



# Mobile Local Train Ticketing System for Non NFC

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**Abstract:** *Near field communication (NFC) is a set of ideas anthe technology that enables smartphones and other devices establish radio communication with each other by touch to each other or to their approach. This technology therefore, it may only be useful for high-end phones. To get over it The downside to this post is the ticketing app system of local trains using RFID technology and based on NFC concept for non NFC. This can be used by all users application without the need for NFC functionality telephones. This will make this application much simpler and more user-friendly friendly to all.*

**Keywords:** NFC (Near Field Communication), RFID (Radio frequency identification), RFID tag, RFID reader, GPRS, Ticket system

## I. INTRODUCTION

Possible RFID[1] and NFC applications technologies[2][3] are huge. NFC (Near Field communication) is a young radio technology that finds special applications in the field of mobile consumer electronics. NFC is a short-range wireless technology that it works at a frequency of 13.56 MHz and thus enables secure data exchange between devices located at short distances (several centimeters). RFID, realizes automatic identification and data transmission via electromagnetic radio signals typically means an active reader that is connected to a power source and a passive electronic tag that is a transponder receiving it power supply from the reader by magnetic induction. In this proposed system, there is an application for nonNFC Ticket is developed. This system will use Near Field Communication technology[4]together with the mobile phone (Java and GPRS enabled) to perform ticket sales transaction. One can register and get a subscription badge scan it with an RFID reader to provide a unique ID passenger to the north, who in turn will provide an electronic ticket commuters on their cell phones.

## II. LITERATURE SURVEY

The use of NFC in ticket sales has already been analyzed in several previous attempts and research projects. Some of the projects based on NFC that are already implemented are: O`BB (Austrian Federal Railways)[5]:ÖBB offers a service named as NFC-based Handy Tickets. In this Ticket system can be obtained on an NFC-enabled mobile phone via SMS. The customer must first register before making purchases tickets by sending an SMS. The customer will receive a special code. The customer must verify before starting the trip this code on the terminal via NFC.



Fig 1. Touch and Travel System.

In 2005, the German transport association RMV (Rhein--Main-Verkehrsverbund) started a pilot project where customers could use their NFC enabled mobile phone buy tickets. Based on the best passenger pricing policy they only had to check in/out at the terminal on the bus when entered or exited to get the cheapest ticket to route. Touch and



Travel[6]: This is a trial version of NFC from German National Railway Company in 2008. For this trial version Check In The Check Out principle is used. The customer must touch them Mobile phones with NFC support on special touch points earlier entering and after leaving the vehicle, as shown in Fig.1 the system automatically calculates the price for the route and the bill is generated at the end of the month. For the above systems, the user must have an NFC-enabled device. One of the most popular systems for mobile devices based on RFID tickets are available in London. The so-called Oyster Card works as a contactless smart card for prepaid mobile tickets and can be used on all public transport services within London area. A separate chip card must be carried for this user.

III. PROPOSED SYSTEM

In the proposed system, this is initially required from the user open an account with the railways and they should keep their account funded[7]. On the other side of the railway, the master will create database with user ID and amount. An RFID card will be issued with each subscription that has be identified by an RFID scanner mounted on the railway stations. This will contain the user's authentication data which will be checked against the database. After successful authentication commuter enters destination, class and number of ticket fields as required and send it to server using the GPRS function. Fares for the same will calculate and the amount will be deducted from the user prepaid account. After that, the ticket goes to commuter mobile in RMS (Record Management Store)format that cannot be modified, produced or edited the user thus maintains the security aspect.

3.1 Block Diagram

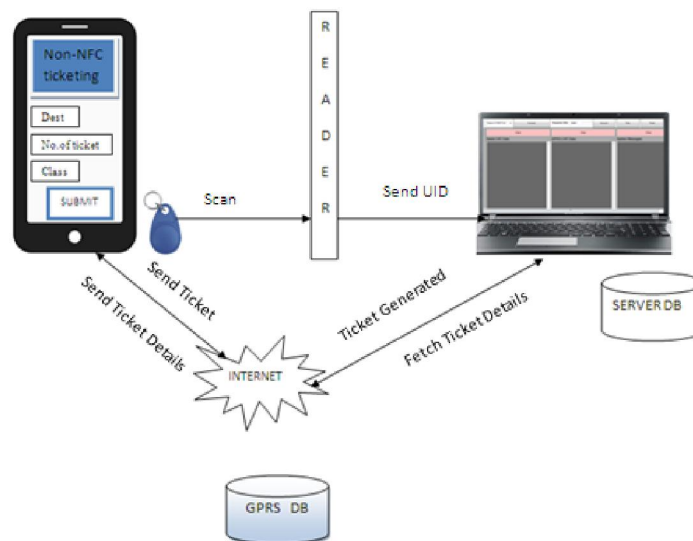


Fig. 2 Architecture of proposed system

3.2 Components

1. Mobile phone: The first component will be GPRS a mobile phone with an RFID chip attached to it. The the mobile phone will be powered by a coded computer program entirely in Java.
2. RFID reader [8]: The RFID reader is the second component that is designed to be mounted on a wall Train stations that would be accessible to commuters.
3. Server: This is the most important part is supposed to control the whole system. The server will be composed user database, i.e. their unique ID and computer program coded in VB.NET.
4. RFID chip [8]: RFID stands for Radio Frequency Identification. The job of this chip is to store the 10 digits of the ID card that should send it when approached to the readerID detail per server. The RFID chip is shown in Fig.3

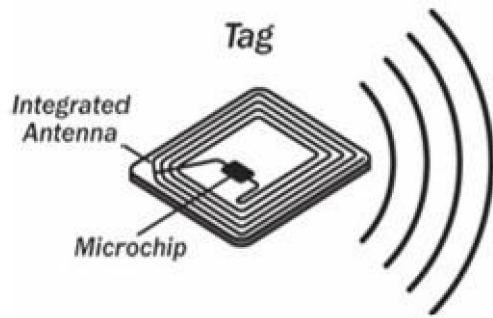
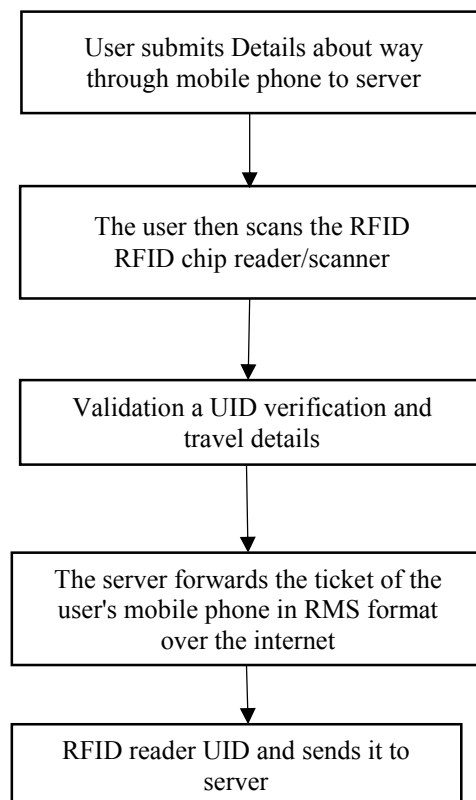


Fig. 3. RFID Tag

3.3 Working

The basic work of the system with the above the four main components are explained according to the flow below. Initially, the commuter who wants to issue a ticket opens application downloaded to his mobile phone [9]. Application would consist of all the necessary details to be entered basic ticket issuance such as destination, number of commuters, etc. After successfully entering the data, the user sends those over the internet. The next step would be that the user will need to quickly scan your mobile phone using RFID reader mounted at railway stations which will the lead scans the RFID chip on the users phone, thereby obtaining its unique ID as shown in Fig.2. This ID will be transferred to the Server. The server will again connect to internet to retrieve data entered by the user and create a ticket in RMS format. The RMS format is a type of data storage a format that cannot be tampered with by the user. This RMS the ticket will be sent to the user's mobile phone via the Internet thereby completing the entire transaction. The ticket will be a timed version that will last for a set amount of time in which the user is supposed to complete his journey. Meantime the server maintains each user's account and while a ticket or transaction was requested, the amount will be deducted from the balance, which further facilitates v also payment terms.





### 3.4 Features

Following are the main features of the above discussed system

- No need to stand in any type of queue,
- Using own mobile for ticket,
- Time effective,
- Amount will be deducted from our prepaid account,
- Up to 10 cm range,
- Password Protected transaction,
- Password based Encryption,
- Easy to Interface,
- Paperless E-ticketing.

### 3.5 Technology & Programming Languages

Following are different programming languages and Technologies that will be used in the design System

- Mobile side: Java Based Mobile Programming, for GPRS connection, web client and RMS database
- PC Side: Application software based on VB.net 2008[10], For SQL database programming serial port[11], For Web client GPRS internet connection.

## IV. SCOPE AND APPLICATION

The system is developed only for

- Mumbai Suburban Railway as mobile e-ticketing System.
- The proposed system can be used for bus transport System.
- This system can be used for supermarket shopping.

## V. CONCLUSION

The proposed system can overcome the biggest drawback existing NFC Ticketing systems. This system allows for customers to use NFC Ticketing even if they don't have high-end Mobile Phones. This will make the system suitable for Indians economic environment and can be easily implemented existing ticketing systems. The system can work with most of mobile phones in use today, thereby increasing usability of the system.

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