

Automation of Rail Boarding System

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Abstract- In this paper, we have discussed how we are digitising the entire process, from ticket booking to passenger boarding. Currently, we have digitised ticket booking systems, but due to physical security checks and ticket authentication, we experience long lines on coaches. Additionally, occasionally, people without tickets board trains by paying off TTEs. We design a solution to these problems and offer it in our article. We're looking for the best solution while reducing the amount of work at the office and station. We are developing a fully digital mechanism that will lessen the aforementioned issues. While purchasing tickets, we are developing QR Codes that may be scanned at train coaches to verify the validity of passenger. We are utilising a scanner that pulls up all of the passenger booking information in order to read the QR codes.

Keywords – Digital Rail Boarding, Online ticket booking

I. INTRODUCTION

In order to address the major issue of overcrowding in railway coaches, the idea of digital rail boarding is presented in this paper. It is currently taken into consideration for AC coaches and will eventually be implemented throughout the entire railway system for boarding as well as on railway stations. In the essay at hand, we'll talk about a website that enables customers to look up train information, purchase and cancel tickets, and find out the actual costs of their travel arrangements. People can use online booking to easily book their tickets from the comfort of their own homes by simply clicking a mouse.

They can easily book their tickets using their payment cards within minutes. The status of their reservations for tickets, the availability of tickets for a certain train or location, information about the arrival or departure of specific trains, and other information are regularly needed by passengers on trains. During peak times, customer assistance centres at railway stations are unable to respond to such inquiries. There are extremely few reservation counters that are open to passengers and customers. It takes a while for someone to book a ticket because there are typically long lines on the reservation systems. There are currently no call centre facilities.

When a passenger contacts the closest railroad that can answer their questions in writing 24 hours prior to the scheduled departure of the train. The goal of the online railway ticket reservation system is to create a web

application that gives customers access to information about trains, their availability, and the opportunity to purchase tickets online. We thus considered creating a web-based application that would enable users to access all of these features from a single terminal and assist them in making reservations. The user part and the administrator part of the application were to be separated. Each of them also has the equivalent characteristics



Figure 1: Graph to show ratio of ticket booked to number of passengers

boarded in train

II. Proposed work

In the Research Paper- Boarding customary to be digitalized In their discussion of the boarding system, the authors covered a variety of amenities, such as how customers can approach the closest Reservation Office with a printout of their "Electronic Reservation Slip with QR" and a photo ID from a passenger at least 24 hours before the train is scheduled to depart, if not more, in accordance with railroad regulations.

Please be aware that, in accordance with current railroad regulations that apply to other face-to-face counter-booked tickets, reservation offices may alter the passenger's name and boarding station without first receiving permission from the passenger. Another member of his family, such as his father, mother, brother, sister, son, daughter, husband, and wife, can inherit it. He must bring the printed copy of the "Electronic Reservation Slip" as well as identification documentation with a photo and documentation for any requested changes in blood relations.

- i) If the request is made in writing 24 hours before to the train's scheduled departure by the competent authorities and the passenger is a government employee travelling on business.
- ii) Such request will be granted once only.

The website's registered users have access to the I-ticketing & E-ticketing feature; they can choose between an Internet ticket or an Electronic Reservation Slip (ERS). There will be no delivery of a ticket via E-ticketing until the is delivered to a customer's home. The computerized reservation slip must be printed out by the traveler. Any one of the nine identity cards previously listed below, which must be carried during the trip by any passenger who purchased an e-ticket, will be accepted as identification.

- (a) Voter Photo Identity Card issued by Election Commission of India
- (b) Passport
- (c) PAN Card issued by Income Tax Department
- (d) Driving License issued by RTO
- (e) Photo Identity Card issued by Central/State Government
- (f) Student Identity Card with Photographs issued by recognized School/College for their students
- (g) (g) Nationalized Bank Pass Book with Photographs.
- (h) Credit Cards issued by Banks with laminated photograph.
- (i) Unique Identification card "Aadhar"

The only way to cancel an electronic reservation slip is online; it cannot be done at the conventional Railway counter.

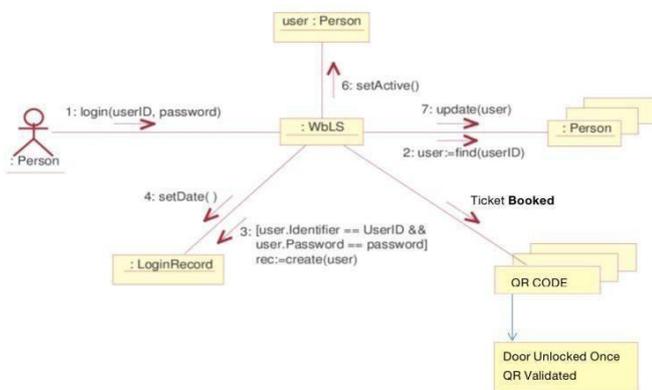


Figure 2: The flow chart how user interact with our System

III. Related Study

The Indian Railways can only operate effectively provided the passengers are happy with the services they receive, according to the study paper "A critical analysis on factors impacting railroad customer satisfaction" by Authors Ms. Shikha and Dr. Shilpi. The railway is the backbone of the Indian economy and society, but the services provided by the Indian railways are not up to par on a global scale. This is the main difficulty facing the railway authorities at the moment. There is a high demand for rail services since customers prefer to travel by train. The Indian Railway will be the most successful public sector project in India if it accurately assesses the precise client expectation and provides the services in line with the client's expectation. The

Indian Railways has a number of automated facilities available, as well as question facilities at stations. To meet the demands of rail passengers, there are ticketing machines, water vending machines, platform shelters at stations, pay-and-use restrooms, good retiring rooms with contemporary furnishings, coach indication boards, signage, safety, and security. Only until the passengers are happy with the services they receive will the Indian Railways operate effectively.

Rengarajan, Sathya, and Dhivya (2016)[1] conducted a study on the factors that influence customers' satisfaction with the Indian Railways' e-ticketing system. The goal of the study is to assess the chosen sample customer's occupational position and level of consumer awareness. Researchers have concluded from this study that customers are also impacted by the cost of higher class train tickets and will attempt to switch to alternative transportation methods like aircraft. To compete with other modes of transportation or to satisfy passengers with the best services of Indian Railways, railway authorities should concentrate on providing proper training to the staff and trying to influence their behaviour in a proper way towards the customer. They can also consider improving basic facilities such as safety, security, and hygiene.

This system is built on cutting down on lines at the counter; it mainly emphasizes using a wallet to book the ticket in order to cut down on network traffic; also, the user doesn't have to enter payment information each time he wants to purchase a ticket. By conducting the entire operation online, time is saved. The SQL database utilized here reduces the amount of time needed to reserve a ticket. The IRCTC website has incorporated an e-wallet programmed that enables each user to set up a wallet account, deposit funds in advance to their wallet account, and then utilize those funds to make reservations. Moreover, recent ticket purchases may be stored. This way of booking tickets saves time by eliminating lines, which would otherwise be wasted.



Figure 3: Device in Trains scan the QR on ticket to unlock door

IV. Result Analysis

These are some of the many benefits of using an online reservation system: Convenient - You may book or cancel your tickets while relaxing at home or at work. Saves Time and Effort - By using this service, you can avoid driving to the railroad reservation office and standing in line. You can

also prevent crowds from forming at the train doors as people try to board the vehicles. In addition to saving passengers' time, the digital boarding system will also reduce crowding and help us maintain social distance between all passengers by preventing unauthorised or unticketed passengers from entering trains during the covid and other flu outbreaks. Due to online verification and ticket validation, passengers can now order tickets up until the moment of boarding.



Figure 3: Screenshot of QR Ticket generated

V. Future Work

When governments remove lock down regulations, there has been a 230% surge in internet rail ticket reservations. We plan to implement this boarding method in the sleeper and seating coaches in the near future so that railroad can manage the proper functioning of trains and also upgrade. The demand for reserved tickets on Indian Railways has increased by 230% in the last three weeks. These recent numbers show the potential that how effectively we can implement the system and avoid long lines and large gatherings of unwanted and non-ticket persons on the trains.

VI. CONCLUSION

The usage of the Automation of Rail Boarding System to meet the needs of rail service customers and make the most of the services offered by the rail transport was examined in this article. We suggested the Digital Rail Boarding System, a system made up of people, trains, stops, and a rail control centre, in more detail. We talked about the Digital Rail Boarding System's security issues and offered concrete mitigating tactics. With the enormous number of passengers in mind, we created an assured needs model to manage the size, unpredictable dynamics, and heterogeneity of the railway system. The specification of passenger assistance software is then demonstrated using this approach. It has been demonstrated that the largest issue with non-ticket holders in trains may be diminished and almost eliminated; this is a highly promising potential to enhance the quality of public transportation services and the travelling experience for passengers. Our upcoming study will involve simulating the planned system to support railways and ensure that it operates properly.

VII. REFERENCES

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