EFFICIENT TRAVEL TICKETING SYSTEM USING QUICK RESPONSE CODE ON AN ANDROID

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Abstract **- Now a day's we still buy ticket standing in a QUEUE which is time consuming task, even though technology is growing faster. Our application is based on Android as it is the growing technology everyone using it. Basically, our application books the ticket and stores the user's ticket in the form of Quick Response code in the users as well as system database. It uses GPS facility to authenticate and delete ticket automatically after a specific interval of time when user reaches to the destination. Users module consists of information gathering, book ticket, cancel ticket, delete ticket. Checkers module is to validate the ticket which scans the QR code and search in the system database to check that user has bought the ticket, makes the entry in the checkers database.**

Keywords – Android OS, QR code, GPS

- **INTRODUCTION**

To implement Android application to buy ticket, where user can carry his tickets in his smart phone as QR-code.[4] It uses the smart phone's "GPS" facility to authenticate and erase ticket automatically after a specific interval of time when user reaches to the destination. Checker application validates user's ticket with the information in the database for checking purpose with scanning the QR code.

The main objective of our project is generating ticket in the form of QR Code efficiently. Existing system takes more time to generate the ticket and our project saves huge efforts and time. This project overcomes the drawbacks of existing system.

- **LITERATURE SURVEY**

Mathematical Model for QR Code generator:

The QR (Quick Response) Code is a two-dimensional (2-D) matrix code that belongs to a larger set of Machine-readable codes, all of which are often referred to as barcodes, regardless of whether they are made up of bars, squares or other-shaped elements. Compared with 1-D codes, 2-D codes can hold a larger amount of data in a smaller space.[7]

a. QR code encoding:

1. Set Theory Analysis

1. Let 'M' be the 'Railway Ticketing Application'

M= {……}

Set S is divided into 6 modules

M= {M1, M2, M3, M4, M5, M6}

M1= Login Module(LM)

M2= GPS Tracker(GT)

M3= Train Schedule(TS)

M4= QR Code Generator (QRG)

M5= QR Code Scanner (QRS)

M6= Ticket Checker (TC)

Identify the inputs.

Inputs = {X1, X2, X3, ……..Xn}

X1= Position Information

X2= Ticket Information

2. Identify the output as O.

Outputs = {Y1, Y2, Y3, ……..Yn}

Y1= QRCode Image

SET THEORY

1. Problem Description :

Let M be a system which do Android Suburban Railway Ticketing; such that M = {M1,M2,M3,M4,M5,M6} where
M1= Login Module(LM)
M2= GPS Tracker(GT)
M3= Train Schedule(TS)
M4= QR Code Generator (QRG)
M5= QR Code Scanner (QRS)
M6= Ticket Checker (TC)
M holds list of modules in the system.

2. Activity I

User Login Process:
If user id/password
of the user is valid then proceed
Else discard the user

3. Activity II

Railway Ticket Booking Process:
Search the required seats in the train running from source to destination train.
If seats available the book those seats for user
Else throw error.

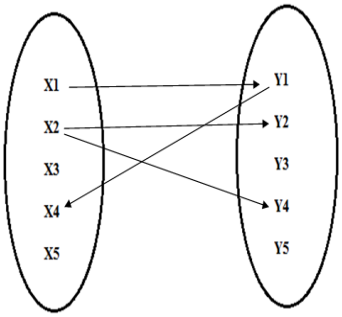
4. Activity III

Ticket Checking Process :
If the user's location is equals to destination station location, invalidate ticket.
Else
Try for next geo location

5. Venn Diagrams

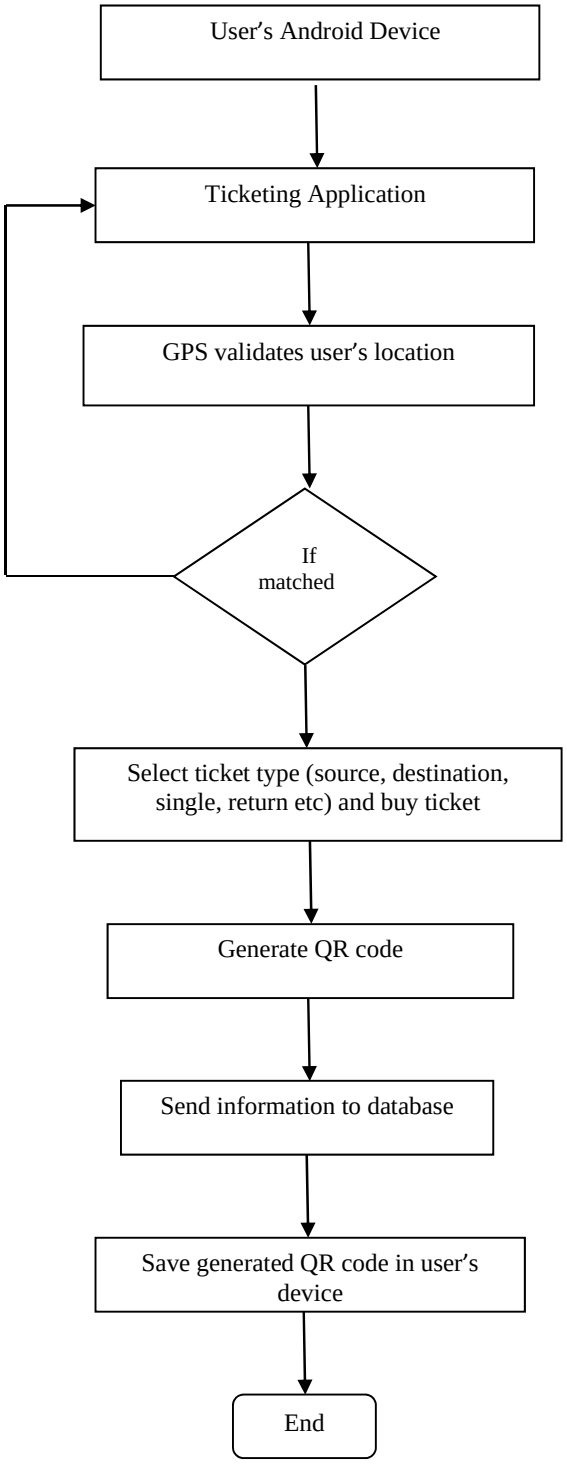
As described above in entire Process: Railway Ticketing using GPS

Input (Ticket & Location Info) Output (Ticket)

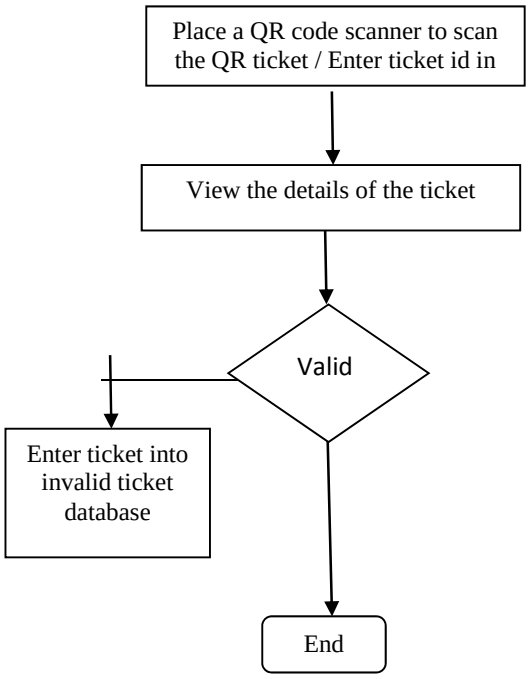


ALGORITHMIC STRATEGIES

1) User's Application :



2) Checker's Application :



- EXISTING SYSTEM

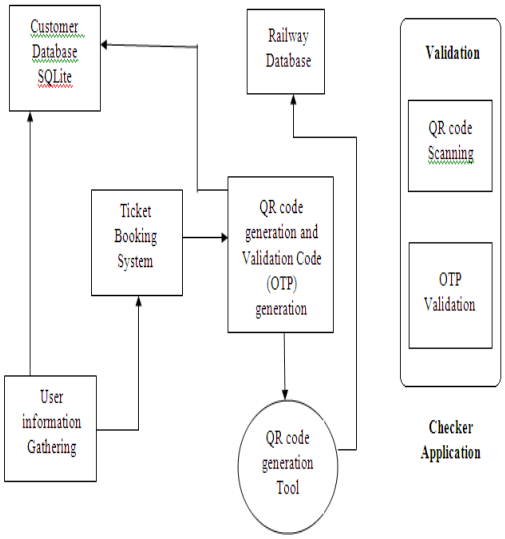
Since few decades ago, the technology has expanded largely and it is being used in the every field.[2] In railway department E-Ticketing is most widely used to book the ticket. In this system it generates the ticket booking response and saves it which is used afterwards for validation purpose [3]. But there the drawbacks in this system are time consuming, manual efforts, inefficient, etc.

- PROPOSED SYSTEM

Our ticketing system is mainly to buy tickets which just a smart phone application, in which you can carry his ticket in his smart phone as QR-code. It uses the GPS facility for detection of destination and when user reaches to the destination the ticket gets automatically deleted from the database. The application consists of details of the schedules of train, source and destination and time required to reach the destination.

In user application for booking the ticket, user enters appropriate details to book the ticket. After entering information for booking, application generates ticket in the form of QR code and saves it in the database. Checker application authenticates the user by scanning the QR code in the smart phone and compare with the system database.

- SYSTEM ARCHITECTURE



- SYSTEM MODULES

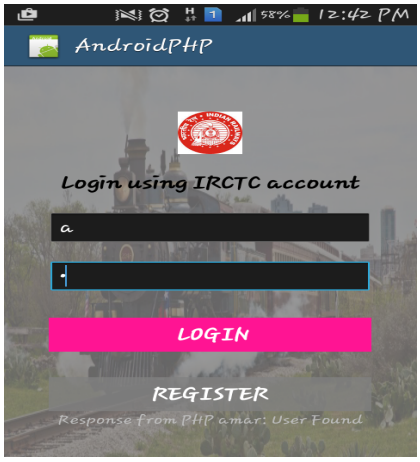
- USER SUBSYSTEM :

1) Registration :

User has to register himself before using this application. User has to enter his details like name , date of birth, address ,gender, mobile number ,email address , etc. and create username and password .

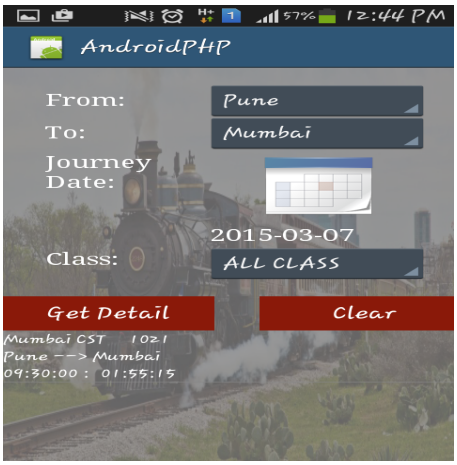
2) Login :

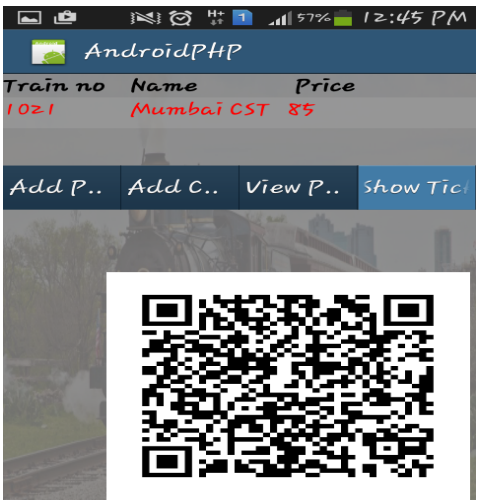
While installing the application user enters the username and password for login to access the various features of this application like book ticket, cancel ticket, delete ticket, view history, etc.



3) Book the Ticket :

Passenger will book the ticket by specifying source, destination, time, date and adding passenger and children.





4) Cancel Ticket :

User is able to cancel the ticket whenever required and the status of cancellation appears.

- GPS SUBSYSTEM

GPS is used to track the location of the passenger from source to destination and after reaching the destination the ticket will be deactivated.

- CHECKER SUBSYSTEM

1) Checking The Ticket

The checker will validate the ticket by scanning the QR code by using the camera on his phone and maintains the history about the passengers. The ticket will be matched with the QR code i.e. already stored in the server database after QR Code generation.

- DATABASE SUBSYSTEM

1) Personal Information

The personal information of the passenger will be saved in the server database during registration and the already existing passenger's data will also be saved or can be retrieved whenever needed.

2) Booking Information

The specified source, destination, time, date of the journey is noted and ticket is booked accordingly and the details of booking, QR Code will be generated and saved in server database as well as users mobile.

- **COMPARATIVE REMARK**

Parameters	Existing System	Proposed System
Ticket Generation	Manual efforts, time consumption, more manpower required	Ticket gets Generated in the form of QR Code
Information Gathering	User has to visit various websites for checking train details	Application itself provides the schedule
Ticket Verification	Checker manually validates the ticket with the available information with him	QR code is scanned for validation purpose

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CONCLUSION AND FUTURE WORK

Our application benefits in booking the tickets than other systems those which are used now a day's. The proposed application can be used for the process of booking a ticket for travel through railway. Our application can be used for other transportations also. As our application provides details about various trains it avoids accessing various websites. Passenger does not need to wait for a long time in queue to get a ticket. The system will give the details about the availability of train and the no of trains and their schedules. Passenger does not need to wait for a long time in queue to get a ticket. The ticket can also be cancelled online. Ease of handling the ticket in mobile in the form of QR code.

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