LITERATURE SURVEY

TITLE	AUTHOR'S NAME	ABSTRACT	METHODOLOGY
TOWARDS THE INTERNET OF SMART TRAINS:A REVIEW ON INDUSTRIAL IOT-CONNECTED RAILWAYS	1 Paula Fraga-Lamas 2 Tiago M. Fernández-Caramés 3 Luis Castedo	This review details the evolution of communication technologies since the deployment of GSM-R, describing the main alternatives and how railway requirements, specifications and recommendations have evolved over time. The advantages of the latest generation of broadband communication systems (e.g., LTE, 5G, IEEE 802.11ad) and the emergence of Wireless Sensor Networks (WSNs) for the railway environment are also explained together with the strategic roadmap to ensure a smooth migration from GSM-R. Furthermore, this survey focuses on providing a holistic approach, identifying scenarios and architectures where railways could leverage better	Heuristics,Particle Swarm Optimization,Discrete-event Optimization Model,bilevel,optimization,Agent-based modelling ontologies,Hidden Markov model.

		commercial IIoT capabilities. After reviewing the main industrial developments, short and medium-term IIoT-enabled services for smart railways are evaluated. Then, it is analyzed the latest research on predictive maintenance, smart infrastructure, advanced monitoring of assets, video surveillance systems, railway operations, Passenger and Freight Information Systems (PIS/FIS), train control systems, safety assurance, signaling systems, cyber security and energy efficiency. Overall, it can be stated that the aim of this article is to provide a detailed examination of the state-of-the-art of different technologies and services that will revolutionize the railway industry and will allow for confronting today challenges.	

A REVIEW ON IOT BASED AUTOMATED SEAT ALLOCATION AND VERIFICATION USING QR CODE	1 Sarvath Saba 2 Sharon Philip 3 Shriharsha 4 Mukund Naik, 5 Sudeep Sherry	One of the most prevalent problems in Indian Railway stations is that the platforms are overcrowded. We have recommended a system to tackle this issue. This system aims to issue a smart seat allotment to passengers. Every ticket will have its OR code which will have to be scanned to enter into the platform. The scanning of the ticket will automatically confirm the presence of the passengers and these seats will be locked till the passengers' destination. Passengers should scan the QR code on their ticket against the scanner and go through a turnstile to gain access to the platform. The turnstile will also keep track of how many passengers pass through, in cases where the ticket that has been generated is booked for more than one passenger. The	The system lets the passenger to have a comfortable journey by checking the temperature first for normal and then the count for avoid crowd using the QR Code.

		turnstile will also screen and record the temperature of the passenger .The temperature of the passenger at the time of boarding will be recorded. Scanning of the ticket will confirm the presence of the passenger/passengers on the platform and thereby, locks their seat/seats. Passengers have a small window of 45 minutes to board the train at the next station in case they have missed their boarding station. On missing their window, the reservation would be cancelled and will be allotted to passengers travelling in RAC. The seat will be allotted to the RAC passenger, prioritizing their age and gender.	

INDUSTRY 4.0 TECHNOLOGIES APPLIED TO THE RAIL TRANSPORTATION INDUSTRY: A SYSTEMATIC REVIEW	1 Camilo Laiton-Bonadiez 2 John W. Branch-Bedoya 3 Martin Arango-Serna	This paper aims to answer the following research questions, what are the main issues in the railway transport industry, what are the technologic strategies that are currently being used to solve these issues and what are the technologies from industry 4.0 that are used in the railway transport industry to solve the aforementioned issues methods. This study adopts a systematic literature review approach.The initial included papers were analyzed by authors and selected based on whether they helped answer the proposed research questions or not. Results: Of the recovered 515 articles, 109 were eligible, from which we could identify three main application domains in the railway industry; monitoring, decision and planification	Establishes an inclusion and exclusion criteria for the extracted studies.

		techniques, and communication and security. Regarding industry 4.0 technologies, we identified 9 different technologies applied in reviewed studies: Artificial Intelligence (AI), Internet of Things (IoT), Cloud Computing, Big Data, Cybersecurity, Modelling and Simulation, Smart Decision Support Systems (SDSS), Computer Vision and Virtual Reality (VR). This study is, to our knowledge, one of the first to show how industry 4.0 technologies are currently being used to tackle railway industry problems and current application trends in the scientific community, which is highly useful for the development of future studies and more advanced solutions.	

TRAIN TRACKING SYSTEM USING RFID AND IOT	1 Yogesh Nimbalkar 2 AkshayMemane 3 Rahul Ahire	In this Project, Reader Section Is Fixed On Train. When train arrival at station, reader read that RFID tag which is place at each station, at that time station name will announce through speaker. Same Time Train Arrival On "Xxx Station" will display on LCD. Using IOT module, train status will be shown on webpage /mobile app. all information display on LCD. Railway tracking system in which system provide easy navigation to passenger. We can implement it successfully for real time systems.	A unique RFID code is given to Each train through which they are being identified.

EFFICIENT E-PLATFORM TICKET SOLUTION USING BEACONS	1 Chandan kumar	This paper proposes Efficient e-Platform - Ticket Solution using Beacons, Proposed implementation will be beneficial to a lot of people who visit railway stations and have to face big queues in order to purchase platform ticket. It will ease a lot of burden on Indian Railways and will also spruce up revenues.	E-ticketing containing QR code via installed beacons will be generated by the application servers.

A SECURE FREIGHT TRACKING SYSTEM IN RAILS USING GPS TECHNOLOGY	1 Priyadharshini.T 2 Raghavi.N 3 Rajashree.B	The freight tracking system provides security to the freights. from occurrence of various theft activities in goods train. The GPS and GSM tracking systems have been introduced to avoid such undesirable situations. This paper is also provided with the concept of One Time Password (OTP) system and fingerprint system for the purpose of secured transportation. The full fledged security and monitorization of freights is made possible through the latest GPS tracking system. The system enables to track the freights with necessary safety measures. Although the intelligent train tracking system was introduced in various European countries for providing best service and protection of freight trains, the task of providing high level security to	Infrared sensors are used to diagnose obstacles around the vehicles,the level of exotic gases monitoring and all the informations are communicated via GPS.

		freight trains were missing. However this freight tracking system can able to overcome such kinds of security issues and gives high level security. Also the tracking system has not been implemented in the present and related works of freight tracking system followed in trains. The possibility of delay may occur in the process of transportation of freights from the sender to receiver. This tracking system can overcome such delays through the complete monitorization process of freight trains, Safety to freights is also a major concern of issue in the existing tracking system of trains that can be corrected in this freight system of tracking in trains.	

TRAIN TICKETING SYSTEM USING SMART CARD	1 Ramesh.C	The goal of this project is to attain improved travel information and electronic ticketing using smart cards. The smart cards are similar to that of an ATM, so that they can be recharged and can be reused aften. Smart cards are secure portable storage devices used for several applications especially security related ones involving access to the system's database. The smart card has a microprocessor or memory chip embedded in it that, when coupled with a reader, has the processing power to serve many different applications.	The rechargeable smart card can be operated after giving a corrct secret password to get the availabitity of seats that will be printed at the end.

ENHANCEMENT OF RAILWAY RESERVATION SYSTEM USING INTERNET OF THINGS	1 B.Mallikarjuna	In this paper the survey focuses on different communication technologies under the paradigm of loT. The broad band communication technologies like Global System Mobile Communications-Railway (CSM-R), Long Term Evaluation (LTE), fifth generation (5G), IEEE 802.11 and Wireless Sensor Networks (WSN). This experimental result proved that IoT system is effective than well known system.	Survey of broandBand technologies that benefits enormously.

WIRELES SENSOR NETWORKS FOR CONDITION MONITORING IN THE RAILWAY INDUSTRY: A SURVEY	1 Victoria J.Hodge 2 Simon O'Keefe 3 Michael Weeks 4 Anthony Moulds	This paper surveys these wireless sensors network technology for monitoring in the railway indus try for analyzing systems, structures, vehicles, and machinery. This paper focuses on practical engineering solutions, principally, which sensor devices are used and what they are used for; and the identification of sensor configurations and network topologies, It identifies their respective motivations and distinguishes their advantages and disadvantages in a comparative review.	Integrated data processing.

WEB-BASED E-TICKETING SYSTEM FOR BOOKING RESERVATION FOR RAILWAY TRANSPORTATION USING QUICK RESPONSE CODES	1 Yahaya Mohammed Sani 2 Mariann Temitayo Usman 3 Mamman Adamu	The process of purchasing tickets manually at Nigerian railway stations is prone to ticket racketeering. Online ticketing systems have proven to be effective in other transportation systems such as the air transportation system. Therefore, implementing a web-based system for the ticketing process of rail transportation in Nigeria will solve the problem of ticket racketeering. The system is implemented using internet Programming with Quick Response (QR) codes for the process of ticket verification. Evidently, the system is reliable and recommended for use in ticket booking and reservation for rail transportation in Nigeria as it will contribute immensely to the economic growth of the country	HTML PHP CSS, JQuery JavaScript and Bootstrap.	