

# Indian Railway System Monitoring of Passenger Allocation and Reservation

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**ABSTRACT:** Railway system places an important part in public transportation. Railways are one of the mainly used transportation by the public. It provides many services such as tickets, catering etc; The project uses the android application for reserving tickets and its verification using the android application and RFID tag. One of the disadvantages in the present ticketing scheme is buying tickets standing in the queue. Our application provides the facility for buying tickets online. The ticket can be reserved with the help of a smartphone application where railway tickets are stored in the phone in the form of a code. The information of the user who reserved the ticket is stored in the database. It uses the RFID to verify the ticket. Also, the application automatically detects if the user travels a longer distance other than the distance to which the ticket was bought. The ticket checker is provided with the application to verify the commuter's ticket.

**KEYWORDS:** RFID, Smartphone, ticket, LCD display

## I. INTRODUCTION

A train ticket is given by a railway ticket issuer that allows people to travel on the railway network. Tickets provide access to the people to travel to a certain place at a certain time. The introduction of manual ticketing has always made it easier for the authorities to keep a track on various events involving financial matters and the travelling patterns of the people. However, these activities had to be carried out manually with the help of a huge man power and resources. The use of electronic equipment's like computers, printing machines, paper & ink are the major and most important resources required for project ticketing systems. Other than time consumption and cost, these systems need a lot of maintenance and repairs on a regular basis. Banking transactions also need to be carried out manually from place to place on a consistent basis. The introduction of technologies has only paved the way for quick & fast computing and also information gathering which are directly or indirectly beneficial for the authorities.

## II. LITERATURE SURVEY

Smart transportation<sup>[1]</sup>, the system uses XYT gait recognition model that collects automatic fare collection system and classifies the luggage and children with the use of an infrared sensor and camera attached to the pathway. By the way, to avoid interference, transmit and receive sensors are placed in the angle of 45 degrees.

The system connected to the server<sup>[2]</sup> used for verifying and use of NFC short range, high communication frequency connects to the user ticketing system. System Structure: The system consists of a server, mobile device, mobile POS terminals, and mobile verification terminals. There are four stages: registration, booking, purchase, verification. CS ticket: some ticket identification information provided by the ticket providers.

Smart ticketing system architecture for Mumbai suburb railways which completely violates the concept of paper tickets. If the user intends to travel from a source to destination with no intention to return on the very same day, then only half the cost of a ticket is considered.

### III. PROPOSED SYSTEM

In this system by the use of android services with the mobile, passengers can add their own unique Identity proof while booking tickets, which helps automatic ticket validation. RFID receiver used to checks of the passenger take place at the entrance and exit of each compartment of the train. With the help of sensor, the details can be validated by comparing user database . RFID tag is used for checking the ticket validation. The proposed system is implemented using Nano microcontroller, RFID tag , IR sensor , HC 05 module. Here IR sensor is used to check seating availability .HC-05 device is used to pair the android application. RFID reader to check whether the ticket validate or expiry .

### IV. SYSTEM BLOCK DIAGRAM

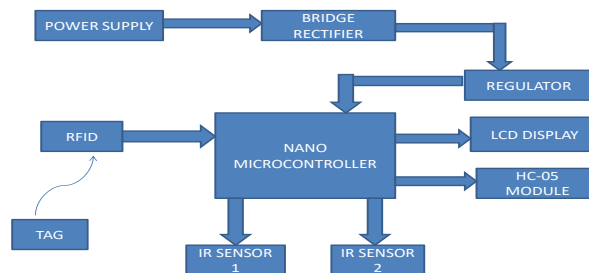


Fig.1 Block Diagram

#### A. Power supply unit

The power supply unit consists of a transformer, bridge rectifier and regulator. The ac power supply is converted into DC supply by the full wave bridge rectifier and filter. The regulator regulates the Dc power supply.

#### B. LCD display

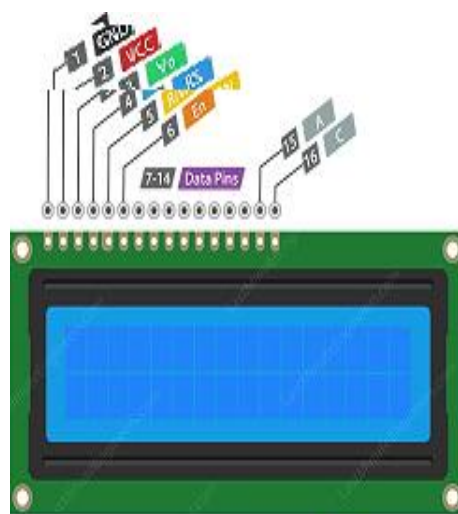


Fig.2LCD display

**Organized by**

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Reflective twisted nomadic liquid crystal display. Polarizing filter film with a horizontal axis to block/pass light. Reflective surface to send light back to viewer. (In a backlit LCD, this layer is replaced with a light source.) A liquid crystal display (LCD) is a flat panel display, electronic visual display, or video display of liquid crystals. Liquid crystals do not emit light directly. LCDs are used in various applications such as computer monitors, televisions, instrument panels, air crafts. They are mostly used in devices such as video players, gaming devices, clocks, watches, calculators, and telephones, and have replaced cathode ray tube (CRT) displays.

*C. RFID*

Radio frequency waves (RFID) is a wireless transmission medium. It uses radio frequency waves to transfer data. The users can be provided with RFID tags, which are attached to items. The RFID tags are safe and secure. It can be used for tracking and accessing the data and of less cost. It is small in size. An RFID reader consists of a memory chip in it. The chip is encoded with a certain secret code. When the RFID tag is shown to a RFID reader, the secret code is read by the RFID reader. It is further processed by the microcontroller to allow access to the user.

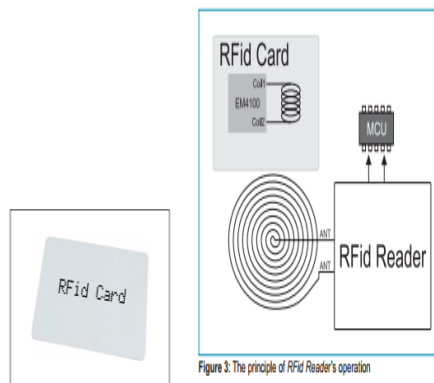


Fig.3 Principle of RFID

**4.4 BLUETOOTH MODULE (HC-05)**

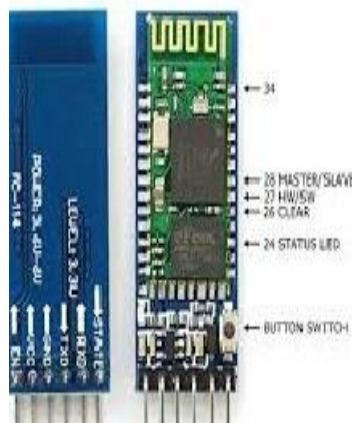


Fig.4 Bluetooth module

It is a full duplex wireless module. It allows to establish connection from both ends. It is a Spp profile Bluetooth module. It can be interfaced with various microcontroller.

#### 4.5 IR sensor

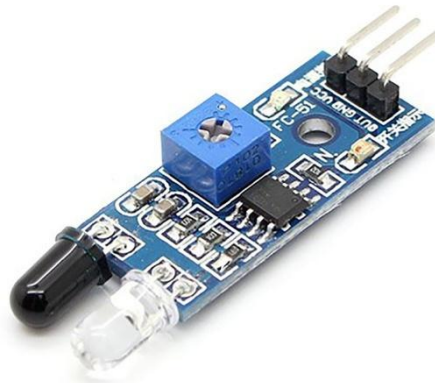


Fig.5 IR sensor

Infrared sensors emits and detects the infrared radiation. These sensors can measure the heat emitted by an object. They can also be used for detecting the motion of the object.

### V.EXPERIMENTAL RESULTS

This project can be used for railway ticket reservation. The user can buy tickets online by using the android application. The details of the user will be stored in the database. The user is provided with a RFID tag to validate the ticket. If the user extends the journey fine will be deducted automatically. Hence, traditional system of standing in queue for buying tickets can be eliminated. This method is also safe and secure.

### VI.CONCLUSION

The number of functionality is given by this application. Therefore there is no need to mobile application for booking a ticket. Application saves the huge work for our ticket checkers. It replaces the manual ticket checking process with digital ticket checking process by RFID scanning with Smartphone's. It helps station level security, we can have a hardware device to validate the Tag before the user enters or leaves the station.

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