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Android Application for Ticket Reservation with GPS as Ticket Validation

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Abstract—

Since the earth came into existence ,every life on the earth is facing some challenges.Every human needs to stand in the queue for purchasing articles, feeling water near the tank and also to buy tickets. Tickets can vary that is, movie tickets, bus tickets ,railway tickets, etc. The technology is growing so rapidly, so this must be changed. The new technology must be enhanced and must be adopted. This paper discusses the issues in purchasing the tickets while travelling through railway. It explains how to purchase tickets through smartphone when the passenger doesn't want to stand in the line for buying tickets. It uses Global Positioning System to detect passenger travelling from any source to any destination. It can help the governmental organisation to identify thefts ,robbers travelling through trains or metros. As soon as passenger gets down from the train or metro his or her ticket will be automatically deleted from his smartphone. So he or she cannot use this ticket again for travelling. This paper suggest a user friendly automated ticketing system which will automatically deduct the passenger's fare according to the distance travelled as well as detect the passenger's identification. This paper basically deals with the identification and ticketing of the passengers sitting in the train.

Keywords— Android, SQLite, Encryption, Cloud, GPS.

I. INTRODUCTION

Effective public transportation systems are seen as a fundamental requirement for modern society, not only to satisfy basic mobility requirements, but increasingly to ensure that time, resources and assets are used in an efficient manner thereby minimizing adverse impact on the environment as in [3] . Public transport offers a service and generally users need to present a ticket to prove that they are entitled to travel. Few years before, E-ticketing came into existence and passengers use to register through it or buy tickets as in [1]. After which months before a new technology called M-ticketing (Mobile Ticketing) was introduced where customers messaged to the web portal through mobile phones after which a complete web page download to the mobile phone where users can do the same booking process as it was in the e-ticketing facility as in [1] .

Our application can be installed only on smartphones. When you will buy tickets, the ticket will be in the form of Quick Response Code. The GPS facility which is available in the Smartphones is used for checking the tickets and the Quick Response code will be deleted from smartphone automatically once the passenger reaches the destination as in [2]. All the information of passenger will be stored on cloud database for privacy purposes. Ticket checker will be provided with QR code scanner, with which he can get the complete details of the passenger. This application will be very useful for "Metros" which are now going to be established in the cities like pune..

II. ANDROID

Android is an operating system and a software platform upon which applications are developed. Android, which is a potential game-changer for the mobile development organisation. Android is well placed to address the growing needs of the market place as in [7]. Android is the first in a new generation technology of mobile development platforms, giving its platform developed opens a distinct edge to the competitors. The latest version of Android is codenamed Gingerbread. Android is an open source platform. For both developers and handset manufacturers, there is no need to pay royalties or license fees to develop for the platform as in [7]. Android applications are written in a well-respected programming language: Java. On the Android platform, there is no distinction between native and third-party applications, providing the best services comparing other application developers. Each and every Android applications use the existing libraries. Platforms such as Symbian have suffered from setbacks due to MAL-GM. Android's application security model helps protect the user and the system from malicious software .As of October 2012,there are more than 90,000 applications available in the Android Market, which is growing rapidly .There are more than 5,60,000 numerous android developers preferred writing an exciting applications as in [7].

Android Platform Differences:

- **Complete:** The designers took a comprehensive approach when they developed the Android Platform.
- **Open:** The Android platform provides open source licensing.
- **Free:** Android applications are free to develop. No required signing or certification fees.

The customer application and GPS ticket validation is shown in Fig-1 and Fig-2 respectively.

III. QR CODE

A QR code is any code that you find on most of any items you buy from the store. QR codes have come a long way and now that they are integrated into the online world it's a true phenomenon. It makes searching for online products, shopping and buying much easier. Now, we are going to use it for buying tickets. Creates an image in real world and acts like a web link for the smart phones as in [5]. It actually grabs the code scans the item and goes online searches for the item which then give you so many details about the product. The user gets specific details as per user choice and reviews about the product you have just scanned from the scanner. When you scan a QR code a magazine, a newspaper or wherever the iPhone or Android will to you go to a website where you will find much of promos, coupons, maps and many more information. In fig-4 ,the structure example of QR code is shown.

QR codes now are used in a much broader context, including both business tracking applications and convenience-oriented applications aimed at mobile phone users, to open a Uniform Resource Identifier (URI), or to compose an e-mail or text message as in [5]. Users can generate and print their own QR codes for others to scan and use by visiting one of several paid and free QR code generating websites or applications. It has then become one of the most-used types of two-dimensional barcode.

A. *Encryption*

Encrypted QR codes, which are not very common, have a few implementations. An Android application, for example, manages encryption and decryption of QR codes using the DES Algorithm(56 bits).

B. *Encoding*

The format information records two things: the error correction level and the mask pattern used for the symbol. The mask patterns are displayed as a grid that is repeated as necessary to cover the whole symbols. Modules corresponding to the dark portion of the mask are inverted as in [5]. The format information is protected from errors with a BCH code with each QR .

C. Risks

Malicious QR codes combined with a permissive reader can put a computer's contents and user's privacy at risk. This practice is known as "attagging". They are easily created and can be affixed over legitimate QR codes. On a smartphone, the reader's permissions may allow use of the camera, full Internet access, read/write contact data, GPS, read browser history, read/write local storage, and global system changes as in [5].

IV. SQLITE

SQLite is a relational database management system contained in a C programming library. In contrast to other database systems, SQLite is not a unique process that is accessed from the user application, but an integral part of it. SQLite is a popular choice as embedded database for local/client storage in application software such as web browsers as in [3]. It is arguably the most widely deployed database engine, as it is used today by now all standard browsers, operating systems, and embedded systems.

SQLite uses an unusual type system for an SQL-compatible DBMS; instead of assigning a type to a column as in most SQL database systems, data types are assigned to unique values; in language terms it is not statically typed. Moreover, it is not strongly typed in some of the same ways that Perl is: one can insert a string into an integer column. However, the technique is static to other SQL products as in [3]. Several computer processes or threads may access the same database concurrently. Several read and write accesses can be satisfied parallely. A write access can only be satisfied if no other accesses are currently being serviced.

V. ANDROID CLOUD TO DEVICE MESSAGING (C2DM)

Android Cloud to Device Messaging (C2DM) is a service that helps developers send data from servers to their applications on Android devices as in [6].

- It allows third-party application servers to send lightweight messages to their Android applications. The message service is not designed for sending a lot of user content via the messages. Rather, it should be used to suggest the application that there is new data on the server, so that the application can read it.
- An application on an Android device doesn't need to be running to receive message. The system will woke up the application via Intent broadcast when the message comes, as long as the application is set up with the proper broadcast receiver and permissions.
- It requires devices running Android version 2.2 or higher that also have the Market applications installed. However, you are not limited to deploy your applications through Market.

It uses an existing connection for Google services. This requires users to set up their Google account on their mobile devices. C2DM has been officially deprecated as of 26 June 2012. This means that C2DM has stopped accepting new users and quota requests as in [4]. No new features will be added to C2DM. However, apps using C2DM will continue to be working . Existing C2DM developers are encouraged to migrate to the new version of C2DM, called Google Cloud Messaging for Android (GCM).

VI. List Of Figures

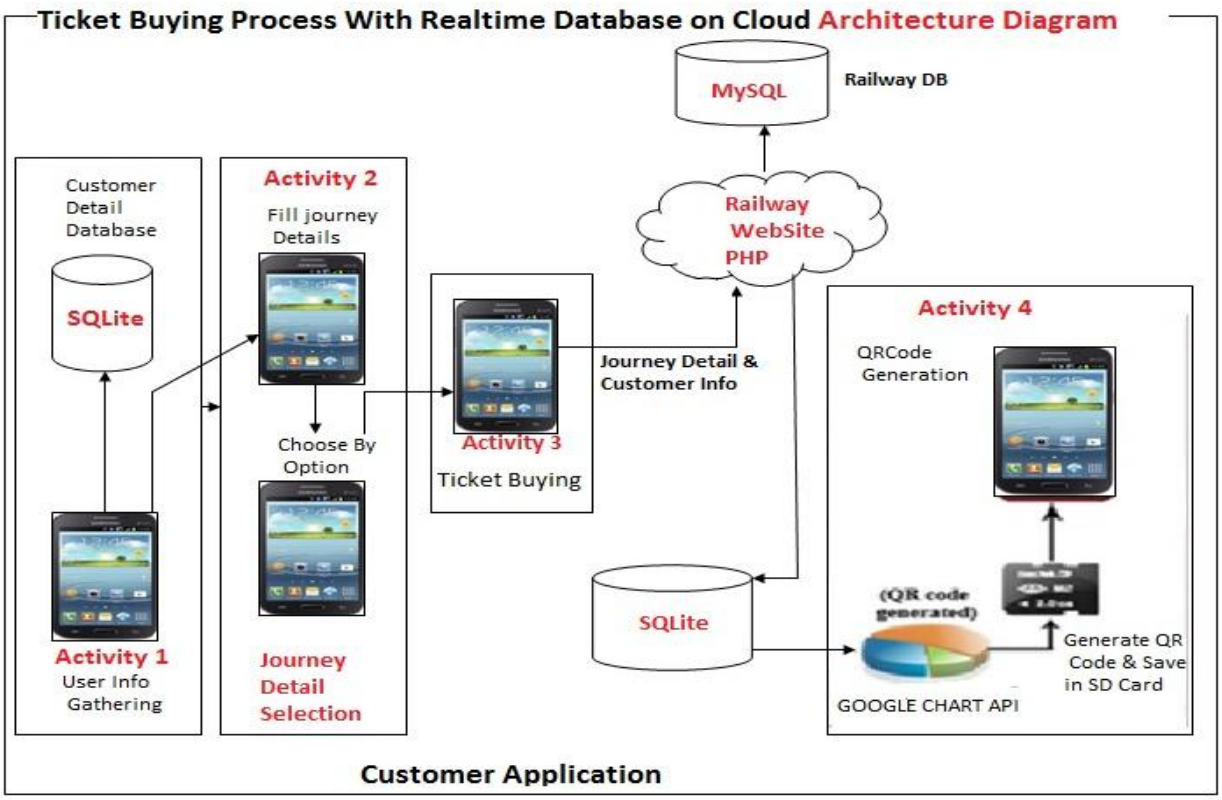

Fig -1: Customer Application

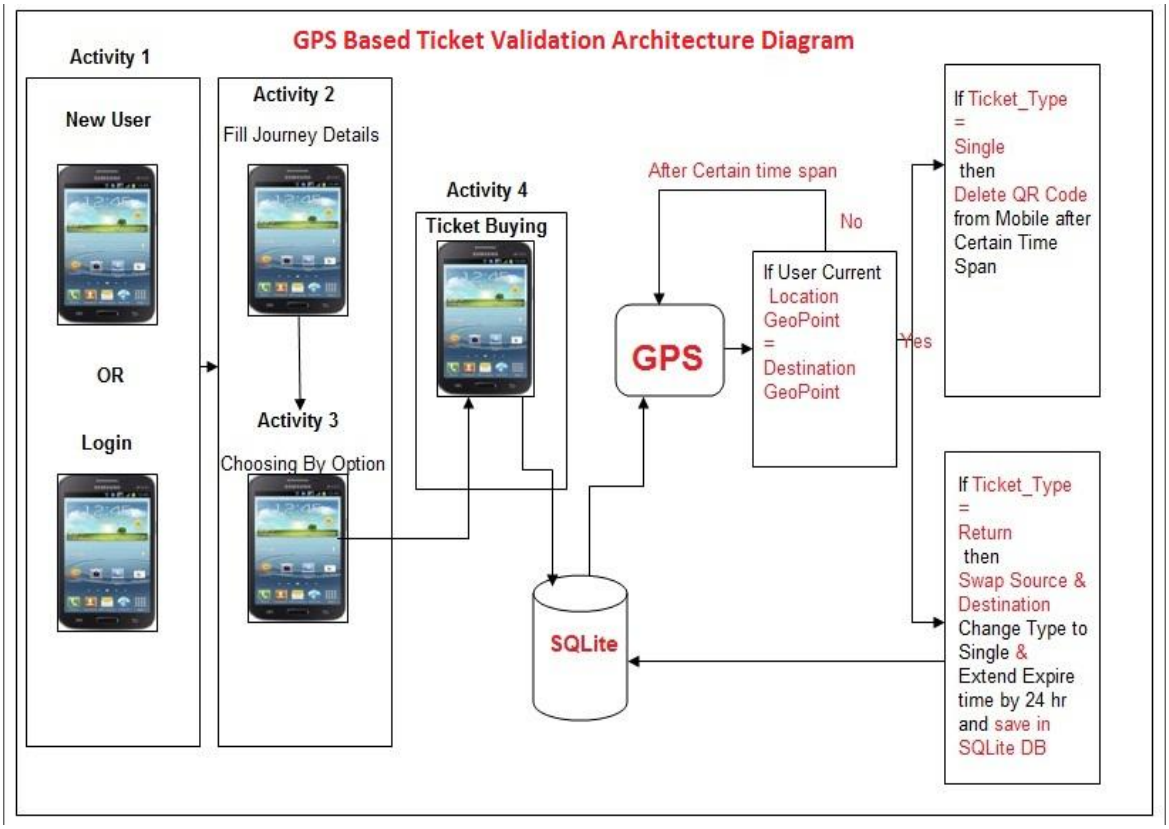

Fig -2: GPS based Ticket Validation

Fig -3: Checker Application

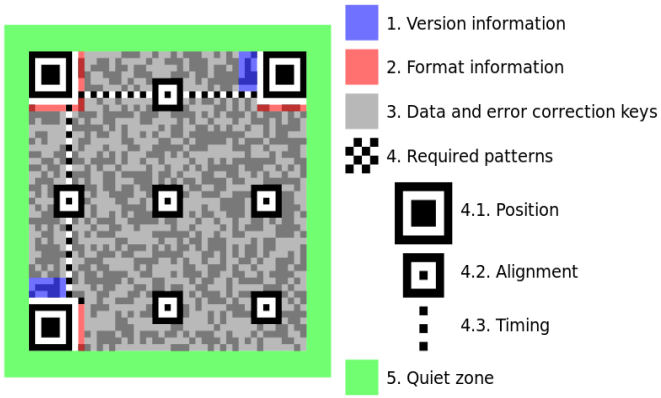

Fig -4: Structure example of QR code

VII. CONCLUSIONS

The system is completely automated so it reduces the human efforts. The paper written here has introduced the various techniques for buying metro tickets or railway tickets through their smartphone application .This android application can be very useful for governmental organization for tracking the user. It means the user can be detected very easily for validating purposes. Through GPS facility of android mobile, the passenger can get the list of metro station or railway station easily and he can quickly buy the tickets .As, we are trying to develop this smartphone application for metros, this will be a great enhancement in the field of technology.

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REFERENCES

[1] Karthik.S and Velmurugan. A-"*Android Suburban Railway Ticketing with GPS as Ticket Checker.*"
[2] Dave Smith and Jeff Friesen's (2011) *" Android Recipes A Problem Solution Approach"* – Apress Publications.
[3] Andreou, A. S.,. *Mobile Commerce Applications and Services : A Design And Development Approach . Cyprus :* University of Cyprus.
[4] B. Dobson, "*Transport for London Oyster Card",* ISG-Smart Card Centre.
[5] Reto Meier (2009)" *Professional Android Application Development"* - Wiley Publishing Inc.
[6] Satya Komatineni (2009) *" Pro Android"* - Apress Publications.
[7] Shawn Van Every's (2009) *" Pro Android Media developing Graphics, Music , Video and Rich Media Apps for Smartphones and Tablets"* - Apress Publications.