeric, alphanumeric, byte/binary, and kanji) to efficiently store data; extensions may also be used.

The QR code system became popular outside the automotive industry due to its fast readability and greater storage capacity compared to standard UPC barcodes. Applications include product tracking, item identification, time tracking, document management, and general marketing.

A QR code consists of black squares arranged in a square grid on a white background, which can be read by an imaging device such as a camera, and processed using Reed–Solomon error correction until the image can be appropriately interpreted. The required data is then extracted from patterns that are present in both horizontal and vertical components of the image.

The Purpose of proposed system is to provide use of new technology in travel sector. There are many issues to passengers regarding time of buses; many times they do not get proper guidance to travel. So due to this, passengers are misguided. Proposed system helps user in detection of buses and book tickets with the use of Android application, which is very useful, simple and efficient technology can be used by any user facing problem related to bus booking.

Developing a smart bus ticketing system using Q-R Code will reduce waiting time passenger. To develop an android application that is cost efficient. To make an efficient use of QR-code technique. Provide solution without extra hardware requirement. To make system easy to handle. MySQL, the most popular Open Source SQL database management system, is developed, distributed, and supported by Oracle Corporation. The MySQL Web site (<http://www.mysql.com/>) provides the latest information about MySQL software. MySQL is a database management system.

A database is a structured collection of data. It may be anything from a simple shopping list to a picture gallery or the vast amounts of information in a corporate network. To add, access, and process data stored in a computer database, you need a database management system such as MySQL Server. Since computers are very good at handling large amounts of data, database management systems play a central role in computing, as standalone utilities, or as parts of other applications.

MySQL databases are relational. A relational database stores data in separate tables rather than putting all the data in one big storeroom. The database structures are organized into physical files optimized for speed. The logical

model, with objects such as databases, tables, views, rows, and columns, offers a flexible programming environment. You set up rules governing the relationships between different data fields, such as one-to-one, one-to-many, unique, required or optional, and pointers between different tables. The database enforces these rules, so that with a well-designed database, your application never sees inconsistent, duplicate, orphan, out-of-date, or missing data. The SQL part of MySQL stands for Structured Query Language.

SQL is the most common standardized language used to access databases. Depending on your programming environment, you might enter SQL directly (for example, to generate reports), embed SQL statements into code written in another language, or use a language-specific API that hides the SQL syntax. SQL is defined by the ANSI/ISO SQL Standard. The SQL standard has been evolving since 1986 and several versions exist. In this manual, SQL-92 refers to the standard released in 1992, SQL:1999 refers to the standard released in 1999, and SQL:2003 refers to the current version of the standard. We use the phrase the SQL standard to mean the current version of the SQL Standard at any time.

### III. LITERATURE SURVEY

Public Transport system (PTS) remains the major source of income in most of the developing countries like India. However, PTS now faces severe malfunctions and various security problems. First, there is a lot of confusion between the passengers regarding fares which lead to quarrels and chaos. The bus ticketing system is expected to be fully automated, reliable, transparent and convenient.

GPS is more popular technology which is used in many applications. This existing system gives information about vehicle position and route travelled by vehicle and this information can be monitor from any remote place or location. This system depends on GPS and GSM technology. This system lags in some features like its track vehicle only on PC not on mobile. And also there is no application depending on mobile device to track and get a real time and current view of target or vehicle [1].

Kidwell presented an algorithm for predicting bus arrival times based on real-time vehicle location. The algorithm worked by dividing each route into zones and recording the time that each bus passed through each zone. Predictions were based on the most recent observation of a bus passing through each zone. However, this algorithm was not suitable for large cities where both travel time and dwell time could be subject to large variations [2].

The above stated existing system is based on the ticketing identifications in the public transports for bus passengers. There are many passengers having more confusion about fares and which leads to corruption. System will provide automatically fare collection of passengers according to travelled distance. This system uses RFID and GPS for transactions and it make travelling is very precise. This system has some shortcomings as like system provide only automated ticketing facilities not provision for tracking the bus. And also there is no provision for crowd (density) measurement. This system has not any kind of user application for passengers to track the bus and view the schedule of buses [3].

The methodology and the results from its application to bus service data from Porto. The data relate to an AFC system integrated with an automatic vehicle location system that records a transaction for each passenger boarding a bus, containing attributes regarding the route, the vehicle, and the travel card used, along with the time and the location where the journey began [4].

Tracking systems are rarely available in the market and available systems are not good and effective systems are costly. The above stated system is much economical than other system are currently available now in the market. This suggested system helps to getting information and location of college bus by using mobile or smart phone. But we got some lagging points in this system; there is only provision for tracking this tracking is based only on SMS. There is no real time view of location for bus and also there is no any application based on mobile for Tracking [5].

F. Araujo et al discussed the challenge of creating an electronic ticketing system for transportation systems that can partially or completely run on the cloud. This challenge is defined within the scope of an industrial project. The resulting system should be able to reach a large spectrum of customers and should provide two key advantages: lower operational costs, especially for small clients without IT departments, and faster execution of queries for monthly or other sorts of analysis, using the elasticity of cloud-based resources. To fulfill the goals of the project, a system was proposed with very standard technologies and procedures: a three-tiered architecture; a separation of the online and analysis databases; and an Enterprise Service Bus to get the input from very diverse hardware and software stacks. In this paper several options regarding the location of these facilities on the cloud was discussed and evaluate the costs involved was evaluated [6].

K. Seibenhandl et al described Self-service ticket vending machines (TVMs) have become an increasingly important distribution channel in the public transport sector, progressively replacing the traditional ticket counter. In a public transport setting, where ticket counter closures have left different groups of people dependent on TVM to meet their mobility needs, a single, effective system is required. A prototype for a novel generation of TVM was developed in three phases: First, the context of use was analyzed. In the second phase, a requirements analysis was conducted. Third, different hardware and software interaction designs were iteratively tested and evaluated. The resulting prototype met the - Requirements of most user groups, though further adjustments are necessary. Conclusions: The UCD approach proved to be a valuable framework for the development and design of self-service systems [7].

A. Nunes et al described a methodology for estimating the destination of passenger journeys from automated fare collection (AFC) system data. It proposes new spatial validation features to increase the accuracy of destination inference results and to verify key assumptions present in previous origin-destination estimation literature. The methodology applies to entry only system configurations combined with distance-based fare structures, and it aims to enhance raw AFC system data with the destination of individual journeys. [8]

Lin and Zeng proposed a set of bus arrival time prediction algorithms for a transit traveler information system implemented in Blacksburg, Virginia. Four algorithms were introduced with different assumptions on input data and were shown to outperform several algorithms from the literature. Their algorithms, however, did not consider the effect of traffic congestion and dwell time at bus stations [9]

The above mentioned paper includes the integrated use of the smart cards with GPS system. In today's world smart cards became mostly used things which contains the user's data and GPS used in many areas like tracking and monitoring or surveillance which is used in this system for finding the actual distance travelled by that passenger. The given system does not provide the facility like ticketing and also it has shortcoming like passengers can't buy tickets, which don't have smart card. The system does not gives the dynamically changing the bus routes [10].

#### IV. CONCLUSION

The paper summarizes the current issues in bus ticketing system. To overcome from this we are working towards android platform. We have identified the current gaps and open research areas. Our research will focus on these open problems and propose effective solutions for the same. This paper introduces on how to secure passenger information. To overcome the drawbacks of manual ticketing system we are using QR-Code for security purpose of passengers information in the propose system.

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