

# SMART SOLUTIONS FOR RAILWAYS

- Indian Railway is India's third largest human transport system over which 2 core passengers travel daily all over India. The passengers accomplish their journey from their source station to destination in standing mode. The number of passengers in Indian Railway has been increasing drastically in every year, in a rate of 25 to 50 percent from its previous year.
- Such increase also increases the number of waiting queue passengers in station. Increasing number of waiting queue passengers, increase rushes in train which results "happy journey" slogan of Indian Railway in to "unhappy journey". In order to ease the ticket booking facility for passengers, as well as, boost paperless ticketing, railways is planning to introduces QR code system.
- Passengers will be able to get QR codes of train tickets online which is expected to boost the paperless ticketing system. It may be noted that the QR railway mobile app allows users to book unreserved tickets online. Buying unreserved tickets on all non-suburban sections across all zone railways was made available. The process of availing tickets involves downloading the application and registration by furnishing the requisite details. After successful registration, the user is given a user-ID and password, which the person can use to log-in and book tickets and scan QR.
- GPS is used to synchronize the timing of railroad communication systems, including data transmissions for PTC, voice contact between locomotive engineers and dispatchers, and intermodal communications among trains, rail stations. Indian Railways deploys ISRO-developed train tracking devices. The GPS-based RTIS device enables automatic acquisition of the time of train movements at the stations. Indian Railways is deploying a Real-Time Train Information System (RTIS) for tracking trains. By using ISRO's Satcom hub, the GPS-based technology is expected to be installed in 6,000 more trains across 50 loco sheds

## LITERATURE SURVEY:

[1]

DATE OF PUBLICATION	PAPER NAME	AUTHOR NAME	LINK
November 02,2020	Configuring an application which allows online booking and purchase of travel tickets for railway and road transport - Unified Modeling Language	Desdemona Isabela Scarisoreanu	<a href="#">Sci-Hub   Configuring an application which allows online booking and purchase of travel tickets for railway and road transport - Unified Modeling Language. 2020 International Conference on Mathematics and Computers in Science and Engineering (MACISE)   10.1109/macise49704.2020.00013</a>

The purpose of this paper is to configure an application which will allow the online reservation and purchase of travel tickets for rail transport and road system. The purpose of the application is to create a software product which will help as many users as possible. They will thus be able to plan their trip, including purchasing online a single ticket to travel by different means of transport, at an early stage train and bus, using the mobile phone.

[2]

DATE OF PUBLICATION	PAPER NAME	AUTHOR NAME	LINK
September 05,2020	Railway E-Verification Information and Ticketing System	Sourodeep Chatterjee, Soham Das, Divisha, Bhaskar Goswami, Pallab Nag, Chittaranjan Pradhan.	<a href="#">Sci-Hub   REVITS: Railway E-Verification Information and Ticketing System. 2020 International Conference on Communication and Signal Processing (ICCSP)   10.1109/ICCSP48568.2020.9182191</a>

This paper includes facilities for the Indian Railway Reservation System, such as dynamic seat allocation and real time charting. Real Time Charting provides additional benefits to both the passenger and the TTE. Using the proposed system, TTE can allocate seat dynamically if the seat is vacant while in transit and at the same time a passenger can also book a ticket until and unless the train has left the boarding station. The entire transaction will be stored in the central system which regulates and automates the proposed model.

[3]

DATE OF PUBLICATION	PAPER NAME	AUTHOR NAME	LINK
March-2018	Android Application on E-Ticketing Railway System Using Qr-Code	Vinay Maheshwar, Kalpesh Patil, Azim Maredia, Apeksha Waghmare.	<a href="#">9-33-38.pdf (iosrjen.org)</a>

India's population increase day by day; mostly common peoples are depending on the railway locals for traveling to their destinations. One of the biggest challenges in the current ticketing facility is "QUEUE" while buying our suburban railway tickets. E-Ticketing is mainly to buy long way distance tickets whereas the local train tickets are bought at ticket-counter and no mobile applications for the same are used on daily basis. This ticket contains unique ticket-id, name, gender, DOB, time of transaction & name of source and destination. The ticket checker application is also provided to search for the user's ticket with the unique ticket-id from the main server for validating the ticket.

[4]

DATE OF PUBLICATION	PAPER NAME	AUTHOR NAME	LINK
April 5-7, 2017	GPS and GSM based Rail Signaling and Tracking System	Muddana Tarun, Vinay Kumar, Sudhir Kumar, Mukunda Ujwal Jajoo, Saif UR Rahman, Joydeep Sengupta.	<a href="#">Sci-Hub   GPS and GSM based rail signaling and tracking system. 2017 4th International Conference on Control, Decision and Information Technologies (CoDIT)   10.1109/CoDIT.2017.8102642</a>

In this paper, we propose a system for monitoring, tracking, and automating the trains. In contrast to the existing methods, we employ a global position system (GPS) and Global System for Mobile communication (GSM) by which each train is individually monitored and necessary messages are passed on proactively. The proposed system has advantages in terms of communication range and accuracy with respect to Zigbee, Wi-Fi, RFID based rail tracking method. The work has potential applications in bad weather and emergency situations like collision.

[5]

DATE OF PUBLICATION	PAPER NAME	AUTHOR NAME	LINK
December 2014	Online Reservation System Using QR Code based Android Application System	Mrs. Omprakash Yadav , Ryan Fernandes, Rohit Tiwari, Sheenam Kaul.	<a href="http://ijssrp.org">Online Reservation System Using QR Code based Android Application System (ijssrp.org)</a>

This paper proposes the new Seat Allocation system considering the advantage of QR code image that contains information about ticket and passenger info in form of 2d . Moreover, authentication seat allocation checking by tc is done using an another android app for tc which verifies qr code information with the database and reduces the burden of tc. Through this research paper our approach is to make journey of waiting list passengers more convenient in Indian Railway.

[6]

DATE OF PUBLICATION	PAPER NAME	AUTHOR NAME	LINK
January - 2014	Android Application Generating Qr Code as Railway Ticket	Karthikram, Saravanan, Madhavan , Prathesh.	<a href="http://ijert.org">Android Application Generating Qr Code as Railway Ticket (ijert.org)</a>

This system aims at booking Sub-Urban Railway Tickets in a simple way. The major complication in current Ticketing facility is wasting time in “Long Queue” to buy our Sub-Urban Railway Tickets. The “M-Ticket” facility is not available and fails with the local travel tickets. Our Proposed System is used to generate the Railway ticket as QR Code which can be carried in smart phones. The “GPS” facility in Smart Phones is used to validate and delete the ticket automatically once the passenger reaches the destination. The passenger’s Information is also stored in CLOUD database for security purpose which lacks in present suburban system. The passenger’s ticket information is retrieved from the CLOUD Database using the ticket number.

[7]

DATE OF PUBLICATION	PAPER NAME	AUTHOR NAME	LINK
2012	Android Suburban Railway Ticketing with GPS as Ticket Checker	S Karthick, Velmurugan. A	<a href="#">Sci-Hub   Android suburban railway ticketing with GPS as ticket checker. 2012 IEEE International Conference on Advanced Communication Control and Computing Technologies (ICACCCT)   10.1109/ICACCCT.2012.6320742</a>

This paper Android Suburban Railway (ASR) ticketing is mainly to buy the suburban tickets which is the most challenging when compared to booking the long journey tickets through 'Mticket' which fails with suburban(local travel) tickets. Our ASR ticket can be bought with just a smart phone application, where you can carry your suburban railway tickets in your smart phone as a QR (Quick Response) code. It uses the smart phones "GPS" facility to validate and delete your ticket automatically after a specific interval of time once the user reaches the destination. User's ticket information is stored in a CLOUD database for security purpose which is missing in the present suburban system. Also the ticket checker is provided with a checker application to search for the user's ticket with the ticket number in the cloud database for checking purposes.

## REFERENCES:

1. *Configuring an application which allows online booking and purchase of travel tickets for railway and road transport - Unified Modeling Language.* University Politehnica of Bucharest Bucharest, Romania. November 02,2020.
2. *REVITS: Railway E-Verification Information and Ticketing System.* July 28 - 30, 2020.
3. *Android Application on E-Ticketing Railway System Using Qr-Code.* Department Of Computer, Atharva College Of Engineering /Mumbai University, India. March-2018.
4. *GPS and GSM based Rail Signaling and Tracking System.* Department of Electronics and Communication Engineering, Visvesvaraya National Institute of Technology, Nagpur, India. April 5-7, 2017.
5. *Online Reservation System Using QR Code based Android Application System.* Department of Computer Engineering, Xavier Institute of Engineering, Mahim, Mumbai, India. December 2014.
6. *Android Application Generating Qr Code as Railway Ticket.* The Sri ManakulaVinayagar Engineering College (SMVEC) , January – 2014.
7. *Android Suburban Railway Ticketing with GPS as Ticket Checker .* Department of Information Technology Shri Andal Alagar College of Engineering.2012.

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