

Digirail- The Digital Railway System and Dynamic Seat Allocation

Mr. Sunil Mhamane
Assistant Professor, M.E
MIT Academy of Engineering, Alandi(D)
Pune, India
sunil.mhamane015@gmail.com

Mr. Pranav Shriram
Assistant Professor, M.Tech
MIT Academy of Engineering, Alandi(D)
Pune, India
shriram.pranav@gmail.com

***Abstract*—one of the major challenges in present ticketing provision is QUEUE in buying and railway ticket checking. In this fast world people want all work is to be done within minutes with help of digitalization and usage of smartphone it is all possible. Users ticket information is stored in a database for security, which is absent in present system. Ticket checker is having admin login in application to look for user ticket with the ticket number in the database which scans in the form of QR code. Dynamic seat allocation also gives 100% utilization of seats as well proper allocation for waiting list passenger during Journey.**

***Keywords*—Android app, QR Code, Dynamic seat allocation, waitlisted passenger, Ticket checker.**

I. INTRODUCTION

A. Introduction

Digitalization is need of this era, in this world of computers, almost all manual system has switched to computerized and automated system. Therefore, There is need to develop fast and correct system for Railway Ticket Checking to model the present system and to remove the drawbacks of the present system. This Paper Proposes use technology to solve the problem of user and Ticket checker in railway department which is one of the big and important department in India. After E-ticketing there was new concept of M-ticket[5] gets invented. E-ticketing [7], m-ticketing, spot booking is generally used in India. Everyday large number of passengers are traveling through Railway in India, but as our ticket checking system is manual process there is no 100 percent ticket checking process by Ticket checker So for 100 percent ticket checking digitally ticket checking will really helpful. In digital railway ticket checking system QR code plays very important role which is nothing but Quick response code. All ticket information will store in form of QR code. Information about every passenger is stored in database. Database is also very important part. The information about ticket is stored in database and retrieve whenever required. The information is stored in secured manner as QR code and is received by user. We can give

validation time to every QR code ticket so that it will not useable after specific interval of time.

For the generation of QR code we will make use of the transaction id. Ticket checker will scan the QR code which is either in mobile or printed format, confirmation of Ticket checked notification will show to checker as well as passenger. In this way the ticket will be checked by the checker .This system makes maximum ticket gets checked within less time. Main purpose of this project is not only railway ticket reservation but also 100 percent ticket checking, and new invention about effective ticket checking within minimum time without any interrupt and convenient to user.

B. QR Code

QR code plays very important role in this paper, QR code works as unique identifier for every passenger in in the journey. Every QR code has unique value and information stored in it, which is used for proper validation of the user. QR code is very useful in proper and secure validation of tickets. Scanning using any tab, mobile, Scanner is useful for QR code scanning and validation QR Code Reader automatically gives system whatever it reads. Paper-less work simplifies the process and hence reduces the cost and wastes usage of paper also. It is very Faster and efficient check-in process for TC and passengers saving both time and money. Human error is removed in the check -in process and a registration record is kept for all passengers.

QR code Allow us to design unique code for each ticket it should be compatible with common QR code readers. Design of QR code provide so many option. Customization of QR code further by adjusting the color, adding logo, creating social option and more can be possible. After the code generation we have to check whether QR code reads correctly [4,10].

Below Figure 1 Show the QR code generation in Our Android app of Digirail.

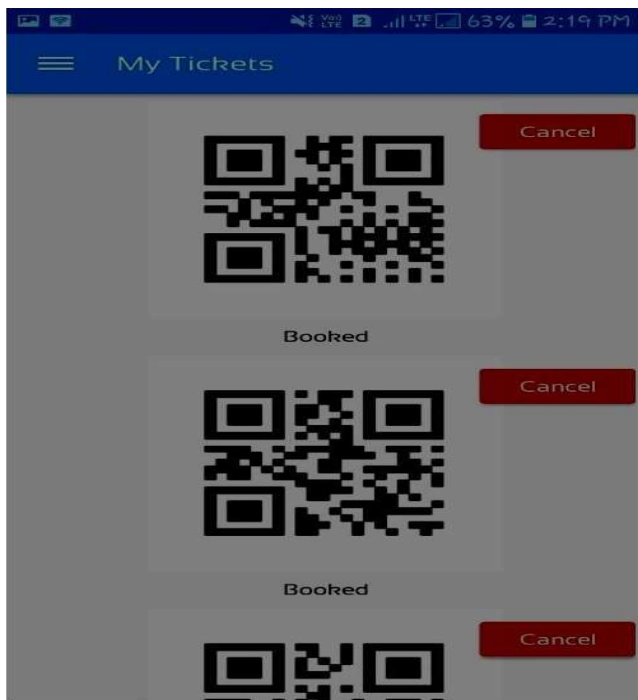


Figure 1: QR code generation

II. LITURATURE SURVEY

In the paper titled “Android Application for Ticket Booking and Ticket Checking in Suburban Railways author encouraging us to use the smart phone for ticket booking and ticket checking but there were no Concept of ticket checking though online. Paper only talked about the QR Code generation. Author also used the Cloud database to store the entry [3].

In the Paper titled “Smartphone Application for Ticket Reservation and Validation Using Mobile Network” author added the Fine deduction system to the Android App if some passenger extended the journey [2].

In the paper titled “An intelligent ticket checker application for train using QR code” author used the secure hash algorithm to do said task and results were shown [1].

In the paper titled “Android suburban railway ticketing with GPS as ticket checker” author used the GPS technology for booking the tickets. This paper is written for buying the local tickets through online. User information is stored in the cloud database for the security purpose [8].

In the paper titled “A QR Code Based Processing for Dynamic and Transparent Seat Allocation in Indian Railway” author proposes the dynamic seat allocation system during the journey of waitlisted passenger. Such system allows fair things for waitlisted passenger [6].

In the paper titled “AI Prototype of train ticketing application using Near Field Communication (NFC) technology on android device” author stated E- Ticketing system using Near Field Communication Technology. Train Ticket application is integrated with NFC device that is deployed in Android [9].

In existing system there is no use of advance technology in ticket checking process. this is biggest drawback in current system. The largest railway network in world is still using the basic technology for checking railway reservation i.e. use of pen by ticket checker. This causes a problem to those passengers who wants to travel immediately this is because of Preparing chart form before four hours of departure of train, due to which large number of seats remain vacant from starting point. For wait list passenger there is no proper seat allocation process so it is inconvenient to Waitlisted passengers.

III. ARCHITECTURE AND PROPOSED SYSTEM

A. Architecture

In this Architectural of Proposed system shows the workflow of digital ticket checking system. In this the user need to authenticate themselves with the server by using the PIN validator, after that the ticket will get generate with the QR code and the QR code will dispatch to the user. There are two ways to verify the tickets in the train. One way is fitting some QR code scanner inside each Compartment where each passenger scans his or her QR code there and in second way of verification Ticket checker verifying the user’s ticket by simply scanning the QR code, after scanning the QR code the ticket checker have all the information about that user/passenger and the Ticket checking done. The Ticket Checker also validating all the information of that user with the database. In this we promoted the Government’ Digital India Policy. And it’ll seen that, there are clearance in the system of Ticket Checking System. Figure 2 shows the architecture of proposed system.

B. Check-in Procedure

When passenger is boarding the train, he has to scan the ticket through scanner placed in the compartment or needs to checked by Ticket checker. Arrival of passenger on railway must be recognized. Any passenger who fails to board on train is unable to scan QR code and after some interval of time server will allocate that particular seat to waiting list passenger. During allocation WL passenger details are fetch from database. If there is no waiting list, then the passenger which are standing without tickets can book the ticket instantly.

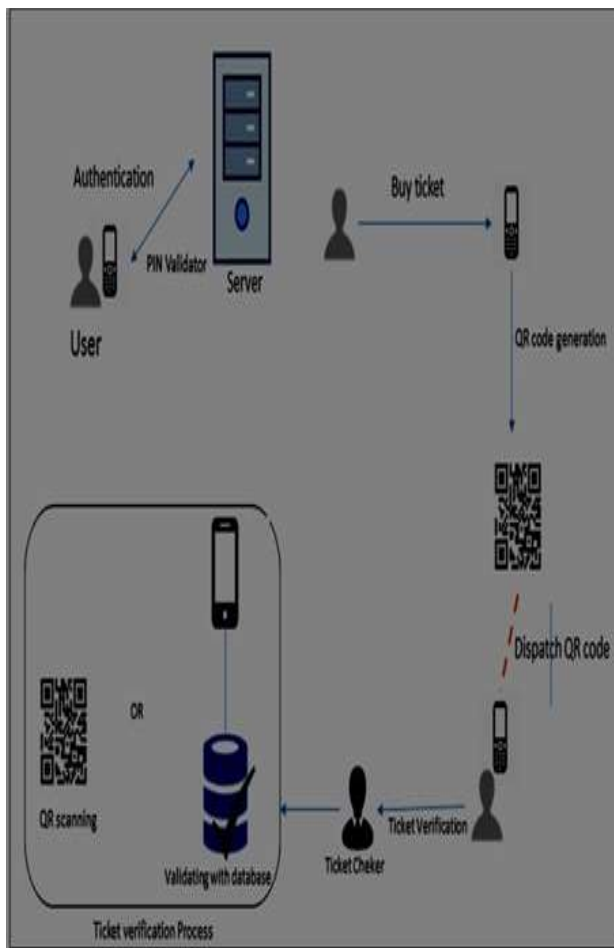


Figure 2: Architecture Diagram of Digirail

C. Ticket checker allotment process

The ticket examiner will be handed a tablet that has specifically designed application for checking the authentication of the passengers and ticket. To use the app, the examiner will have to login through his ID that is generated by the administrator.

D. Dynamic Seat allocation

In this Dynamic Seat Allocation the ticket get checked by scanning the QR code using our proposed system. All the tickets are validating with the server and it will shows how many seats are occupied by passenger and how many seats are vacant. If the seats are vacant then system admin notified to the waiting list passenger that they are allocated to the particular seat, and all this system work with the priority wised and the waiting list will be updated.

In this Dynamic Seat Allocation if the passenger are not travelling then the seat are vacant and that seats are utilized by the Railway. That seats are allocate to the next waiting list passenger, by using this Dynamic Seat allocation the railway Board can generate more revenue. In this technique database update, trigger algorithm for notification these technical methods are in use.

In this technique we have many advantages like Proper allocation of seat to waiting list passengers sequentially. There is transparency in this process. 100% seat allocation, No need of separate checking for allocated seats, there is no need to give commission to ticket checker, Reduce corruption. Figure 3 shows the workflow of dynamic seat allocation for waitlisted passenger.

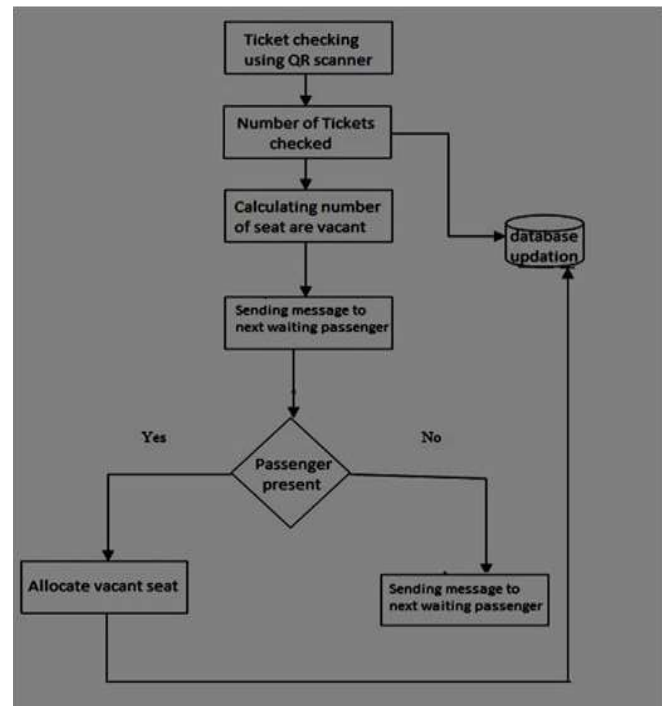


Figure 3:Workflow of Dynamic Seat Allocation

IV. CONCLUSION AND FUTURE SCOPE

A. Conclusion

Passenger and Ticket checker are most important factors in the proposed system. Application will increase efficiency, speed and reduce efforts of passenger as well as administrator. QR code is able to provide all the information about passenger it will help to reduce work with paper which is eco-friendly. Hence, with help of this we are taking one step towards green computing. Also, the problem of the waitlisted passengers will be solved. Along with these benefits for the passengers this system will also enhance the efficiency of the ticket checker by making it easier for him to check upon the passenger in a better manner.

B. Future Scope

If we properly work on this system we can develop separate system for platform ticket. We can develop on the spot printing ticket machines with due We can get all statistics like number of passenger on daily basis As well as we can develop separate system for platform ticket also because we know number of peoples on platforms are also in very huge strength

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