SMART SOLUTIONS FOR RAILWAYS

Team ID: PNT2022TMID13378

TeamMembers:

SEENIVASAN K
RAM KUMAR M.K
PRAVEEN KUMAR J
RAJA M

ABSTRACT:

Almost all the countries across the globe strive to meet the demand for safe, fast and reliable rail services. Lack of operational efficiency and reliability, safety and security issues, besides aging railway systems and practices are haunting various countries to bring about a change in their existing railway systems. The global rail industry struggles to meet the increasing demand for freight and passenger transportation due to lack of optimized use of rail network and inefficient use of rail assets. Apart from this major problem, people are suffering while booking tickets. So the web application is designed to reduce the workload of the user and also the use of paper. Here in this project, we are going to design a web application which is useful for booking tickets.

As an application of these, we have done a project comprised of a Team of 4 members. Our Project name is IoT Analytics in Smart solutions for railway system. With the help of Smart Internz Platform we started our project with the knowledge we have gained in this Internship. We successfully completed our Project using the Python Programming and IBM Cloud Services.

PROJECT DESCRIPTION:

A Web page is designed for the public where they can book tickets by seeing the available seats.

After booking the train, the person will get a QR code which has to be

shown to the Ticket Collector while boarding the train.

The ticket collectors can scan the QR code to identify the personal details.

A GPS module is present in the train to track it. The live status of the journey is updated in the Web app continuously

All the booking details of the customers will be stored in the database with a unique ID and they can be retrieved back when the Ticket Collector scans the QR Code.

Using the Web application, a user books a ticket based on the availability of the

seats by giving the general required information.

Once a user clicks on the submit button, a QR code is generated with a Unique ID and the data is stored in the Cloud ant DB with that Unique ID.

Users can save the QR code for further process.

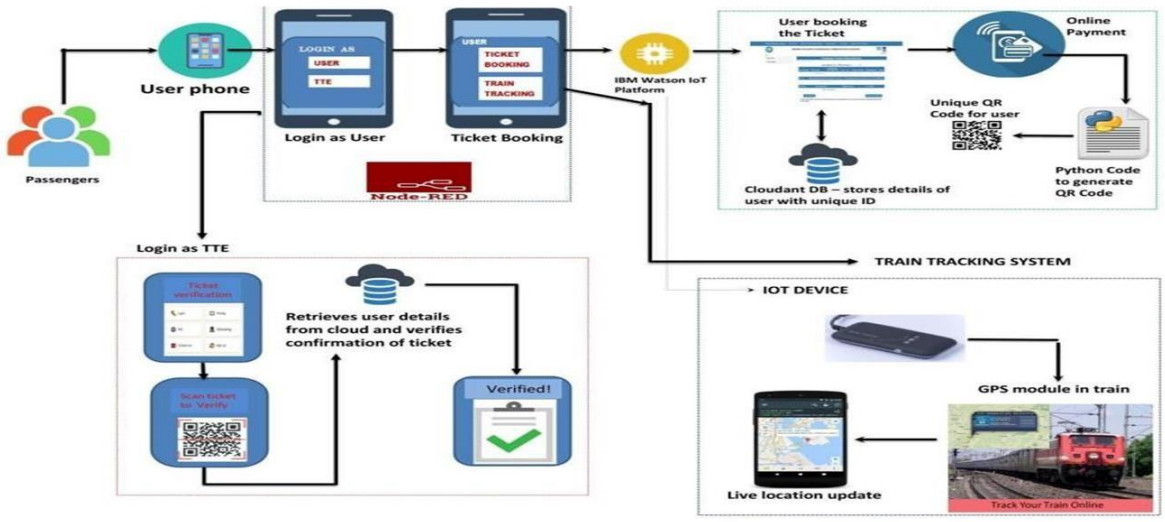
In python code, a Ticket collector can scan the QR code and extract the information from the QR Code i.e., Unique ID. With that Unique ID, data is fetched from the Cloud ant DB, if it is not found, then it displays Not a Valid Ticket.

Also, the live location of the train will be published to IBM IoT platform using python code

The train location can be tracked from a Web Application.

INTRODUCTION:

Smart solutions for railways is an idea where we can many problems while booking ticket. Our project is based on the web application for booking ticket. Nowadays people are working in busy schedule, they can't able to go for railway station and fill the form and waiting there for when will the counter is free. So avoid these kind of this sensible activities. We can handle booking the ticket in this web application. while applying this we can reduce the paper, and printing machine and the ink we are giving to the machine. The passenger reservation system of Indian railways is one of the world's largest reservation models. Daily about one million passengers travel in reserved accommodation with Indian railways. In this vast system, it is a herculean task to efficiently handle the passenger data, which is a key point of consideration nowadays. But the implementation of the latest technological updates in this system gradually turns inevitable due to increasing demand for providing the most efficient passengers services. Handling the passenger data efficiently backed by intelligent processing and timely retrieval would help backing up the security breaches. In this paper, we exploring some issues and solutions for railways which is affect the peoples who are often traveling in the train.



Requirements specification:

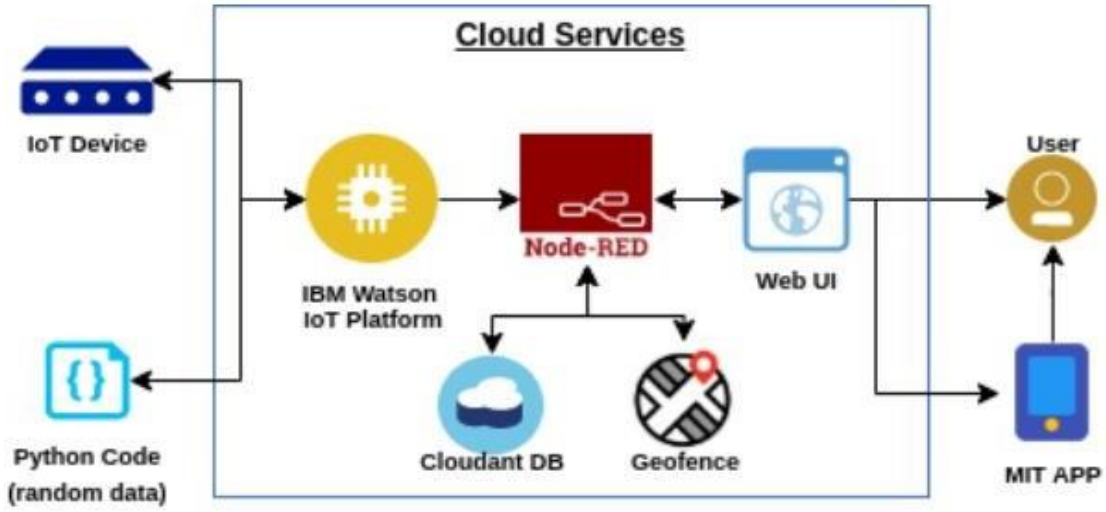
Software requirement:

Python idle

Hardware requirement:

RAM-Minimum 4GB Processor-Min. Configuration OS-Windows/Linux/MAC, 250 GB hard disk space and other standard accessories.

Work Flow of the project:



IMPLEMENTATION:

Web app Interface:

Interface contains options like user registration, Display QR code, tracking, order from pantry etc.

User Registration:

User can register a booking by providing information like mail, mobile number, boarding and destination stations.

These details are converted into sting format using node red flows.

Seat Selection:

User can select any seat they want, by seeing the remaining slots.

Generating QR Code after registration:

The user details are converted into string formats and using this string a QR code is generated after every registration.

This QR code is used to verify details of a passenger.

Verification of passenger details:

Using a node red flow, a scanner is created for scanning QR code.

Details of passenger is verified by scanning QR code.

Purpose of the Project:

There will a Mobile app for the public through which they can book tickets by seeing the available seats. Through this app the traveler can order the food, the pantry section will get the notification of order. A GPS module is present in the train to track it. The live status of the journey is updated in the mobile app continuously. The user can set a notification for intimating the train live status for both boarding and destination stations.

Proposed Solution:

This Project examines and compares some IOT regression methods. Wireless sensor network makes the Railway system smarter and easier. The Railway system is monitored continuously through the sensor network. The traveler personal details are transferred from routers to the main coordinator. At the main controller the GPS module is present to track the live status of train is, based on the QR code traveler can order the food, the pantry section will get the notification order. Traveler personal details along with their order is visualized in the mobile app and also stored in the database. Traveler get his/her order using the mobile app.

ADVANTAGES & DISADVANTAGES:

Advantages:

1)Greater Reliability and safety

2)Fewer Maintenance delays

3)Advanced Analytics for Streamlined operations

4)Restructured and optimized Passenger Experience

Disadvantages:

1) There could be wrong Analysis of Latitudes and Longitudes

2) Difficult in case of failure of GPS module and QR code

SURVEY:

1. Railway passenger frequently need to know about their ticket reservation status, ticket availability on a particular train or for a place, train arrival or departure details, special trains etc.

2. Customer information centers at the railway stations are unable to serve such queries at peak periods.

3. The number of the reservation counters available to the passengers and customers are very less'

4. On most of the reservation systems they are long queries, so it takes a long time for any individual to book the ticket'

5. As now there are no call centers facilities available to solve the queries of the passengers.

6. The online railway ticket reservation system aims to develop a web application which aims at providing trains details, train availability, as well as the facility to book ticket in online for customers,

7. So, we thought of developing the web based application which would be provide the users all these facilities from his terminal only as well as help them in booking tickets. The application was to be divided into two parts namely the user part, and the administrator part and each of these has their corresponding features.

8. Our website has various kind of information that's helps regarding booking of tickets railways.

9. It also reduce the paper work. It's totally going to be an online based.

10. In future there is going to be a ticket booking counter.

REFERENCES:

[1] Khekare G S , Sakhare A V . A smart city framework for intelligent traffic system using

[2] COOPER Dave E. Intelligent transportation systems for smart cities:a progress review[J].

Science China(Information Sciences), 2012, 55(12):2908-2914.

[3] Stefansson G, Lumsden K. Performance issues of Smart Transportation Management systems[J].

International Journal of Productivity & Performance Management, 2009, 58(1):55-70.

[4] Huang X. Smart Antennas for Intelligent Transportation Systems[C]// International Conference

on ITS Telecommunications Proceedings. IEEE, 2006:426-429.

[5] Li X, Song J. The Top Design Methodology of Smart City in China[C]// International

Conference on Intelligent Computation Technology and Automation. IEEE, 2014:861-864.

[6] Jianbo, Cheng, Peng. Top-Level Design of Smart City Based on "Integration of Four Plans"[J].

ZTE Communications, 2015, 13(4):34-39.

[7] Lanke N, Koul S, Lanke N, et al. Smart Traffic Management System[J]. International Journal

of Computer Applications, 2014, 75(7):19-22.

[8] Bouhedda M, Bellatreche S, Ahmed-Serier R. Smart traffic signal controller design and

CONCLUSION:

In conclusion, I am well satisfied with my training. I have learned many new concepts, acquired a number of new technical skills and improved another group ofexisting skills. What I liked most about my training is that it is very strongly relatedto new emerging technology. This refutes the common saying that very little of the materials taught in university engineering courses is used by engineers working in the labor market. This dependency (relationship) is clearest in engineering design. Imay count the technical skills that I learned or improved at the training site, other than those gained at college. At last, I hereby conclude that I have successfully completed my industrial training in Smart Bridge and gained knowledge.