A Review on Smart Bus Ticketing System using QR-Code

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Abstract- 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 people wait for the bus on bus-stop as they are unaware about timings of buses which leads to time wastage. Another is conductor required to conduct fare collection and 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. In proposed system, there will be two android application, one for passengers and another for bus conductor and one web portal for admin. GPS module will be placed on a bus. So, User able to know the current location of a bus with time and many more other options. The user also able to book a ticket by application by selecting source and destination then QR code will be generated. In Conductor's app, the conductor will scan QR code generated on passenger's app and amount will be deducted from user's wallet and ticket will be sent to a passenger .By this passenger can get bus live location. By this conductor able to know the count. If bus failed, conductor will send message to server by pressing failed button.

Key words: *Ticketing System, QR-Code, arduino, GPS ,GSM*

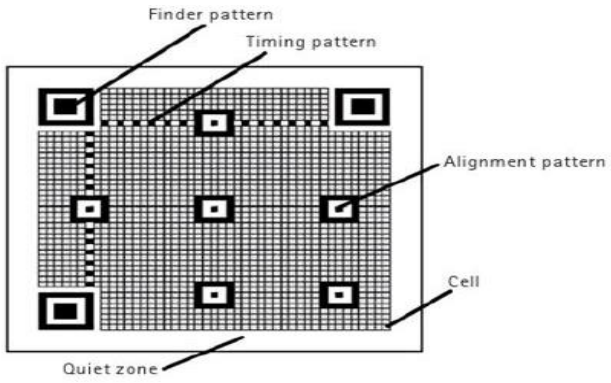
I.INTRODUCTION

Public transport bus system are operated on their decided timetable and bus stops are also decided by the transport system. Passengers are unaware about bus stops and its time that's why passengers wait for the bus on bus-stop which become reason for time wastage. If passenger is new in that city and not well known about bus stops then there may be chances for reach at wrong place. Although he reach at correct destination he will not get nearby places. Another is conductor required to conduct fare collection and passengers may face cash problems. If meanwhile in bus route bus gets fail then passengers remain unaware about it and conductor may face problems for getting help. 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 busy lifestyle 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 bus live location.

As we know the lots of work is done previously on this system to provide the user what they need and 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 one type of barcode(or two-dimensional barcode) first designed for the automotive industry in Japan. The technology for QR codes was developed by Densa-Wave, a Toyota subsidiary. A barcode is a machine-readable label it 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.



Another technology which we are using is GPS(Global Positioning System)for tracking live bus location with GSM and Arduino. GPS is satellite based navigation system using at least 24 satellites.

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 QR 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.

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].

he 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]

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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