Literature survey

1. **Application of Smart Computing in Indian Railway Systems. (Parag Chatterjee, Asoke Nath)**
   Publication: International Journal of Scientific Research and Management Studies.
   Year:2014

   Smart Computing is a comparatively infant sector of technology which can be efficiently implemented in Railway systems for up gradation to a more efficient and smart model. Most of the railway services serving as public transport have to consider passenger data as an important key factor. To provide fast and efficient passenger services, a major role lies on handling this passenger data in an efficient manner besides processing and storing it fast and seamlessly. In the case of Indian Railways, this passenger data is primarily collected from the passengers in reservation/cancellation Requisition Forms and fed into the system in the form of manual entry. However in case of online ticketing system, the manual entry of passenger data still exists. To bypass the huge overhead of manual entry of this passenger data and to update the existing system to a more efficient one, a new model based on linkage through unique identity is proposed. The manually entered data is stored in the cloud and then the passenger journey datails passed to the railway database system and the ticket is successfully generated and also given with the QR code which contains the entire information of the travel of the passenger.

2. **Android Application for Integrated Travel Transport System: (Subbulakshmi S, K Jaichithra)**
   Publication: IOSR Journal of Mobile Computing & Application.
   Year:2016

   With the advancement of technology, new software and devices are being developed to ease man's work. Waiting for ticket in long queues is a time consuming process. Some people use the Automatic Teller Vendor Machine(ATVM)card i.e. smart card to buy ticket but it also has long queues for buying ticket. If people forget to take their card or they do not have balance in their card they will have to stand in queue. The operating system, Android, has led to great increase in use of mobile phones. Today

almost all of the work can be carried out through phone. The Android application eases the task of buying travel tickets. People can buy their travel tickets for the three modes of transportation (Bus, Train, Airlines) using just a smart phone application. Integrated travel system is an android application which is used to book the travel tickets in online. Online Reservation System Using QR Code based Android Application System 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 TTR is done using another android app for TTR which verifies QR code information with the database and reduces the burden of TTR. Through this application is to make journey of waiting list passengers more convenient in Indian Railway. The ticket can be bought easily anytime, anywhere and ticket will be present in the customer's phone in the form of "Quick Response Code". GPS facility is used for validation of the ticket at the source and deletion at the destination. The information for each user is stored in a CLOUD database for security purpose which is unavailable in the current suburban railway system. Also the ticket checker is provided with an application to search for the user's ticket with the ticket number in the cloud database for checking purposes.

3. **Android Suburban Railway Ticketing with GPS as Ticket Checker:(Karthick S, Velmurugan A)**
   Publication: IEEE International Conference On Advanced Communication Control and Computing Technologies.
   Year: 2012

   Android Cloud to Device Messaging (C2DM) is a service that helps developers sends data from servers to their applications on Android devices. The service provides a simple, lightweight mechanism that servers can use to tell mobile applications to contact the server directly, to fetch updated application or user data. The C2DM service handles all aspects of queuing of messages and delivery to the target application running on the target device.
   A QR code (abbreviated from Quick Response code) is a type of matrix-barcode (or two-dimensional code) first designed for the automotive industry. More recently, the system has become popular outside of the industry due to its fast readability and comparatively large storage capacity. The code consists of black modules arranged in a square pattern on a white background. The information encoded can be made up of four standardized

kinds ("modes") of data (numeric, alphanumeric, byte/binary, Kanji), or by supported extensions virtually any kind of data. So, that the QR Code contains the entire detail of the user. The checker will have QR Code reader and scan the QR code with the application in order to validate QR code and verifY the journey details, especially the time and date of the ticket. And in this Proposed System the System consists of an GPS Tracking System to track the location of the train which is always available in the respective android application. The GPS plays the role of the checker, where when the user buys the ticket, the source geopoints, destination geopoints, ticket type, expiry time & date are stored in a mobile SQLite database. This service checks the user's current location in accordance with the destination geopoints, after which the ticket type is checked and accordingly the ticket is deleted if two is single or updated if type is return.

4. **Smart Rail Reservation and Verification System with unique identification in IOT using Cloud Database:(Adapa Sri kumar Satya Ganapathi , Praveen Kumar S, Madhusudhanan P, S Ranjith Kumar)**
   Publication: International Journal of Pure and Applied Mathematics
   Year: 2018
   The IoT allows objects to be sensed or controlled remotely across existing network infrastructure, creating opportunities for more direct integration of the physical world into computer-based systems, and resulting in improved efficiency, accuracy and economic benefit in addition to reduced human intervention. For overcoming these problems were are proposing a new idea. For booking purpose we are going to use an web application which is developed in Java JSP technology. Through this web application we can book ticket using our biometrics as the primary key. Since our biometric is recorded in the UIDAI AadharKYC system there won't be necessary to enter any further details. For booking tickets for multiple passengers, it is necessary to have their aadhar number for booking the ticket. While in case of the verification time, biometrics should be verified for all the passenger who boarded in the train. If the passenger has a confirmed ticket then it will verify. Otherwise it will check in the waiting list. For waiting list, if the data is not authenticated means it will go refund if not no refund will be provided. For verification we are going to use a specially designed mobile application. This application is accessed by using an external fingerprint sensor or with an inbuilt sensor. Each official will have individual login credentials. So, by this itself we can identify every thing. Un travelled seats are automatically allocated for boarded

waiting list passengers. More over with is application, Lower seat preference will be adjusted by the medical track and senior citizenship claim also. Main thing which we are going to utilize is here is AEPS. This means Aadhar Enabled Payment System. By this system payment is done by using biometric id itself. Refund will be also given with consideration of this biometric.

5. **IOT Based Ticket Checking System:(Kriti Dhiman, Er.C K Raina)**
   Publication: International Journal of Advanced Research in Computer and Communication Engineering
   Year: 2017

   We make a system that checks the ticket of passenger in trains through IOT based System. After entered in train ticket is checked by a System. Or we can say that passenger give the tickets to system to entered next.If anybody can not purchase ticket on tickets counter then a passengers can buy a ticket from this system. So this system is safe from crime and save the time of passenger. Passenger checked his/her ticket by scan the barcode of ticket into the system. System is used in sleeper trains. Checking In And checking Out System. In this module where when the user buys the ticket, the source point destination geopoints, ticket type, expiry time & date. The user selects source, destination, class, no. of Adult and child tickets, ticket type like return or single etc. IOT connects more devices and transfers the entry points for malware. Less expensive devices are more subject to tampering .these challenges will become more pressing as use of the physical Web continuous to grow ,when we apply this system in train then our world is crime free. In this paper we represent main layered architecture of IOT. We make a system that checks the ticket of passenger in trains through IOT based System. After entered in train ticket is checked by a System. We studied the entire layer that is used in IOT. This system describes the whole architecture of IOT. In fact, the most IOT architecture includes all the existing technologies that are used to make a new System

6. **Train Tracking System using RFID & IOT: (Yogesh Nimbalkar, Akshay Memane, Mangesh Miranjgave, Rahul Ahire, Prof. V.S. Phad)**
   Publication: International Journal & Magazine of Engineering, Technology, Management and Research.

Year: 2017

The module outside the train consists of RFID reader interfaced with ARM 7 Microcontroller. At every station RFID tag get placed, when Reader placed on Train come in contact with Tag Unique ID send to microcontroller unit. Microcontroller receive that tag no and match it with database if match name related to that database get announce by speaker using voice IC. Same time station name get display on LCD .On webpage data get update & display data in graphical way update with the help of IOT module. 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 "X Station" will display on LCD. Using IOT module, train status will be shown on webpage /mobile app. all information display on LCD. Passive RFID tags: Passive tags only backscatter magnetic or electromagnetic waves coming from the interrogator. That is the only way they can communicate with the interrogator. In other words, they do not have any RF emitters on board so they cannot create their own RF signals. Batteryless passive tags use the incoming signal from the interrogator to supply the embedded chip. But batteryless and passive are two different characteristics of the tag and are unfortunately often confused.

7. **Automatic Ticket Validation System for Indian Railway:(V Vanitha, V.P.Sumathi,R.Kalaiselvi)**

Publication: International Journal of Recent Technology and Engineering

Year: 2018

The proposed system implemented with Android Application and Raspberry Pi. Android based application is developed to book the ticket by entering the passenger‟s details and Aadhaar number. These details are stored in the cloud database. And at the entrance of the train compartment, a passenger has to take fingerprint scans at that time cloud aadhaar database can be compared. Figure 1 explains the architecture diagram of automatic railway ticket validation system. The architecture diagram shows the system providing secured validation system with fingerprint scan of each passenger. The ticket checker module is enabled by logging with train number and password. Ticket Checker can view the passengers who are all travelling on that train with a name and aadhaar number. Also, If the

passenger crossed their booked destination notification will be sent to the TTE. For validation of the source and destination of the passenger, GPS tracking is needed. To manually set the location this application will be used. This is linked to Ticket Checker application for destination verification. Once passenger crossed the destination, the notification reached to Ticket checker. At the entrance of the train, the passenger can scan their fingerprint and entry after validation done. Fingerprint searching with cloud aadhaar database. If it matched it allows entering into the train. At the time of exit also this should be taken to verify the destination. Biometric check takes place for misusing tickets. Each passenger fingerprint stored in aadhaar database. Using this passenger details can be verified. Avoid the person who travels without ticket. Find fraud who travels with other‟s ticket. The following algorithm explains about enrolment of fingerprint and searching and matching it. Enrolment of fingerprint is passenger details storing in aadhaar database. While, searching is used to match the passenger fingerprint who needs to enter in the train.

CONCLUSION:

In the above all survey no system is aware of the main drawback of the railway system that is ticketless travelling. All the system is to just to make the booking easier and sensing the live location of the train and also only checking the tickets while on travelling only. There is also a way to escape from this type of checking and continue to travel on the train without a ticket. To Overcome this type of issue, We as a team proposing an idea to avoid those ticketless travelling. That is every ticket with an QR Code is scanned before entering the platform itself and an sensing gate is made to check the number of tickets booked and the number of persons entering through the gate and those counts should get finally tally. No one is allowed to cross the gate without an appropriate ticket, So this avoids the one who try to travel without an ticket.