

To Improve Railway Passenger Reservation and Wakeup Alertness using Digital Display and GPS based Message Alert

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Abstract: With increase in population in India, everyday large number of people are using different kind of transportation in order to travel from one place to another place. Different transportations are opted in India are Road transport, Rail transport, Air and ship transport. In that, most of the people prefer to travel through rail transport. Though the railway department is operating service in various classes, still the people are not able to travel conveniently, for not able to get the ticket reservation properly, due to this reason that, advancing the chart preparation 4 hours before the departure of train in the earlier days. Such situation, even though tickets are there, after chart has prepared, one cannot reserve the ticket for that train. Later, chart preparation time is reduced by preparing the chart earlier than 4 hours before the train departure. It allow more Passengers to reserve the ticket till the chart preparation time, because of that, reserved ticket seat or berth shuffling takes place which is not notified to the passenger correctly in time. Though, Indian Railways provides high class services in all means, still few flaws are there in reservation mechanism and passenger alertness towards the passenger destination station that train reaches.

Index Terms : Ticket reservation, Digital display, Indian railway

INTRODUCTION

With increase in population in India, everyday large number of people are using different kind of transportation from one place to another place. Different transportations are opted in India are road transportation, rail transportation, Air and ship transportation. In that, most of the people prefer to travel through rail transport. Though the railway department is operating service in various classes, still the people are not able to travel conveniently, for not able to get ticket reservation properly. Due to the reason that, advancing the chart preparation in earlier days. Such situation even though tickets are there, after chart has prepared, one cannot reserve for that train, chart preparation time is reduced and fetch to chart before the short time departure of that train. Allow Passenger to reserve ticket till their time, because of that reserved ticket seat or berth or shuffling takes place which is not notified to the passenger correctly in time. Though Indian Railways provides high class services in all means, still few flaws are there in reservation mechanism and passenger alertness towards the passenger destination station that train reaches[1].

Here is the brief overview how Indian railway is functioned Indian Railways (IR) is India's national railway system operated by the Ministry of Railways. It manages the fourth-largest railway network in the world

by size, with 121,407 kilometers (75,439 mi). Thirty eight percent of the routes are electrified with 25 KV AC electric[1] IR runs more than 13,000 passenger trains daily from 7,349 stations across India, runs around 11,000 trains every day, of which 7,000 are passenger trains.

With the assistance of Centre for Railway Information Systems has launched Computerized reservation facilities were added at present these facilities are available at 758 locations in the country covering about 96 per cent of the total workload of passenger reservation. Computerized Reservation related enquiries about accommodation availability, passenger status, train schedule, train between pair of stations etc. have been made web enabled.[1]

II. EXISTING APPROACH OF RESERVATION PROCESS

Entering details with upper berth preference from 18 upper berth in each coach then total is 180 berths, in total 20% gone. Thus, left over is 144 berths. The system will allot the berth to all 144 persons without an exception in different Sleeper coaches. After Upper Berth is filled they start giving in Middle Berth and Side Upper Berth, but in that few seats are left, it would be allotted at the time of chart preparation[2].

Suppose there is a couple who booked ticket, but it was in waiting and it got confirmed in chart reservation, now they will be allotted tickets in and around same coupe or two middle berths. They are not allotted Berths together most of the time. Suppose like Lower and Middle, or Side Lower and Side upper[2]. Seat allotment goes according to the choices of user until less than 100 seats are allotted. After that time UB might get exhausted, so MB and Side upper berth starts filling. Generally, it is seen that Side upper berths which are above RAC berths are given to the single Males having age above 21[2].

RAC-berths-are-Divided-like-following

2-4=>2AC

4-6=>3AC

8-12=>Sleeper

RAC allotments are given to passengers after all the seats have been allotted despite their choices. Suppose there were two seats available when I booked for a group of 4. 2 people will get confirm berth, they might be given in different coaches too depending upon availability. 2 people will get RAC and it will be shown RAC-1 and RAC-2, Once somebody cancels their status will become CNF, but seat will be allotted after chart preparation only[2].

Most of the railway bookings are done in pairs when it is ending, suppose two people book tickets together then it is most likely that they will get two middle berths opposite to each other rather than Lower Middle or Side upper and lower combo. And suppose if Side upper is available and Side Lower is not available then mostly Middle Berth pair is given. It is a notable fact that I have seen most couple travel in Middle Berth opposite seats[2].

Only 20-30% seats are open for Lower berth preferences for Males and that too aged more than 21. Most of these berths are given to old age people and women. In rare cases Senior citizen are allotted UB, it is only done if the only seat available is upper berth[2]. A special care is taken that a female is not left alone in a coupe during chart preparation, mostly females are clubbed together, and Female coupe can be well defined in the train. If they are not able to allot like that and suppose a single female 22 got a UB in a Coupe, then the most probable event is that either a family will come, or other single female traveler will come in Coupe, if not so then females from Tatkal are allotted seats in that coupe. In no circumstances railways leaves women alone in coupe[2].

Drawbacks

Sometimes passengers may not get accurate information about confirmed ticket during changes in chart information. Sometimes reservation chart may not be pasted. No ticket bookings are allowed after chart preparation due to this some seats are remained unfilled as chart is prepared before 4 hours of the train departure.

III. PROPOSED APPROACH OF DIGITAL CHART PREPARATION

In earlier days 4 hours before the train departures chart is prepared but now, chart preparation time is reduced. But passengers may not get accurate information about their ticket allotment. Sometimes seats may not be allotted after chart preparation. Due to this Indian railway may loss revenue. Other passengers may not get seat allotment for their journey.

To overcome all this problem an Approach of digital chart preparation may helpful. Passengers can access their seat allotment information easily and accurately through digital chart display in the train. Even though there is shuffling in seats after chart preparation takes place, latest shuffled seats details can be easily transmitted and updated in digital chart display.

A) WORKING OF DIGITAL CHART MECHANISM

- Reservation chart is prepared before the train reaches departing railway station.
- The sorted chart is transferred through wireless connection to the train when it enters into the railway station.
- The chart is displayed in digital chart displays present in each and every coach. It can be updated any time easily to show accurate data

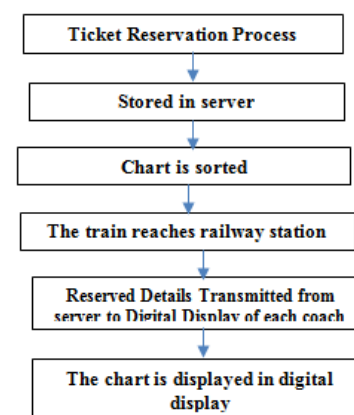


Fig.1 Digital Display Process

B) COMPONENTS TO ESTABLISH DIGITAL DISPLAY TRANSMISSION

- Wireless data receiver in train to receive chart data.
- Digital display to display reservation chart in trains.
- Wireless data transmitter in railway station to transmit data to the train

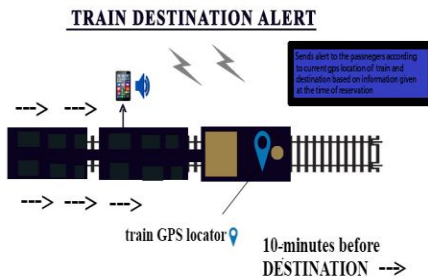


Fig.2 Data Transmission between Station Server and Train

WTI NO	COACH NO	NAMES	AGE	FROM	TO	PHI NO	CH-ID	NAMES IN ENGLISH

Fig. 3 Digital Display Format



Fig. 4 Train Coach with Digital Display

Advantage

- 1.Through transferring data from data transmitter to data receiver in train the digital chart display can be easily updated.
- 2.As the digital chart display can be updated easily, it shows accurate data.

- 3.Passengers can be easily access and identify the data in digital chart display.
- 4.Decreases the cost as it uses electronic devices instead of traditional paper pasting for representing the reservation chart.

Disadvantage

- 1.It is expensive to install a digital display in each coach.
- 2.Passenger should become familiar with digital chart.

C) TRACKING AND DESTINATION ALERT

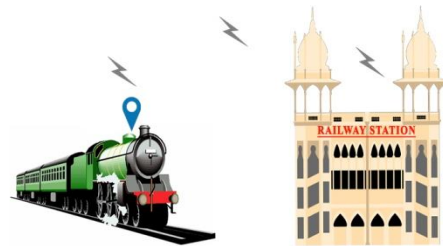


Fig. 5 Wakeup Alert to passenger through GPS

Working Procedure

- 1.GPS provides special satellite signals, which are processed by a receiver. A GPS receiver present in train will help to track and compute the velocity and time.
- 2.GPS location will be updated through satellite sent to the device.
- 3.When the train reaches passenger's destination as per current GPS location of the train. Passenger will get an alarm through their registered mobile during ticket reservation.

Advantage

1. Destination alert may useful for passengers when:
 - a.Travelling to Strange destinations (visiting new places).
 - b.Sleeping in journey times.
 - c.Busy in other works
- 2.Passenger can access from any place at any time to know the details of train in advance which they are about to travel.
3. Passenger can predict the time of reaching.
4. To know current location while travelling in train.

CONCLUSION

Every passenger has a intention that, they would like to travel in sophistication whatever the transport method they choose to travel. So it is believed that, this proposes features in ticket reservation flexibility and alarm

alertness gives every passenger to utilize with greater extent.

REFERENCE

- [1] <http://indianrailways.gov.in>
- [2] Quora.com
- [3] Erail.com

