PROJECT REPORT-TEAMID: PNT2022TMID53640

1.INTRODUCTION

PROJECT OVERVIEW

SMART SOLUTIONS FOR RAILWAYS is to manage Indian Railways is the largest railway network in Asia and additionally world's second largest network operated underneath a single management. Due to its large size, it is difficult to monitor the live location of train manually. This project deals with this problem and detects location of trains with the help GPS module. Also ultrasonic sensor allows the device to moves back and forth across the track and if there is any fault, it gives information to the cloud server through which railway department is informed on time about cracks and many livescan be saved.Also this project deals with efficient and comfortable train ticket booking system This is the application of IoT, due to this it is cost effective system. This effective methodology of continuous observation and assessment of rail tracks might facilitate to stop accidents and immediate help can be provided in times of emergency.

PURPOSE

Internet is basically system of interconnected computers through network. But now its use is changing with changing world and it is not just confined to emails or web browsing. Today's internet also deals with embedded sensors and has led to development of smart homes, smart rural area, e-health care's etc. and this introduced the concept of IoT . Internet of Things refers to interconnection or communication between two or more devices without human-tohuman and human-

to-computer interaction. Connected devices are equipped with sensors or actuators perceive their surroundings. IOT has four major components which include sensing the device, accessing the device, processing the information of the device, and provides application and services. In addition to this it also provides security and privacy of data Automation has affected every aspect of our daily lives. More improvements are being introduced in almost all fields to reduce human effort and save time. Thinking of the same is trying to introduce automation in the field of track testing. Railroad track is an integral part of any company's asset base, since it provides them with the necessary business functionality. Problems that occur due to problems in railroads need to be overcome. The latest method used by the Indian railroad is the tracking of the train track which requires a lot of manpower and is time-consuming

2.LITERATURE SURVEY

EXISTING SYSTEM

In the Existing train tracks are manually researched. LED (Light Emitting Diode) and LDR (Light Dependent Resister) sensors cannot be implemented on the block of the tracks]. The input image processing is a clamorous system with high cost and does not give the exact result. The Automated Visual Test Method is a complicated method as the video colour inspection is implemented to examine the cracks in rail track which does not give accurate result in bad weather. This traditional system delays transfer of information. Srivastava et al., (2017) proposed a moving gadget to detect the cracks with the help of an array of IR sensors to identify the actual position of the cracks as well as notify to nearest railway station . Mishra et al., (2019) developed a system to track the cracks with the help of Arduino mega power using solar energy and laser. A GSM along with a GPS module was implemented to get the actual location of the faulty tracks to inform the authorities using SMS via a link to find actual location on Google Maps. Rizvi Aliza Raza presented a prototype in that is capable of capturing photos of the track and compare it with the old database and sends a message to the authorities regarding the crack detected. The detailed analysis of traditional railway track fault detection techniques is explained in table

REFERENCES

1. D. Hesse, "Rail Inspection Using Ultrasonic Surface Waves" Thesis, Imperial College of London, 2007.

2.   Md. Reya Shad Azim1 , Khizir Mahmud2 and C. K. Das. Automatic railway track switching system, International Journal of Advanced Technology, Volume 54, 2014.

3.   S. Somalraju, V. Murali, G. saha and V. Vaidehi, "Title-robust railway crack detection scheme using LED (Light Emitting Diode) - LDR (Light Dependent Resistor) assembly IEEE 2012.

4.   S. Srivastava, R. P. Chourasia, P. Sharma, S. I. Abbas, N. K. Singh, "Railway Track Crack detection vehicle", IARJSET, Vol. 4, pp. 145-148, Issued in 2, Feb 2017.

5.   U. Mishra, V. Gupta, S. M. Ahzam and S. M. Tripathi, "Google Map Based Railway Track Fault Detection Over the Internet", International Journal of Applied Engineering Research, Vol. 14, pp. 20-23, Number 2, 2019.

6.   R. A. Raza, K. P. Rauf, A. Shafeeq, "Crack detection in Railway track using Image processing", IJARIIT, Vol. 3, pp. 489-496, Issue 4, 2017.

7.   N. Bhargav, A. Gupta, M. Khirwar, S. Yadav, and V. Sahu, "Automatic Fault Detection of Railway Track System Based on PLC (ADOR TAST)", International Journal of Recent Research Aspects, Vol. 3, pp. 91-94, 2016

PROBLEM STATEMENT DEFINITION

Among the various modes of transport, railways is one of the biggest modes of transport in the world. Though there are competitive threats from airlines, luxury buses, public transports, and personalized transports the problem statement is to answer the question "What are the problems faced by the passengers while travelling by train at station and on board"

3. IDEATION AND PROPOSED SOLUTON

3.1 EMPATHY MAP CANVAS
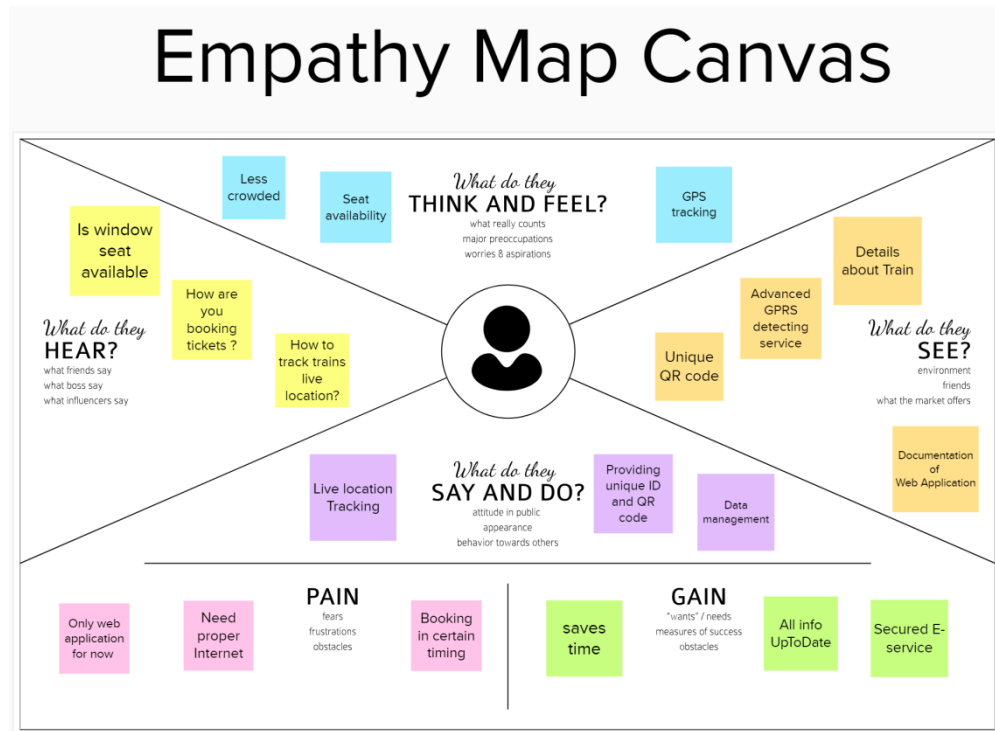
3.2 IDEATION & BRAIN STORMING

Step-1: Team Gathering, Collaboration and Select the Problem Statement

1

Define your problem statement

Smart solutions for Railway is a technologically advanced approach to efficiently manage railway operations through sharing of rail data across rail infrastructure components, such as passengers, control centers, ticketing departments, etc..

⏱ 5 minutes

> PROBLEM
> **IoT technologies help railways successfully manage passengers safely, operational efficiency and the passenger experience.**

Key rules of brainstorming
To run an smooth and productive session

- Stay in topic.
- Defer judgment.
- Go for volume.
- Encourage wild ideas.
- Listen to others.
- If possible, be visual.

2

Brainstorm

Write down any ideas that come to mind that address your problem statement.

⏱ 10 minutes

TIP
You can select a sticky note and hit the pencil (switch to sketch) icon to start drawing!

Person 1   Person 2   Person 3   Person 4

3

Group ideas

Take turns sharing your ideas while clustering similar or related notes as you go. In the last 10 minutes, give each cluster a sentence-like label. If a cluster is bigger than six sticky notes, try and see if you and break it up into smaller sub-groups.

⏱ 20 minutes

Smart solutions on Railways..

- Automation of terminals
- Advanced Traffic Management Systems
- Automation of Train Driving
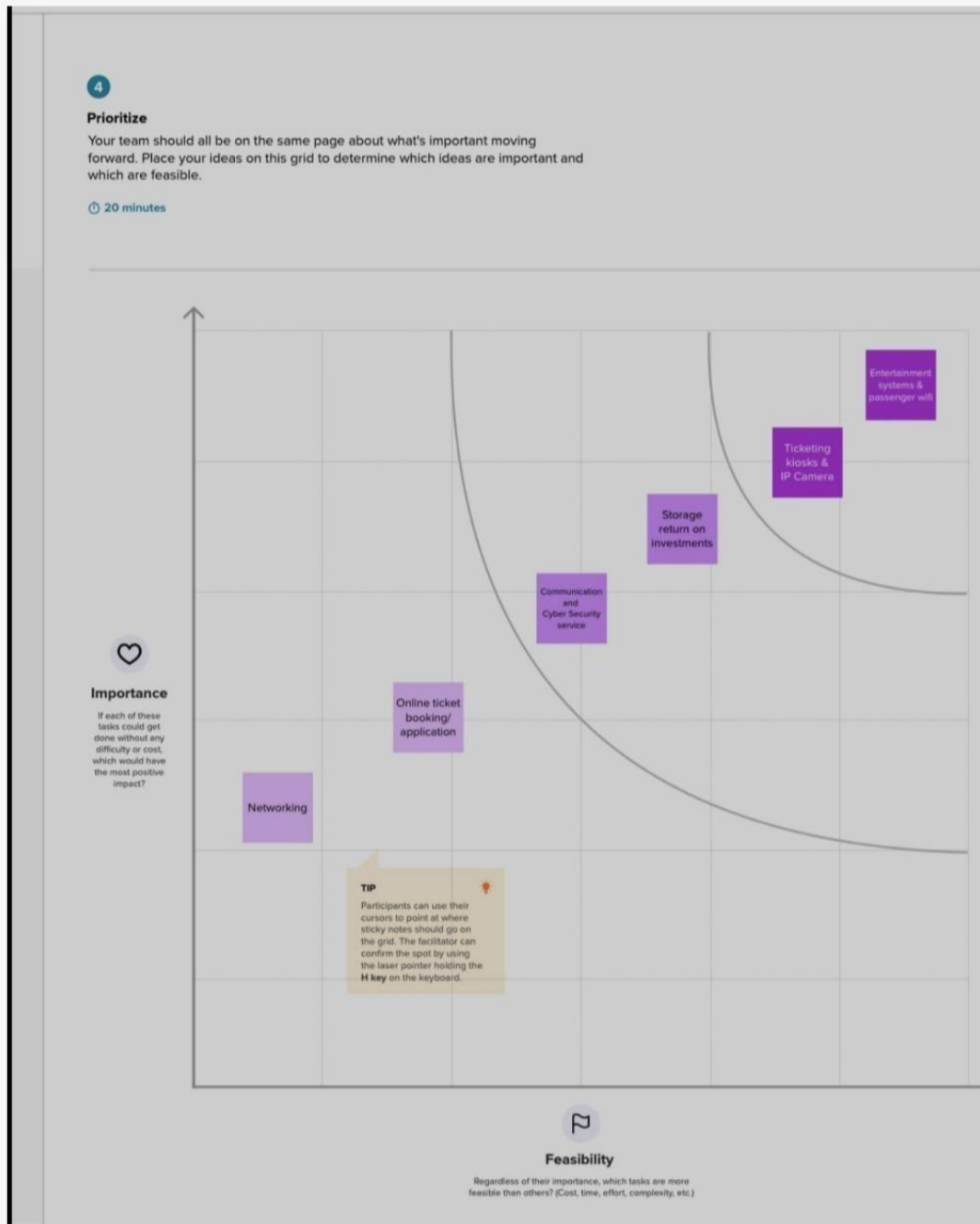- Electronic information Exchange

Railways Systems Architecture

- End to end block Diagrams
- Define/test systems interfaces
- Systems operationals flow
- Compatibility of Data communication interfaces

TIP
Add customizable tags to sticky notes to make it easier to find, browse, organize, and categorize important ideas as themes within your mural.

Step-3: Idea Prioritization

PROPOSED SOLUTION

S.NO	PARAMETERS	DESCRIPTIONS
1	Problem Statement (Problem to be solved)	• In this we provide an efficient way by introducing paperless tickets using QR code for people. • To design a GPS module to track the location of the train for alerting the people.
2	Idea / Solution description	• Smart Solutions for railways are designed to reduce the work load of the user and also eliminate the use of paper
3	Novelty / Uniqueness	• After booking the ticket a QR code will be generated so that ticket collectors will scan to get the details of passengers. • In this the people will be alerted in the mobile phone before their destination arrives
4	Social Impact / Customer Satisfaction	• People will start using trains since we are using a GPS module for tracking the location of train it will be updated in the Web app continuously. • Eliminate the suffering of people as they need not stand in long queues to get tickets thus reducing the burden.

5	Business Model (Revenue Model)	- This project enables railways to optimise their services by implementing e- ticketing when compared to the cost involved in paper ticketing thereby profiting with an increase in the number of users. - Nowadays, the paper tickets are printing with many errors so that we are introducing e – tickets.
6	Scalability of the Solution	The solution comprises high scalability to meet the increasing demand of users over the nation for more efficient and comfortable services.

Problem Solution fit

Project Title: Smart Solution for Railways
Project Design Phase-I - Solution Fit Template
Team ID: PNT2022TMID53640

Define CS, fit into CC	**1. CUSTOMER SEGMENT(S)** `CS` Who is your customer? • People of all age groups ranging from small kids to senior citizens as well as super senior citizens	**6. CUSTOMER** `CC` What constraints prevent your customers from taking action or limit their choices of solutions? i.e. spending power, budget, no cash, network connection, available devices. • Network connectivity issues inside the train • Getting used to the process especially senior citizens • Nowadays, the login captcha will be not be perfect	**5. AVAILABLE SOLUTIONS** `AS` Which solutions are available to the customers when they face the problem or need to get the job done? What have they tried in the past? What pros & cons do these solutions have? i.e. pen and paper is an alternative to digital notetaking. • E-booking is an available solution but doesn't ensure safety • Passenger chart is available 3 hours before departure and passenger is alerted • Pen and paper use has reduced	**Explore AS, differentiate**
Focus on J&P, tap into BE, understand RC	**2. JOBS-TO-BE-DONE / PROBLEMS** `J&P` Which jobs-to-be-done (or problems) do you address for your customers? There could be more than one: explore different sides. • E-ticket booking and proper allocation of seats • Verification of the customer • Live tracking of the locomotive	**9. PROBLEM ROOT CAUSE** `RC` What is the real reason that this problem exists? What is the back story behind the need to do this job? • Paper pen usage contributed to lots of confusions and errors • The long queues caused collision during peak hours and caused accidents • TTR was burdened with too much workload • Population growth, train capacity and expansion of railways led to this problem • Need for security	**7. BEHAVIOUR** `BE` What does your customer do to address the problem and get the job done? i.e. directly related: find the right solar panel installer, calculate usage and benefits; indirectly associated: customers spend free time on volunteering work (i.e. Greenpeace) • Customers self-learn to use the technology • They book the tickets and then have to scan the QR code and show it to TTR while boarding • They track their journey or ask their family members to track incase of emergency they can alert the authorities	**Focus on J&P, tap into BE, understand RC**
Identify strong TR & EM	**3. TRIGGERS** `TR` • Senior citizens waiting in long queues to book tickets, News on more efficient solutions in social media • Drive for Digital India **4. EMOTIONS: BEFORE / AFTER** `EM` Before: Less security, Time consuming, confusion After: Secured feeling, less time spent for booking, paperless tickets	**10. YOUR SOLUTION** `SL` If you are working on an existing business, write down your current solution first, fill in the canvas, and check how much it fits reality. If you are working on a new business proposition, then keep it blank until you fill in the canvas and come up with a solution that fits within customer limitations, solves a problem and matches customer behaviour. • Automatic door open for only booking passengers in train • Smart Ticketing Automated Fare Collection • Alert while nearing destination	**8. CHANNELS of BEHAVIOUR** `CH` • Online: Customers don't rely on external sources anymore • Offline: People had to rely service centers or have to wait in stations	**Extract online & offline CH of BE**

⭐ **AMALTAMA**

4. REQUIREMENT ANALYSIS

FUNCTIONAL REQUIREMENTS

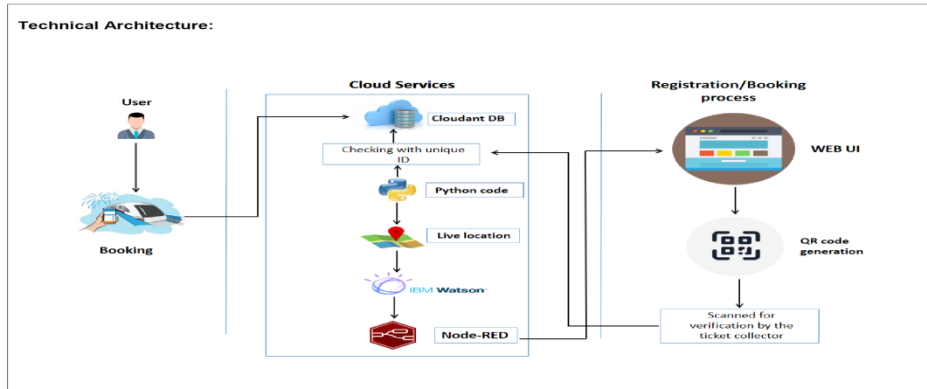| FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	✓ Registration through Form ✓ Registration through Email
FR-2	User Validation	✓ Confirmation via Email/SMS ✓ Confirmation via OTP
FR-3	Passenger Ticket Booking	✓ Use the Application to book tickets for travelling via train
FR-4	Booking Confirmation	✓ Provide confirmation of booking through Email,SMS
FR-5	Passenger Alerts	✓ Reminder of journey ✓ Passenger Chart ✓ Updation incase of delay or cancellation of train due to various reasons
FR-6	Passenger Emergency	✓ Alert the respective authorities incase of unexpected emergencies

NON-FUNCTIONAL REQUIREMENTS

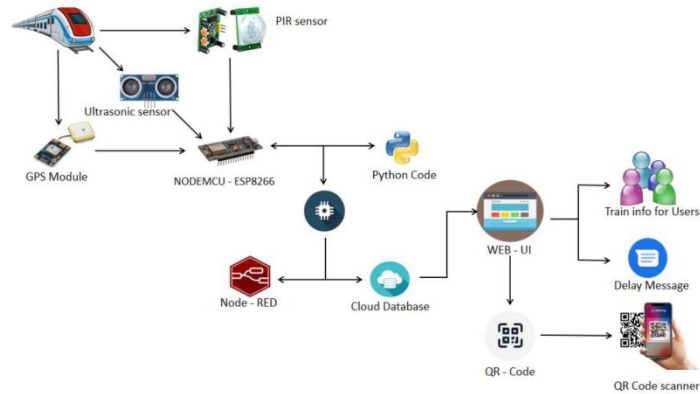| NFR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	✓ The application is very simple to use and easily understandable to layman ✓ In hardware side,smart sensors detect problems in tracks,GPS detects live location of the train
NFR-2	**Security**	✓ User data is protected(software side-App) ✓ Smart sensors easily detect damage and reduce the probability of accidents
NFR-3	**Reliability**	✓ Traffic light and signalling is relatively simple ✓ Bug/errors in the application is resolved within a short period of time
NFR-4	**Performance**	✓ The GPS module provides accurate location of the train ✓ The UI of the ticket booking app is very much responsive and simple
NFR-5	**Availability**	✓ With Internet available all over the world these days,the application is easily available at all times
NFR-6	**Scalability**	✓ Application is very much scalable and many users can operate without crash especially during booking of tatkal tickets. ✓ As it is an IoT and cloud based system, it is more scalable

5.PROJECT DESIGN

DATA FLOW DIAGRAMS

Data Flow Diagram - Train Tickets Reservation
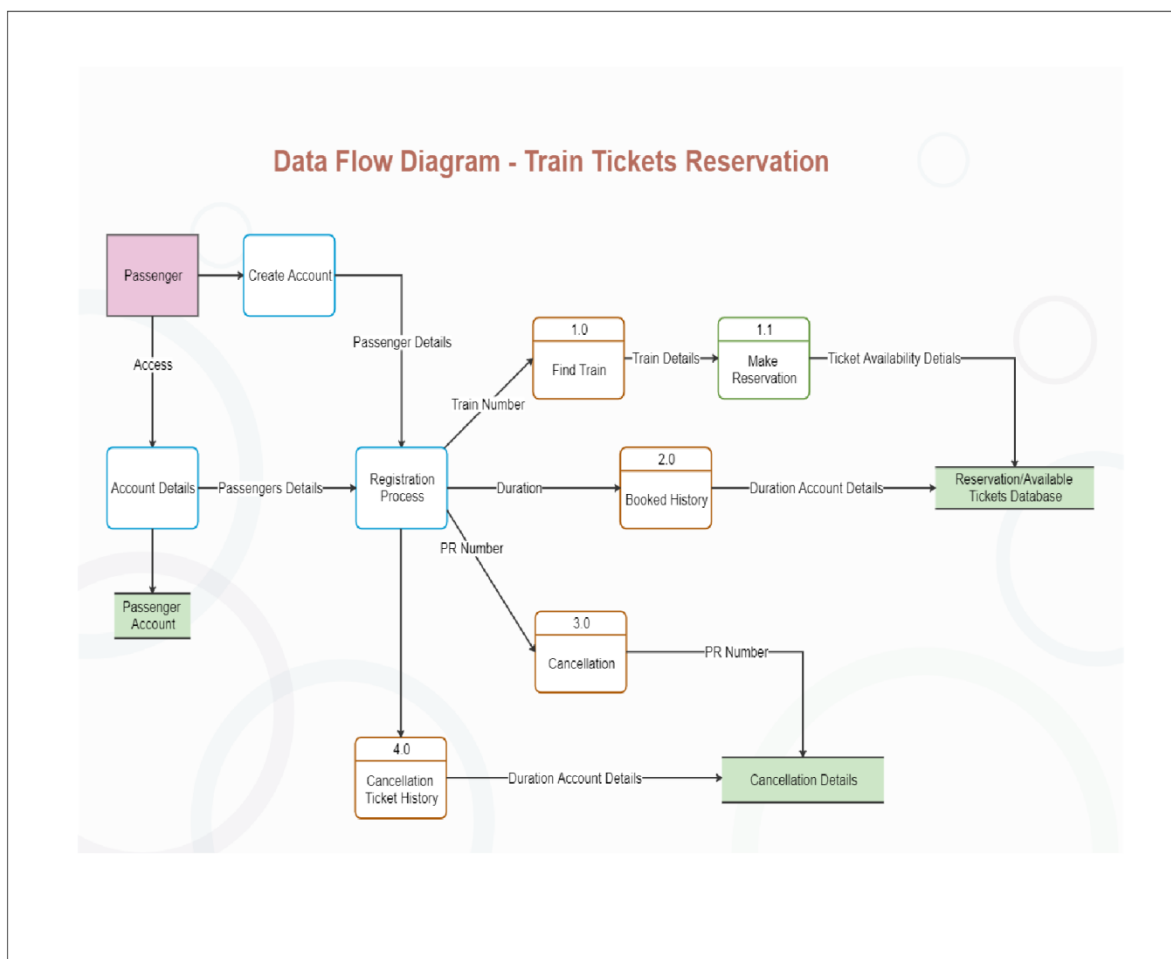
SOLUTION & TECHNICAL ARCHITECTURE

Technical Architecture:

User

Booking

Cloud Services

Cloudant DB

Checking with unique ID

Python code

Live location

IBM Watson

Node-RED

Registration/Booking process

WEB UI

QR code generation

Scanned for verification by the ticket collector

USER STORIES

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority
Customer (Mobile user)	Reserving ticket	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	I can access my account / dashboard	High
Customer (Mobile user)	Reserving ticket	USN-2	As a user, I will receive confirmation email once I have registered for the application	I can receive confirmation email & click confirm	High
Customer (Mobile user)	Reserving ticket	USN-3	As a user, I can register for the application and enter the details for reserving the ticket.	I can register & access the dashboard with Facebook Login	Low
Customer (Mobile user)	Dashboard	Users	The details will be stored safely	I can access it using database	Medium
Customer (Web user)	Reserving ticket	User	Enter the details and click submit button to book ticket	I can use the QR code which is been generated	High
Customer Care Executive	Connecting the service provider	Customer	Connects with the service by logging in	Can get connected with the server	Medium

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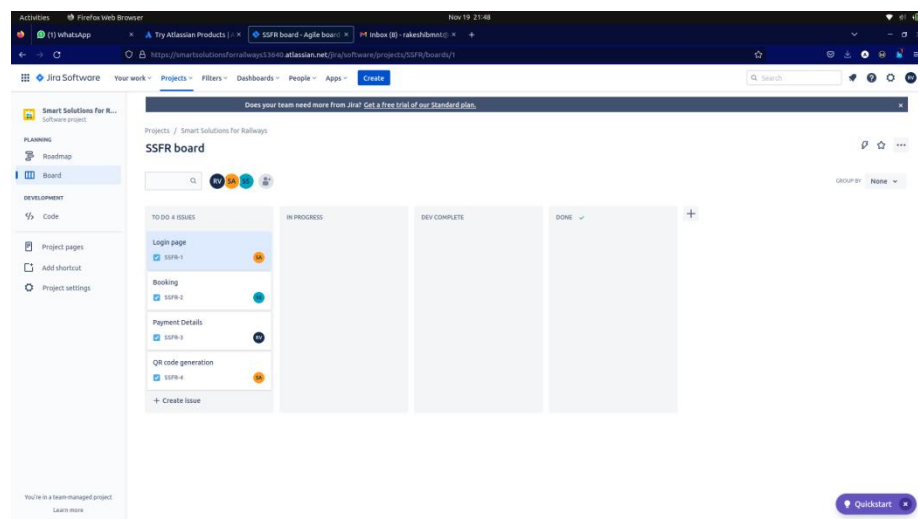| Administrator	Provides the services	Admin	The data is given by the user	Can add or update the data provided by the user	High

6.PROJECT PLANNING AND SCHEDULING

SPRINT PLANNING& ESTIMATION

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Team Member
Customer (Mobile user)	Reserving ticket	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	I can access my account / dashboard	Rakesh
Customer (Mobile user)	Reserving ticket	USN-2	As a user, I will receive confirmation email once I have registered for the application	I can receive confirmation email & click confirm	Sankara Narayanan
Customer (Mobile user)	Reserving ticket	USN-3	As a user, I can register for the application and enter the details for reserving the ticket.	I can register & access the dashboard with Facebook Login	Sribalajy
Customer (Mobile user)	Dashboard	Users	The details will be stored safely	I can access it using database	Seenivasan
Customer (Web user)	Reserving ticket	User	Enter the details and click submit button to book ticket	I can use the QR code which is been generated	Rakesh
Customer Care Executive	Connecting the service provider	Customer	Connects with the service by logging in	Can get connected with the server	Sankara Narayanan
Administrator	Provides the services	Admin	The data is given by the user	Can add or update the data provided by the user	Sribalajy

SPRINT DELIVERY SCHEDULE

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint-1	20	6 Days	24 Oct 2022	29 Oct 2022	20	29 Oct 2022
Sprint-2	20	6 Days	31 Oct 2022	05 Nov 2022	20	5 Nov 2022
Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint-3	20	6 Days	07 Nov 2022	12 Nov 2022	20	12 Nov 2022
Sprint-4	20	6 Days	14 Nov 2022	19 Nov 2022	20	19 Nov2022

REPORTS FROM JIRA

7.CODING AND SOLUTIONING

FEATURE 1

- IOT device
- IBM Watson platform
- Node red
- Cloudant DB
- Web UI
- Geofence MIT App
- Python code

FEATURE 2

- Registration
- Login
- Verification
- Ticket Booking
- Payment
- Ticket Cancellation
- Adding Queries

DATABASE SCHEMA

[{"id":"6e545ede.d4925","type":"tab","label":"Flow 1","disabled":false,"info":""},{"id":"7a97b4c5.876cfc","type":"gpsd","z":"6e545ede.d4925","name":"Adafruit Ultimate GPS","hostname":"0.0.0.0","port":"2947","tpv":true,"sky":true,"info":false,"device":true,"gst":false,"att":false,"x":140,"y":200,"wires":[["6560f5f6.c0ed8c"]]},{"id":"6560f5f6.c0ed8c","type":"switch","z":"6e545ede.d4925","name":"","property":"payload.class","propertyType":"msg","rules":[{"t":"eq","v":"TPV","vt":"str"}],"checkall":"true","repair":false,"outputs":1,"x":350,"y":200,"wires":[["4d22a0bd.63dda"]]},{"id":"2cf3ed7c.bd6ad2","type":"ui_worldmap","z":"6e545ede.d4925","group":"88f77589.0122d8","order":2,"width":"14","height":"14","name":"Worldmap","lat":"","lon":"","zoom":"","layer":"OSM grey","cluster":"","maxage":"","usermenu":"show","layers":"show","panit":"true","panlock":"false","zoomlock":"true","hiderightclick":"false","coords":"deg","showgrid":"false","allowFileDrop":"false","path":"/mapui","x":710,"y":120,"wires":[]},{"id":"4d22a0bd.63dda","type":"change","z":"6e545ede.d4925","name":"","rules":[{"t":"set","p":"payload.name","pt":"msg","to":"Worldmap","tot":"str"}],"action":"","property":"","from":"","to":"","reg":false,"x":540,"y":200,"wires":[["23b5e03.345882"]]},{"id":"23b5e03.345882","type":"worldmap","z":"6e545ede.d4925","na

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me":"","lat":"","lon":"","zoom":"","layer":"Esri Satellite","cluster":"","maxage":"","usermenu":"show","layers":"show","panit":"false","panlock":"false","zoomlock":"false","hiderightclick":"false","coords":"none","showgrid":"false","allowFileDrop":"false","path":"/mapui","x":730,"y":200,"wires":[]},{"id":"88f77589.0122d8","type":"ui_group","name":"","tab":"c4c17961.4519f8","order":1,"disp":true,"width":15,"collapse":false},{"id":"c4c17961.4519f8","type":"ui_tab","name":"Location","icon":"dashboard","disabled":false,"hidden":false}]
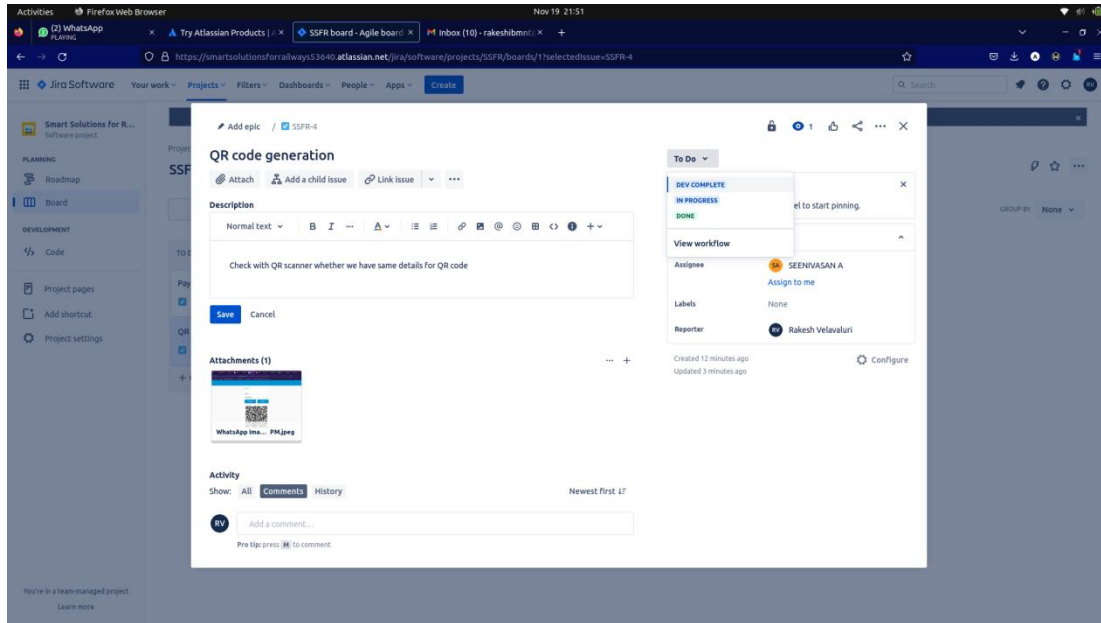
8.TESTING

8.1.TEST CASES

8.2 User Acceptance Testing
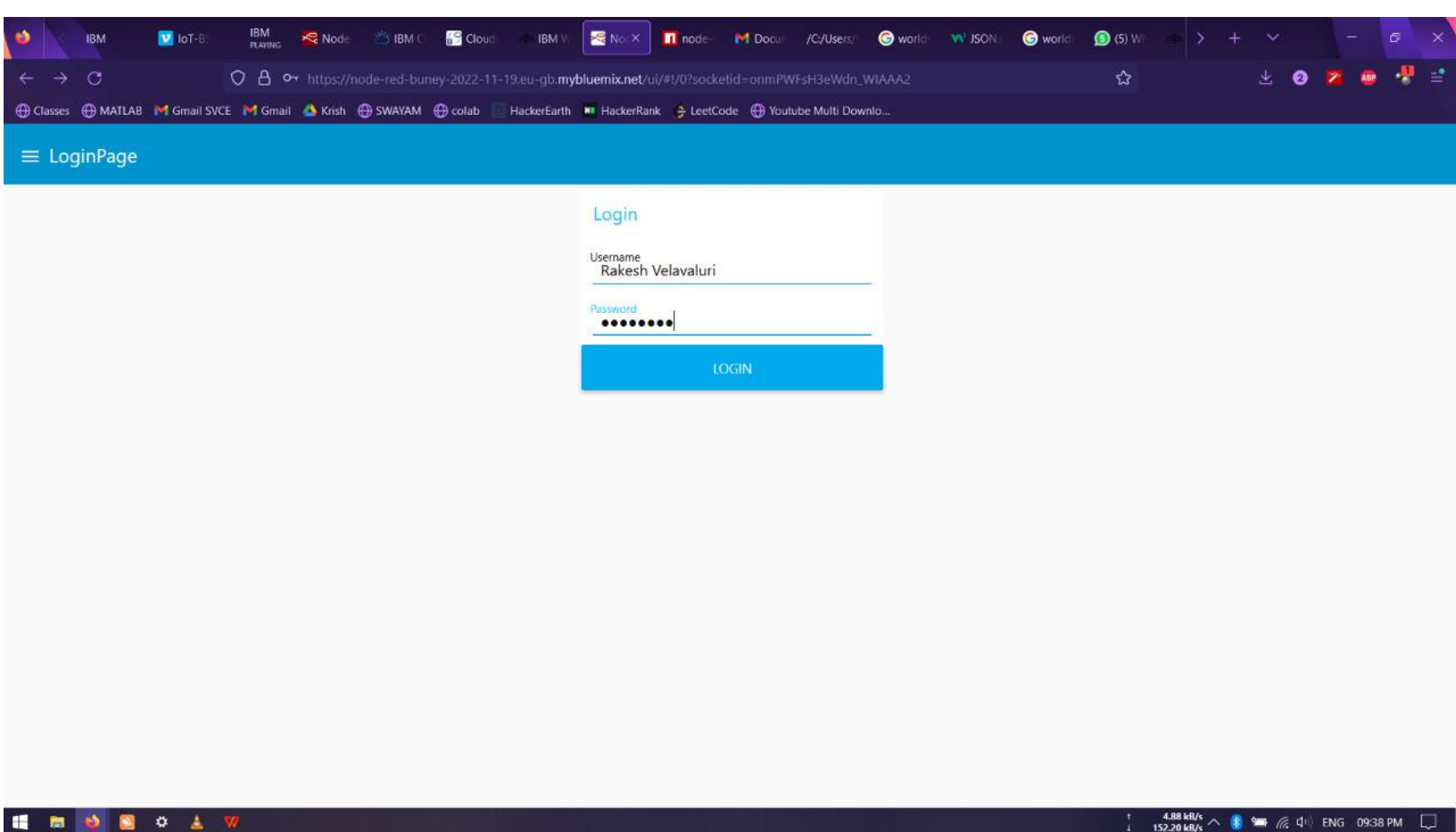
9.RESULTS

PERFORMANCE METRICS

10.ADVANTAGES &DISADVANTAGES

ADVANTAGES

- Greater Reliability and Safety

- Fewer Maintenance Delays

- Advanced Analytics for Streamlined Operations

- Restructured and Optimized Passenger Experience

- Better Product Development in the Industry

DISADVANTAGES

➢ Approaches to flexible, effective, efficient, and low-cost data collection for both railway vehicles and infrastructure monitoring, using regular trains;

➢ Data processing, reduction, and analysis in local controllers, and subsequent sending of that data to the cloud, for further processing;

➢ Online data processing systems, for real-time monitoring, using emerging communication technologies;

➢ Integrated, interoperable, and scalable solutions for railway systems preventive maintenance.

11.CONCLUSION

Emergencies and Accidents occurring in Railway transportation system has cost a large number of lives. So, thissystem helps us to prevent accidents and giving information about faults or cracks in advance to railway authorities.This project is cost effective. By using more techniques, they can be modified and developed according to their applications.Also customer satisfaction can be ensured by smooth ticket booking facilities.Moreover tracking the live location of the train helps to monitor easily in case of emergency situations.This also helps for the transformation to a paper free and digital India. The idea can be implemented in large scale in the long run to facilitatebetter safety standards for rail tracks and provide effective testing infrastructure for achieving better results in the future.

12.FUTURE SCOPE

In future CCTV systems with IP based camera can be used for monitoring the visual videos captured from the track. It will also increase security for both passengers and railways. GPS can also be used to detect exact location of track fault area; IP cameras can also be used to show fault with the help of video. Locations on Google maps with the help of sensors can be used to detect in which area track is broken.

13.APPENDIX

Creating global variables:
```
var json=global.get("json")
json["boarding"]=global.get("board")
json["destination"]=global.get("dest")
json["card_details"]=msg.payload.card_details
json["upi_id"]=msg.payload.name
var string=JSON.stringify(json);
msg.payload=json
msg.qrcodeinput=string;
return msg;
```
Boarding:
```
global.set("board",msg.payload );
return msg;
```
Destination:
```
global.set("dest",msg.payload )
return msg;
```
QR Template:
```
<img src={{msg.payload}} style="border:0px;height:300px; width:300px">
```
Success notification payload
```
msg.payload="Ticket is genetrated/Reserved";
return msg;
```
Seat Selection:
```
global.set('s1',0)
global.set('s2',0)
global.set('s3',0)
global.set('s4',0)
global.set('s5',0)
var a2 = [1,2,3,4,5]
global.set('a',a2)
msg.payload = global.get('a')
return msg;
```
Clear functionality in Seat Selection

```
var a = global.get('a')
var s = []
for(let i=0; i<a.length; i++){
s.push(a[i])
}
if(s.length==0){
msg.options = [{"No seats avaliable":0}]
}
else{
msg.options = s
}
msg.payload = s
return msg;

import wiotp.sdk.device
import time
import random
myConfig = {
     "identity": {
            "orgId": "c1v966",
            "typeId": "GPS",
            "deviceId":"12345"
     },
     "auth": {
            "token": "12345678"
     }
}

def myCommandCallback (cmd):
     print ("Message received from IBM IoT Platform: %s" % cmd.data['command'])
     m=cmd.data['command']

client = wiotp.sdk.device.DeviceClient(config=myConfig, logHandlers=None)
client.connect()

def pub (data):
     client.publishEvent(eventId="status", msgFormat="json", data=myData, qos=0,
```

```
onPublish=None)
        print ("Published data Successfully: %s", myData)

while True:
        myData = {'name':'Delhi Express 1','lat':13.344279,'lon':80.214367}
        pub(myData)
        time.sleep(3)


        myData = {'name':'Delhi Express 1','lat':13.515254,'lon':80.093518}
        pub(myData)
        time.sleep(3)


        myData = {'name':'Delhi Express 1','lat':13.728799,'lon':80.005627}
        pub(myData)
        time.sleep(3)


        myData = {'name':'Delhi Express 1','lat':13.910160,'lon':79.906750}
        pub(myData)
        time.sleep(3)


        myData = {'name':'Delhi Express 1','lat':14.102035,'lon':79.851819}
        pub(myData)
        time.sleep(3)


        myData = {'name':'Delhi Express 1','lat':14.261807,'lon':79.862805}
        pub(myData)
        time.sleep(3)


        myData = {'name':'Delhi Express 1','lat':14.623537,'lon':79.950695}
        pub(myData)
        time.sleep(3)


        myData = {'name':'Delhi Express 1','lat':15.111987,'lon':79.994641}
        pub(myData)
        time.sleep(3)


        myData = {'name':'Delhi Express 1','lat':15.313413,'lon':80.005627}
```

```python
pub(myData)
time.sleep(3)

myData = {'name':'Delhi Express 1','lat':15.567568,'lon':80.104504}
pub(myData)
time.sleep(3)

myData = {'name':'Delhi Express 1','lat':15.747405,'lon':80.269299}
pub(myData)
time.sleep(3)

myData = {'name':'Delhi Express 1','lat':15.821409,'lon':80.302258}
pub(myData)
time.sleep(3)

myData = {'name':'Delhi Express 1','lat':15.927082,'lon':80.445080}
pub(myData)
time.sleep(3)

myData = {'name':'Delhi Express 1','lat':16.022141,'lon':80.554943}
pub(myData)
time.sleep(3)

myData = {'name':'Delhi Express 1','lat':17.033801,'lon':80.295512}
pub(myData)
time.sleep(3)

myData = {'name':'Delhi Express 1','lat':18.383088,'lon':18.383088}
pub(myData)
time.sleep(3)

myData = {'name':'Delhi Express 1','lat':19.074762,'lon':79.487698}
pub(myData)
time.sleep(3)

myData = {'name':'Delhi Express 1','lat':20.179065,'lon':79.001439}
pub(myData)
```

```
    time.sleep(3)

    myData = {'name':'Delhi Express 1','lat':21.306421,'lon':78.789356}
    pub(myData)
    time.sleep(3)

    myData = {'name':'Delhi Express 1','lat':22.518024,'lon':77.829404}
    pub(myData)
    time.sleep(3)

    myData = {'name':'Delhi Express 1','lat':23.264139,'lon':77.429333}
    pub(myData)
    time.sleep(3)

    myData = {'name':'Delhi Express 1','lat':24.509723,'lon':78.330212}
    pub(myData)
    time.sleep(3)

    myData = {'name':'Delhi Express 1','lat':25.668840,'lon':78.451062}
    pub(myData)
    time.sleep(3)

    myData = {'name':'Delhi Express 1','lat':26.177704,'lon':78.170910}
    pub(myData)
    time.sleep(3)

    myData = {'name':'Delhi Express 1','lat':27.505914,'lon':77.676526}
    pub(myData)
    time.sleep(3)

    myData = {'name':'Delhi Express 1','lat':28.302041,'lon':77.308484}
    pub(myData)
    time.sleep(3)
client.commandCallback = myCommandCallback
client.disconnect()

import cv2
```

```python
import numpy as np
import time
import pyzbar.pyzbar as pyzbar
from ibmcloudant import CloudantV1
from ibmcloudant import CouchDbSessionAuthenticator
from ibm_cloud_sdk_core.authenticators import BasicAuthenticator

authenticator = BasicAuthenticator('apikey-v2-
1g7cjqnq8808x36x3w0x6lcztrf4jyuov0h2pv6xrx3p',
'bf62988cf8a35e964d9d86e3d28d1feb')
service = CloudantV1(authenticator=authenticator)

service.set_service_url('https://apikey-v2-
1g7cjqnq8808x36x3w0x6lcztrf4jyuov0h2pv6xrx3p:bf62988cf8a35e964d9d86e3d28d1feb
@0cac9b27-cd14-4e73-9014-bd2d30bf5399-bluemix.cloudantnosqldb.appdomain.cloud')

cap= cv2.VideoCapture(0)
font = cv2.FONT_HERSHEY_PLAIN

while True:
    _, frame = cap.read()
    decodedObjects = pyzbar.decode (frame)
    for obj in decodedObjects:
        #print ("Data", obj.data)
        a=obj.data.decode('UTF-8')
        cv2.putText(frame, "Ticket", (50, 50), font, 2,   (255, 0, 0), 3)

        #print (a)
        try:
            response = service.get_document(
                db='booking',
                doc_id = a
            ).get_result()
            print (response)
            time.sleep(5)
        except Exception as e:
            print ("Not a Valid Ticket")
```

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        time.sleep(5)

    cv2.imshow("Frame",frame)
    if cv2.waitKey(1) & 0xFF ==ord('q'):
        break
cap.release()
cv2.destroyAllWindows()
client.disconnect()
```

GIT HUB LINK

https://github.com/IBM-EPBL/IBM-Project-3188-1658504929