

Security of Passenger Information on Running Train Using Smart Chip over Chart in Indian Railways

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Abstract: Indian railway are extensively used by commuters all across the country. It is one of the rapidly growing traveling sector. With the ever increasing passenger, smart mechanisms are needed to handle this increasing demand. One of the major issue is about the security of the passenger. Smart chip will hide the passenger information on running train. Smart chip helps in prevention of some criminal activities.

Keyword: Passenger Security, Smart Chip, Railways, Chart, Chip Reader and Chip Writer

1. Introduction

Railway services are available in most of the countries in the world. However, the demand for fast, reliable, and passenger friendly services is always being felt. With the ever increasing passenger, more efficient mechanisms are needed to handle this increasing demand. And this would not be of only man-power but of smart technologies which when induced within the system, would produce a smarter railway system throughout. Smart Computing is a newer approach of technology which can be efficiently used in Railway systems. Handling passenger data has been a key point of consideration in most railway services. In the case of Indian Railways, detailed passenger data is needed to be handled for mostly the reserved accommodations. And to provide secure services, the huge passenger data needs to be hidden. The concept smart railways imply a set of new-generation solutions, services, with the help of Information and Communication Technology (ICT)

2. Overview on Reservation Charting System and Passenger details on trains (List on Coach)

Train's chart is the list of - among other things - the following:

- All the passengers traveling in a train - their names, genders and ages, apart from their origin and destination stations,
- The coach and seat/berth numbers of all passengers with tickets that are confirmed,
- The coach and seat numbers of all passengers whose tickets are still in the RAC list when the chart is prepared,
- All passengers on the RAC/wait-list and their final status when the train's chart is prepared - if confirmed or RAC, their coach and seat/berth numbers,
- Passengers who have been given a free upgrade,

Train **chart** is a long sheet of paper

Sl. No.	PNR	NAME	AGE	SEX	COACH	SEAT	BERTH
1	4109952576	CCY	SBC	E			10
2	4054021787	CNR	SBC	E			20
3	4709952576	CCY	SBC	E			25
4	4709952576	CCY	SBC	E			25
5	4155274025	MILN	SBC	E			15
6	4454021216	NCJ	SBC	E			30
7	4709952576	MILN	SBC	E			10
8	4454021216	NCJ	SBC	E			30
9	4454021216	NCJ	SBC	E			30
10	4454021216	NCJ	SBC	E			30
11	4454021216	NCJ	SBC	E			30
12	4454021216	NCJ	SBC	E			15
13	4807951099	TVC	SBC	E			30
14	4807951099	TVC	SBC	E			30
15	4807951099	TVC	SBC	E			30
16	4590330804	CNR	SBC	E			10
17	4590330804	CNR	SBC	E			50
18	4590330804	CNR	SBC	E			15
19	4590330804	CNR	SBC	E			15
20	4590330804	CNR	SBC	E			15

Box 1 (Orange): Tells you the class of the coach (in this case, Second AC Sleeper), the coach (A2), the train's number and name, its origin station and the date of departure from its origin. This information is useful to make sure you're on the right train and coach. Be aware though that in some cases, old charts from previous journeys of the train might not have been fully removed, leading you to believe that you've caught the wrong train. In this case, a quick enquiry to your fellow passengers, porters or station vendors should clear any confusion.

Box 2 (Green): Mentions the seat or berth numbers - this is followed by the names of passengers who have that seat or berth. Some berth numbers might be missing if they're kept

aside for RAC passengers; the list of which is mentioned at the bottom of the chart. Some berth numbers might be repeated as well, if the same seat or berth is being used by different passengers for different legs of the journey. If the columns following a seat/berth number are blank, it means the seat/berth is vacant. If this seat/berth number is mentioned only once, it means that the seat/berth is vacant for the entire journey. However, if the seat/berth number is mentioned twice; the second number followed by a notation like GN/NDLS, it will get filled up at a future station.

The bottom of the chart also mentions the total number of seats in the coach that are unutilized during the entire journey. It will state something like this:

Number of FULL Vacant Seats in Coach: x Class: y : z

Where 'x' is the coach number, 'y' the class of travel, and 'z' the number of vacant seats.

Box 3 (Grey): The names of the passengers in English and Hindi. Blanked out as I doubt they'd be too happy to have their details floating around the web.

Box 4 (Blue): The genders and ages of the passengers. M = Male, F = Female. So "M26" means a 26 year old man, "F57" a 57 old woman - you get the drift.

Box 5 (Purple): The PNR numbers of the passengers.

Box 6 (Lime Green): Mentions the origin and destination of each passenger. Only station codes are used

3. Shortcomings of the Existing System

Every passenger knows the details of other passenger traveling in train. On a train coach a chart contains the details of only those passengers who have confirmed reservation. As mentioned above some basic credentials such as name, age, gender, origin, destination, PNR as well as seat number is mentioned. Since passenger details are available which leads to threat of passenger privacy. Train services are extensively used in India for various occasions and ceremonies. For instance, nearly half of the coach is booked for wedding or some other event. A gang of people may misuse the information which is displayed on the coach; this may result in criminal activity, also many other misconduct can happen. This is one of the serious problem in Indian Railway for security of passenger.

4. Proposed System

The process of Indian railway must be intact as well as security of passenger must be achieved. Chart should be displayed only on railway station that too for passengers who were in waiting and RAC[Reservation against cancellation] before chart preparation. Details of passenger should not be displayed on coach. Instead of this a smart chip should be there on each coach which reads as well as store information of passenger for particular coach. As railway staff will not paste chart on the coach instead the person will feed the same information via a smart device to respective coach containing a chip. Now, Ticket Checker

will have all this in its palm via a device which is capable of reading, storing as well as displaying data.

5. Conclusion

In existing system where passenger data is available at large in public place such as on platform as well as on running train, which leads to lack of Passenger security. Safety in railways can be enhanced by introducing smart chip which aids to Smart railway. With the help of smart chip, passenger details will be hidden which will result in decrease of criminal activity. With security railways will also be protecting the environment by reducing paper usage.

References

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