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NFC Based Technology for Railway Ticketing System

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Abstract- In today's area of information technology everyone try to find convenient way to make their job as much as easy without any workload .Everyone knows about the condition of Indian railway system, travelling via railway is one of the most tedious thing in the world. So we try to develop such a system which reduce workload of Ticket checker as well as passenger .We use NFC base technology for developing proposed system .In which with the NFC(Near Field Communication) enable phone, ticket checker can check the validity of passenger ticket, on the other side we will create Android application which gives user interface to passenger to view train schedule and book the ticket. In case if any vacant seat is available then server automatically inform the passenger about vacant seat. Also we create cloud database where all the information about passenger will be stored for security purpose.

Keywords **- NFC Enable Phone, NFC Tag, Cloud Storage.**

1. Introduction

The current scenario is that passengers must have to keep waiting for the conformation of ticket. The waiting list varies depending upon various parameters. According to the current scenario, once train started then waiting list of passengers is maintained by Ticket Checker so if there are some vacant places and if any one who neither have ticket nor have reservation, they can bribe the TC for that seat. So passengers who are in waiting list can't get their seat even if they have already made the reservation.

In our system waiting list is maintained by server, if passenger is not present at the time of journey then TC will update their status on server and server will update waiting list and allocate that seat to the passenger.

Allocation of seats can be done on priority basis. Normally passengers do not get any confirmation about his seat if he is in waiting list, because of that even if any seat is vacant, passenger can't get that seat.

In this proposed system, server automatically notifies via message/email to the passengers about confirmation.

2. Proposed System

There are various application of NFC like

2.1 Touch and Go

In this application user have to keep his NFC enable phone in front of TAG then whatever information which is present on the tag will be displayed on user's phone.

2.2 Touch and Confirm

In this application user have to keep his NFC enable phone in front of TAG, the only difference in this application is we need some conformation. For example mobile payment where user has to confirm the interaction by entering password.

2.3 Touch and Connect

In this application we create peer to peer connection for transferring data with two NFC enable phone.

We proposed NFC based technology for railway ticketing system with touch and go application, in which NFC TAG work as Ticket.

3 Modules of the Proposed System

3.1 Passenger Application

At very first time, user have to buy NFC tag from Railway Reservation Counter. And at that time user have to register and fill all his personal information. Once he successfully registered then user need not have to come to the Railway Station for reservation. After that he can make online reservation from his client android application. By using that apps client can view trains and routes, select source and destination and book the ticket. Whenever user book

the ticket, his reservation details automatically get updated to server database .

3.2 Ticket Checker Application

At the Ticket checker side application it checks whether passenger's ticket is valid or not. Ticket checker keep TAG near to his NFC enable phone .By doing this he get Unique Identification number form passenger tag. With this unique number TC get all the personal information about user and their journey details .Whenever TC got any vacant seat due to some cancelation or absence of passenger .TC will update details about vacant seat in the server database. So immediately next passengers who are in waiting list will be notified via mail or SMS about the confirmation of his ticket.

3.3 Server Database

In this proposed system we will going to build a Server database using cloud storage where all information about passenger and their journey details are stored. As well as details about train schedules, routes, source and destination are stored. At the time of registration passenger has to send registration request to the server, at that time all the information about passenger will be stored on server database.

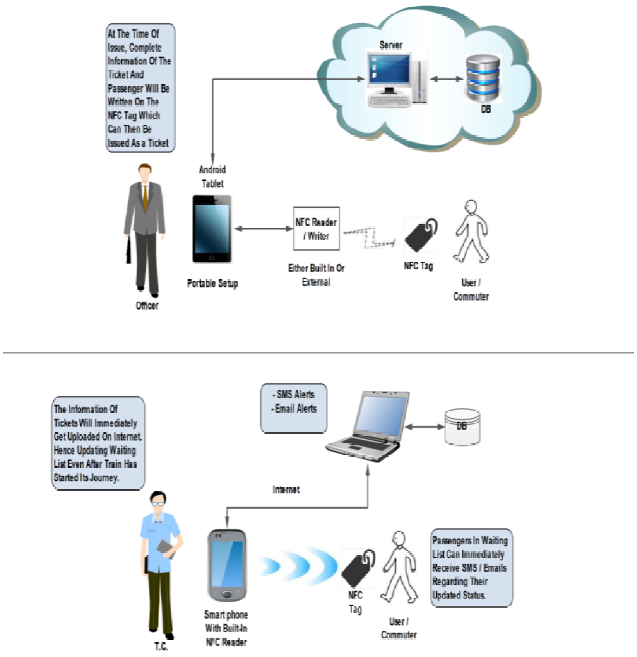

Fig. 1 Architecture of proposed System

After successfully registration whenever passenger want to book their ticket with the passenger side application they can book the ticket. After click on book ticket button all the journey details automatically save on server database. Then server process the booking request and update the reservation details on passenger NFC tag.

3.4 Admin

Admin can make the changes about train schedules and train route. All this information will be updated on server.

4. Comparison of Existing System with Proposed System

There are various technology already used for railway system like Android Suburban Railway Ticketing with GPS as Ticket Checker in which passenger can carry his ticket as Quick Response code in his smart phone. And this technique also uses a smart phone GPS technology for deleting passenger ticket automatically after a specific interval of time once the user reaches to the destination[1].But with this technology there is no facility to inform passenger's about conformation of their seats .One of the most advantage with this proposed system is that Instead of QR code we use NFC based technology which is more powerful and secure. One more advantage with this proposed system is that it is not compulsory for passenger to carry smart phone with them.

With this proposed system we provide security to TAG by using SHA1 (Secure hashing algorithm.)So each TAG is issued with unique identification number. All information about passenger will be stored on cloud database so there is no chance for misuse of TAG by other passenger.

The proposed system is easy to use and provide efficient user interface for passenger to book a ticket.

5. Conclusions

Thus, in proposed system we do the comparative study with the existing system. We try to eliminate all the drawbacks of the previous system. With this system all the workload of ticket checker as well as passenger getting reduced. It Replace all paper work with NFC enable smart phone and NFC TAG as ticket. So we try to develop proposed system to improve the condition of railway system and hope this system has bright future.

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