IMPLEMENTATION OF LIBRARY MANAGEMENT SYSTEM

A MINI PROJECT REPORT

Submitted by

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Project Report

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INTRODUCTION

1.1PROJECT 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 cracks in tracks manually. this paper deals with this problem and detects cracks in tracks with the help of ultrasonic sensor attached to moving assembly with help of stepper motor. 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 lives can be saved. 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. this methodology endlessly monitors the rail stress, evaluate the results and provide the rail break alerts such as potential buckling conditions, bending of rails and wheel impact load detection to the concerned authorities.

1.2PURPOSE

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 humantohuman 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

LITERATURE SURVEY

2.1EXISTING 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 color 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

2.2REFERENCES

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.

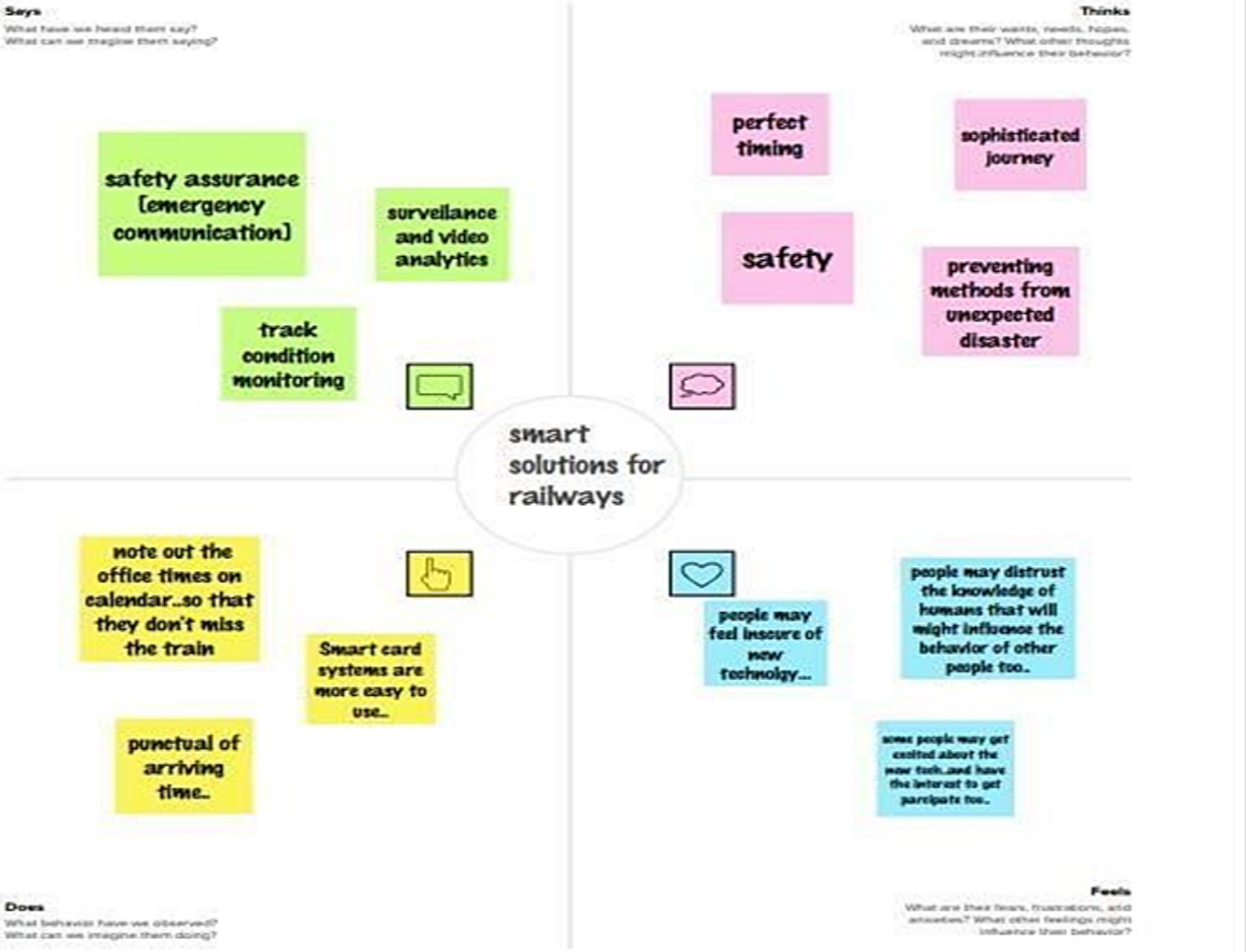
4. S. Srivastava, R. P. Chourasia, P. Sharma, S. I. Abbas, N. K. Singh, “Railway Track Crack detection vehicle”, IARJSET, Vol. 4, pp. 145-148, Issued in 2, Feb 2017.
5. U. Mishra, V. Gupta, S. M. Ahzam and S. M. Tripathi, “Google Map Based Railway Track Fault Detection Over the Internet”, International 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

2.3PROBLEM STATEMENT DEFINITION

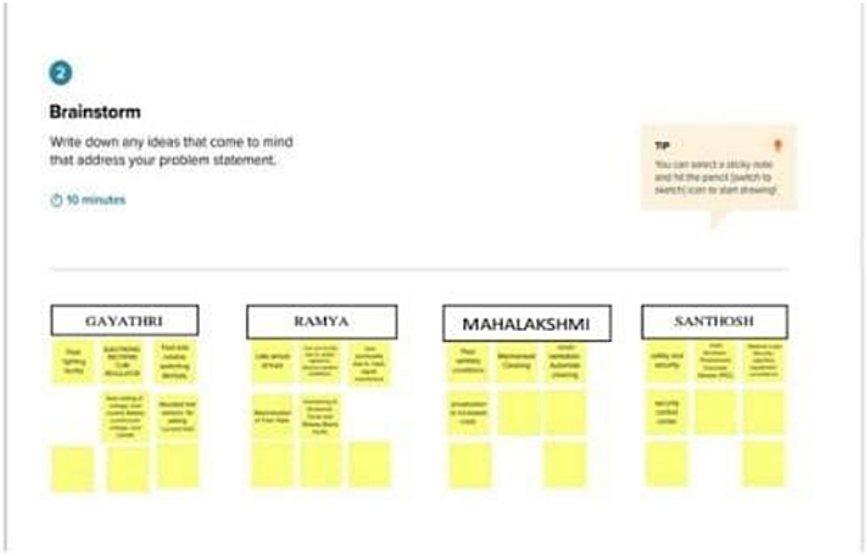
Among the various modes of transport, railways is one of the biggest modes of transport in the world. Though there are competitive threats from airlines, luxury buses, public transports, and personalized transports the problem statement is to answer the question “What are the problems faced by the passengers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

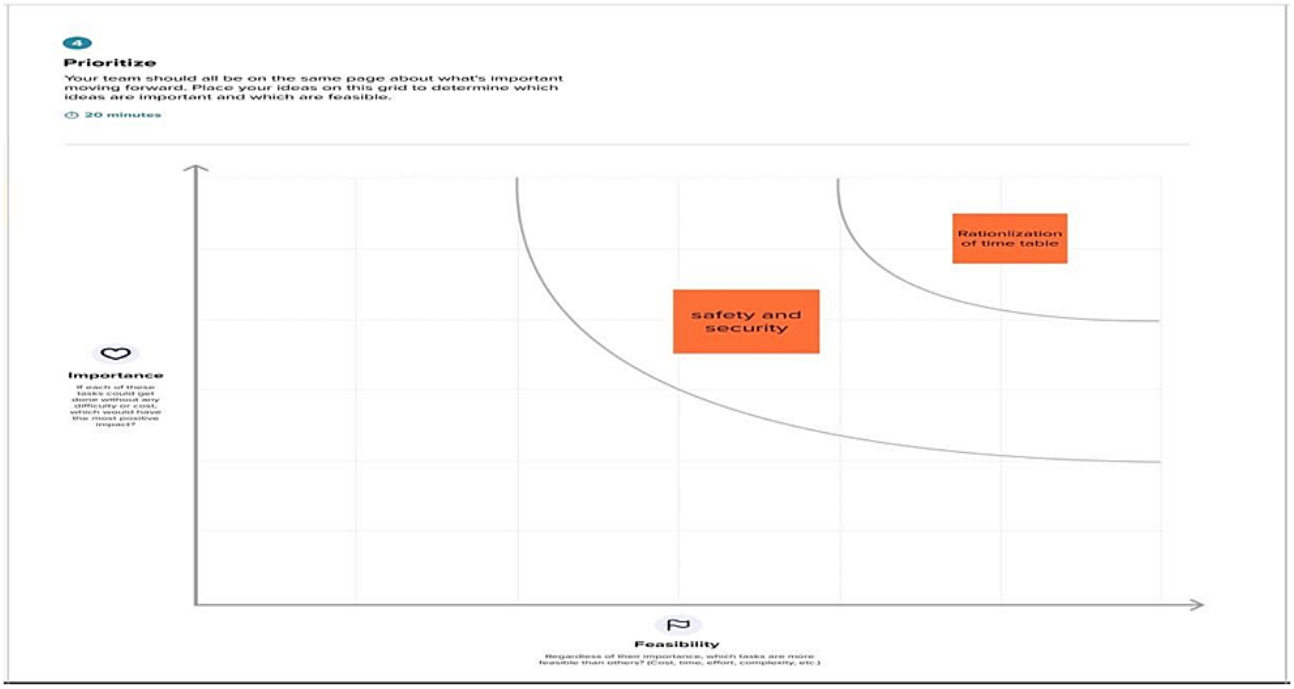
IDEATION AND PROPOSED SOLUTON

3.1EMPATHY MAP CANVAS



3.2IDEATION & BRAINSTORMING





3.3PROPOSED SOLUTION

S.NO	PARAMETERS	DESCRIPTIONS
1	Problem Statement (Problem to be solved)	In order to satisfy the passengers, the Railways provides various services to its passengers But, the passengers can face some problems.
2	Idea / Solution description	The idea is to minimize the ticket booking problems among the passengers by providing Online mode of booking rather than papers. . In queues in front of the ticket counters in railway stations have been drastically increased over the time.
3	Novelty / Uniqueness	Online mode of booking is most common and so ease of access to everyone that makes more efficient uniqueness of utilizing the technique. People can book their ticket through online and they get a QR code through SMS

4	Social Impact / Customer Satisfaction	Customers for sure they get satisfied as they are in the fast roaming world this technique makes more easier for travelling passengers. A web page is designed in which the user can book tickets and will be provided with the QR code, which will be shown to the ticket collector and by scanning the QR code the ticket collector will get the passenger details
5	Business Model (Revenue Model)	A web page is designed in which the user can book tickets and will be provided with the QR code, which will be shown to the ticket collector and by scanning the QR code the ticket collector will get the passenger details. The booking details of the user will be stored in the database, which can be retrieved any time
6	Scalability of the Solution	The scalability of this solution is most feasible among the passengers who are willing to travel. No need of taking printout Counter ticket has to be handled with care, but SMS on mobile is enough.

3.4PROBLEM SOLUTION FIT

Project Title: smart Solution for Railways
Project Design Phase-1 Solution Fit Template
Team Id :PNT2022TMID40694

REQUIREMENT ANALYSIS

4.1.FUNCTIONAL REQUIREMENTS

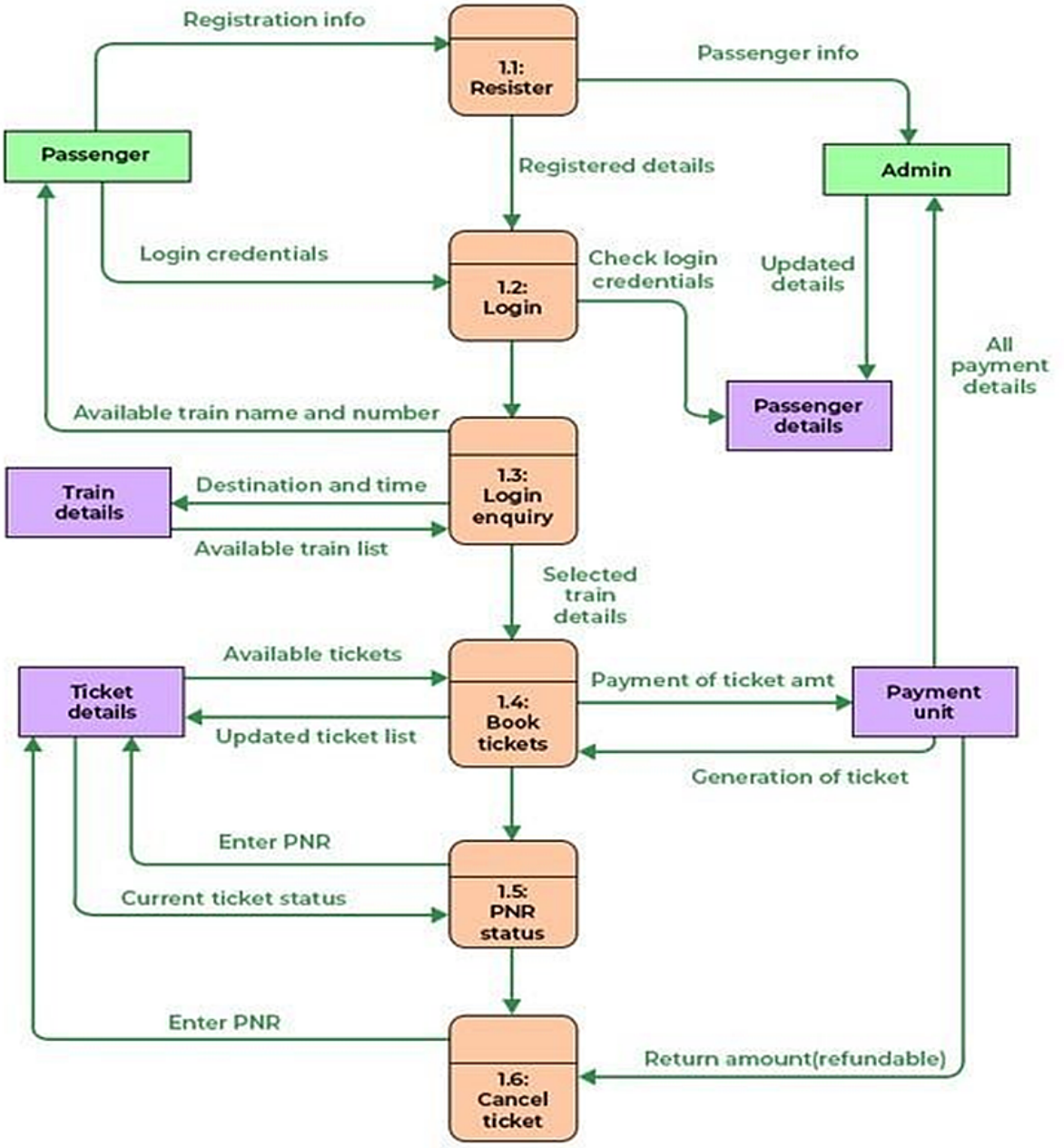
FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	Unique accounts	1. Every online booking needs to be associated with an account 2. One account cannot be associated with multiple users
FR-2	Booking options	Search results should enable users to find the most recent and relevant booking options
FR-3	Mandatory fields	System should only allow users to move to payment only when mandatory fields such as date, time, location has been mentioned
FR-4	Synchronization	System should consider timezonesynchronisation when accepting bookings from different timezones
FR-5	Authentication	Booking confirmation should be sent to user to the specified contact details

4.2.NON-FUNCTIONAL REQUIREMENTS

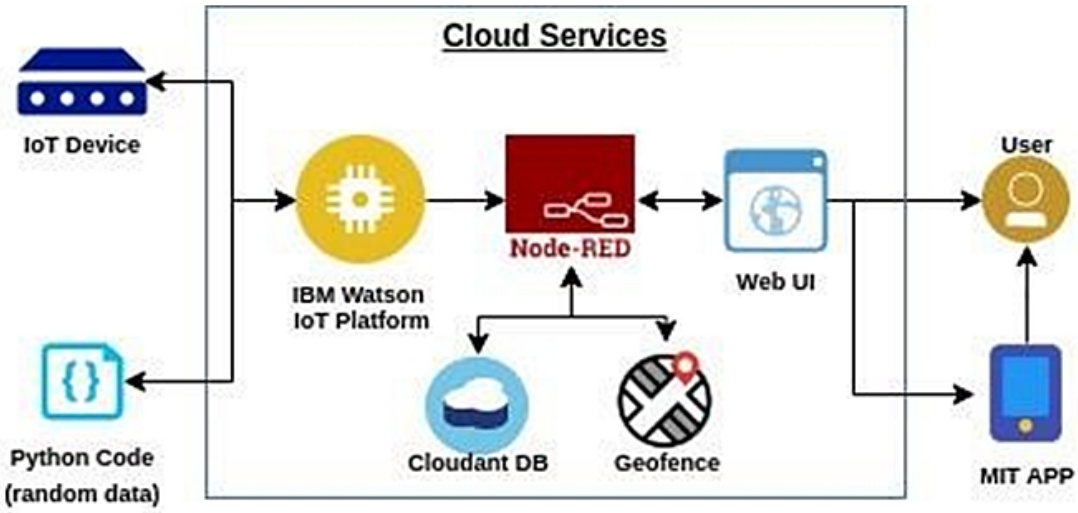
FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	Search results should populate within acceptable time limits
NFR-2	**Security**	System should visually confirm as well as send booking confirmation to the user's contact
NFR-3	**Reliability**	System should accept payments via different payment methods, like PayPal, wallets, cards, vouchers, etc
NFR-4	**Performance**	Search results should populate within acceptable time limits
NFR-5	**Availability**	User should be helped appropriately to fill in the mandatory fields, incase of invalid input
NFR-6	**Scalability**	Use of captcha and encryption to avoid bots from booking tickets

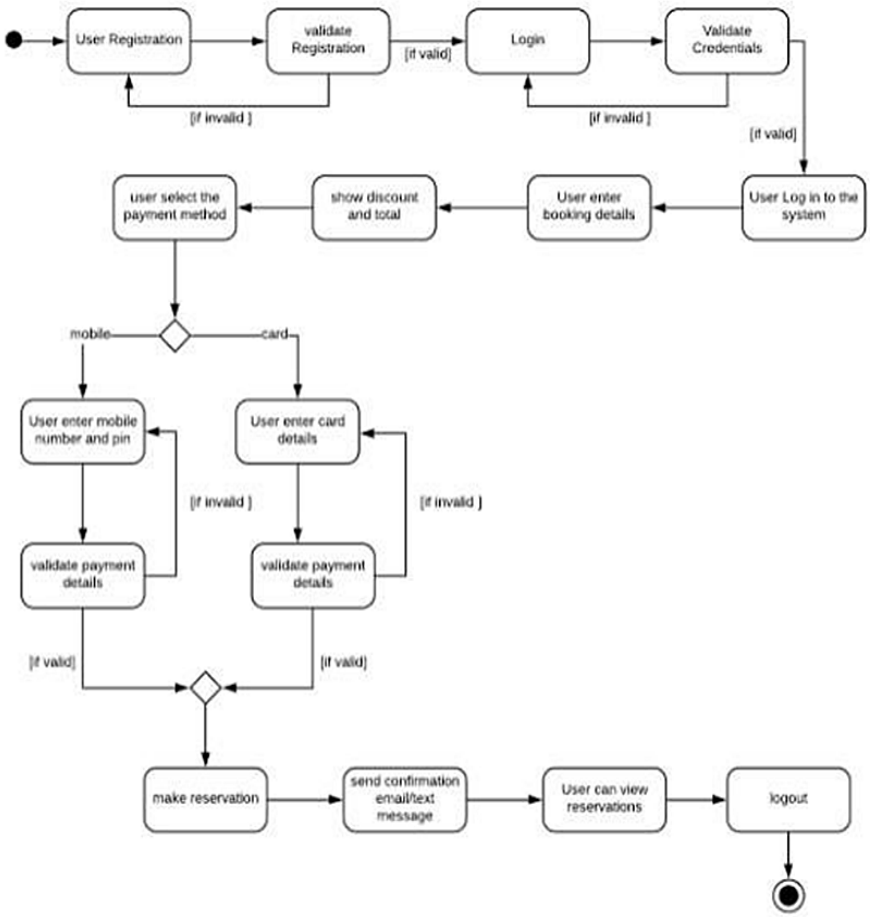
PROJECT DESIGN

5.1DATA FLOW DIAGRAMS



5.2SOLUTION & TECHNICAL ARCHITECTURE





5.3USER STORIES

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer (Mobile user, Web user)	Registration	USN-1	As a user, I can register through the form by Filling in my details	I can register and create my account / dashboard	High	Sprint-1
		USN-2	As a user, I can register through phone numbers, Gmail, Facebook or other social sites	I can register & create my dashboard with Facebook login or other social sites	High	Sprint-2
	Conformation	USN-3	As a user, I will receive confirmation through email or OTP once registration is successful	I can receive confirmation email & click confirm.	High	Sprint-1
	Authentication/Login	USN-4	As a user, I can login via login id and password or through OTP received on register phone number	I can login and access my account/dashboard	High	Sprint-1
	Display Train details	USN-5	As a user, I can enter the start and destination to get the list of trains available connecting the above	can view the train details (name & numbercorrespondi ng routes it passes through based on the start and destination entered.	High	Sprint-1
	Booking	USN-6	As a use, I can provide the basic details such as a name, age, gender etc…	I will view, modify or confirm the details enter.	High	Sprint-1
		USN-7	As a user, I can choose the class, seat/berth. If a preferred seat/berth isn't available I can be allocated based on the availability.	I will view, modify or confirm the seat/class berth selected	High	Sprint-1
		USN-9	As a user, I will be redirected to the selected Payment gateway and upon successful	I can pay through the payment portal and confirm the booking if any changes need to	High	Sprint-1

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
			completion of payment I'll be redirected to the booking website.	be done I can move back to the initial payment page		
	Ticket generation	USN-10	As a user, I can download the generated e-ticket for my journey along with the QR code which is used for authentication during my journey.	I can show the generated QR code so that authentication can be done quickly.	High	Sprint-1
	Ticket status	USN-11	As a user, I can see the status of my ticket Whether it's confirmed/waiting/RAC.	I can confidentially get the Information and arrange alternate transport if the ticket isn't Confirmed	High	Sprint-1
	Remainders notification	USN-12	As a user, I get remainders about my journey A day before my actual journey.	I can make sure that I don't miss the journey because of the constant notifications.	Medium	Sprint-2
		USN-13	As a user, I can track the train using GPS and can get information such as ETA, Current stop and delay.	I can track the train and get to know about the delays pian accordingly	Medium	Sprint-2
	Ticket cancellation	USN-14	As a user, I can cancel my tickets if there's any Change of plan	I can cancel the ticket and get a refund based on how close the date is to the journey.	High	Sprint-1
	Raise queries	USN-15	As a user, I can raise queries through the query box or via mail.	I can view my pervious queries.	Low	Sprint-2
Customer care Executive	Answer the queries	USN-16	As a user, I will answer the questions/doubts Raised by the customers.	I can view the queries and make it once resolved	Medium	Sprint-2

PROJECT PLANNING AND SCHEDULING

6.1. SPRINT PLANNING& ESTIMATION

Sprint	**Functional Requirement (Epic)**	**User Story Number**	**User Story / Task**	**Story Points**	**Priority**	**Team Members**
Sprint-1	Registration	USN-1	As a user, I can register through the form by Filling in my details	2	High	Gayathri
Sprint-1		USN-2	As a user, I can register through phone numbers, Gmail, Facebook or other social sites	1	High	Ramya
Sprint-1	Conformation	USN-3	As a user, I will receive confirmation through email or OTP once registration is successful	2	Low	Mahalakshmi
Sprint-1	login	USN-4	As a user, I can login via login id and password or through OTP received on register phone number	2	Medium	Santhosh
Sprint-1	Display Train details	USN-5	As a user, I can enter the start and destination to get the list of trains available connecting the above	1	High	Gayathri
Sprint-2	Booking	USN-6	As a use, I can provide the basic details such as a name, age, gender etc…	2	High	Ramya
Sprint-2		USN-7	As a user, I can choose the class, seat/berth. If a preferred seat/berth isn't available I can be allocated based on the availability	1	Low	Mahalakshmi
Sprint-2	Payment	USN-8	As a user, I can choose to pay through credit Card/debit card/UPI.	1	High	Santhosh

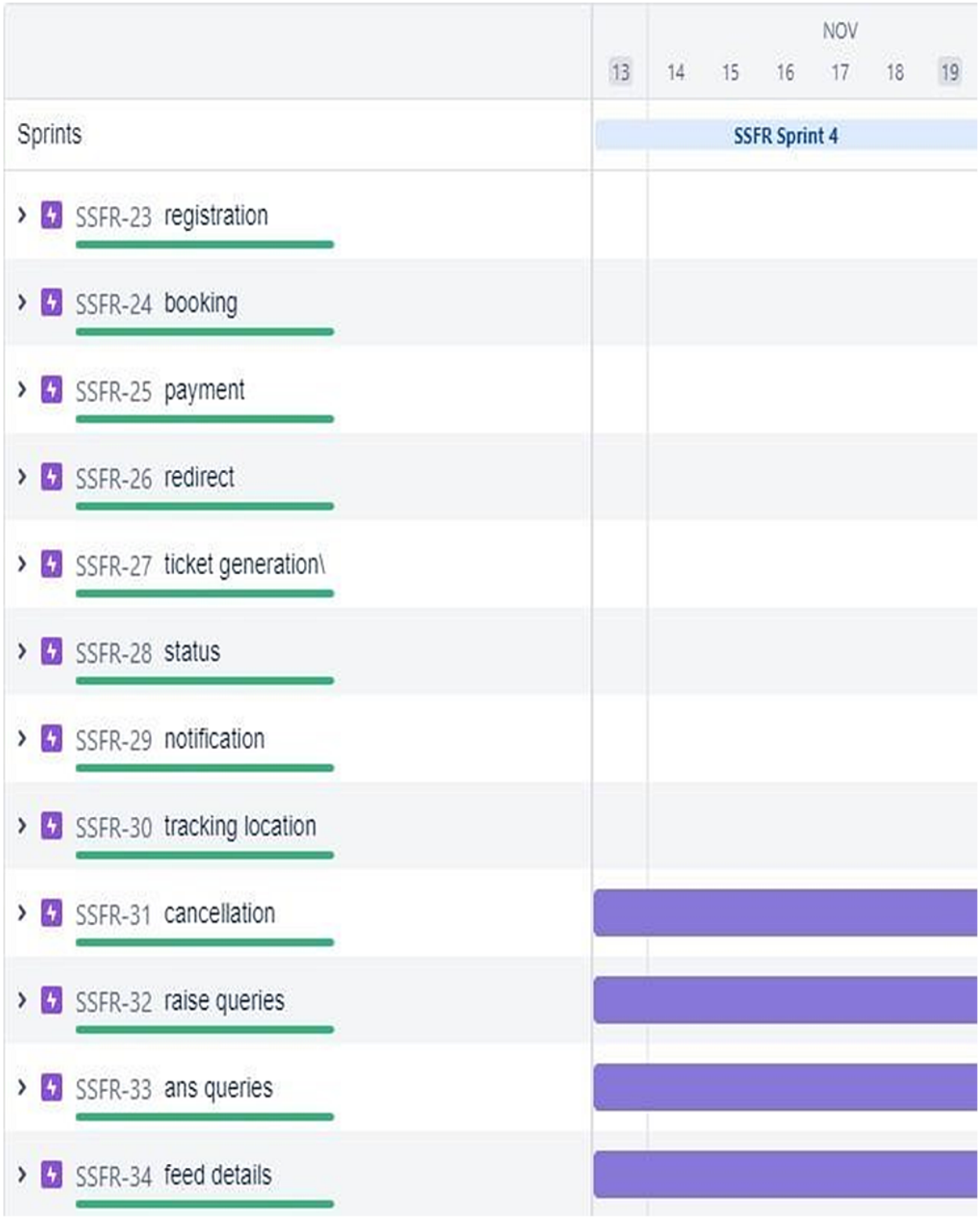
Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-2		USN-9	As a user, I will be redirected to the selected	2	High	
Sprint-3	Ticket generation	USN-10	As a user, I can download the generated e- ticket for my journey along with the QR code which is used for authentication during my journey.	1	High	Gayathri
Sprint-3	Ticket status	USN-11	As a user, I can see the status of my ticket	2	High	Ramya
			Whether it's confirmed/waiting/RAC.			
Sprint-3	Remainders notification	USN-12	As a user, I get remainders about my journey A day before my actual journey.	1	High	Mahalakshmi
Sprint-3	Ticket cancellation	USN-13	As a user, I can track the train using GPS and can get information such as ETA, Current stop and delay	2	High	Santhosh
Sprint-4		USN-14	As a user, I can cancel my tickets if there's any Change of plan	1	High	Gayathri
Sprint-4	Raise queries	USN-15	As a user, I can raise queries through the query box or via mail.	2	Medium	Ramya
Sprint-4	Answer the queries	USN-16	As a user, I will answer the questions/doubts Raised by the customers.	2	High	Mahalakshmi
Sprint-4	Feed details	USN-17	As a user, I will feed information about the trains delays and add extra seats if a new compartment is added.	1	High	Santhosh

6.2. 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

6.3. REPORTS FROM JIRA


NOV
13
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Sprints
SSFR Sprint 4
SSFR-23 registration
SSFR-24 booking
SSFR-25 payment
SSFR-26 redirect
SSFR-27 ticket generation\
SSFR-28 status
SSFR-29 notification
SSFR-30 tracking location
SSFR-31 cancellation
SSFR-32 raise queries
SSFR-33 ans queries
SSFR-34 feed details

CODING AND SOLUTIONING

7.1. FEATURE 1 ○

1. IOT device
2. IBM Watson platform
3. Node red
4. Cloudant DB
5. Web UI
6. GeofenceMIT App
7. Python code

7.2. FEATURE 2

1. Registration
2. Login
3. Verification
4. Ticket Booking
5. Payment
6. Ticket Cancellation
7. Adding Querie

```
labl_0 = Label(base, text="Registration
        form",width=20,font=("bold",
20))    labl_0.place(x=90,y=53)    lb1= Label(base, text="Enter
```

```
        Name", width=10, font=("arial",12))
lb1.place(x=20, y=120)   en1= Entry(base)
en1.place(x=200, y=120)

lb3= Label(base, text="Enter Email", width=10,
        font=("arial",12))
lb3.place(x=19, y=160)   en3= Entry(base)
en3.place(x=200, y=160)

lb4= Label(base, text="Contact Number",
        width=13,font=("arial",12))
lb4.place(x=19, y=200)   en4= Entry(base)
en4.place(x=200, y=200)

lb5= Label(base, text="Select Gender", width=15,
        font=("arial",12))
lb5.place(x=5, y=240)
var = IntVar()

Radiobutton(base, text="Male", padx=5,variable=var,
        value=1).place(x=180, y=240)

Radiobutton(base, text="Female", padx =10,variable=var,
        value=2).place(x=240,y=240)

Radiobutton(base, text="others", padx=15, variable=var,
        value=3).place(x=310,y=240)

list_of_cntry = ("United States", "India", "Nepal",
```

```
        "Germany")   cv = StringVar()   drplist=
        OptionMenu(base, cv, *list_of_cntry)
        drplist.config(width=15)   cv.set("United States")   lb2=
        Label(base, text="Select Country",
        width=13,font=("arial",12))   lb2.place(x=14,y=280)
        drplist.place(x=200, y=275)

lb6= Label(base, text="Enter Password",
        width=13,font=("arial",12))
lb6.place(x=19, y=320)   en6= Entry(base, show='*')
en6.place(x=200, y=320)

lb7= Label(base, text="Re-Enter Password",
        width=15,font=("arial",12))
lb7.place(x=21, y=360)   en7 =Entry(base, show='*')
        en7.place(x=200, y=360)

Button(base, text="Register", width=10).place(x=200,y=400)
        base.mainloop()
defgenerateOTP() :

# Declare a digits variable      # which stores all digits     digits =
        "0123456789"
   OTP = ""

# length of password can be changed    # by changing value in
        range     for i in range(4) :
      OTP += digits[math.floor(random.random() * 10)]
```

```
    return OTP

# Driver code if __name__ == "__main__" :

    print("OTP of 4 digits:", generateOTP())

digits="0123456789" OTP="" for i in range(6):
    OTP+=digits[math.floor(random.random()*10)] otp = OTP
        + " is your OTP" msg= otp s =
        smtplib.SMTP('smtp.gmail.com', 587)
s.starttls()
s.login("Your Gmail Account", "You app password") emailid
= input("Enter your email: ")
s.sendmail('&&&&&&&&&&',emailid,msg) a =
        input("Enter Your OTP >>: ") if a == OTP:
        print("Verified") else:
    print("Please Check your OTP again") roo
```

TESTIN

8.1.TEST CASES

Date	17.11.2022
Team ID	PNT2022TMID40694
Project Name	smart solutions for railways
Maximum Marks	4 marks

ase ID	Feature Type	Compo nent	Test Scenario	Pre-Requisite	Steps To Execute	Test Data	Expected Result	Actual Result	Stat us	Commnets	TC for Automation(Y/N)	BUG ID	Executed By
1	Functional	Registrati on	Registration through the form by Filling in my details		1.Click on register 2.Fill the registration form 3.click Register		Registration form to be filled is to be displayed	Working as expected	Pass				Gayathri
2	UI	Generatin g OTP	Generating the otp for further process		1.Generating of OTP number		user can register through phone numbers, Gmail, Facebook or other social sites and to get oto number	Working as expected	pass				Ramya
3	Functional	OTP verificatio n	Verify user otp using mail		1.Enter gmail id and enter password 2.click submit	Username: abc@gmail.com password: Testing123	OTP verified is to be displayed	Working as expected	pass				Mahalakshmi
4	Functional	Login page	Verify user is able to log into application with InValid credentials		1.Enter into log in page 2.Click on My Account dropdown button 3.Enter InValid username/email in Email text box 4.Enter valid password in password text box 5.Click on login button	Username: abc@gmail password: Testing123	Application should show "Incorrect email or password" validation message.	Working as expected	pass				santhosh kumar
5	Functional	Display Train details	The user can view about the available train details		1.As a user, I can enter the start and destination to get the list of trains available connecting the above	Username: abc@gmail.com password: Testing12367868678687 6876	A user can view about the available trains to enter start and destination details	Working as expected	fail				

Date	17.11.22
Team ID	PNT2022TMID40694
Project Name	smart solutions for railways
Maximum Marks	4 marks

Test case ID	Feature Type	Compon ent	Test Scenario	Pre-Requisite	Steps To Execute	Test Data	Expected Result	Actual Result	Stat us	Commnets	TC for Automation(Y/N)	BUG ID	Executed By
1	Functional	Booking	user can provide the basic details such as a name, age, gender etc		1.Enter method of reservation 2.Enter name,age,gender 3.Enter how many tickets wants to be booked 4.Also enter the number member's details like name,age,gender		Tickets booked to be displayed	Working as expected	Pass				Gayathri
2	UI	Booking seats	User can choose the class, seat/berth. If a preferred seat/berth isn't available I can be allocated based on the availability		1.known to which the seats are available		known to which the seats are available	Working as expected	pass				Ramya
3	Functional	Payment	user, I can choose to pay through credit Card/debit card/UPI.		1.user can choose payment method 2.pay using tht method		payment for the booked tickets to be done using payment method through either the following methods credit Card/debit card/UPI.	Working as expected	pass				Mahalakshmi
4	Functional	Redirectio n	user can be redirected to the selected		1.After payment the usre will be redirected to the previous page		After payment the usre will be redirected to the previous page	Working as expected	pass				Santhosh Kumar

				Date	17.11.22								
				Team ID	PNT2022TMID40634								
				Project Name	smart solutions for railways								
				Maximum Marks	4 marks								
Test case ID	Feature Type	Component	Test Scenario	Pre-Requisite	Steps To Execute	Test Data	Expected Result	Actual Result	Status	Commnets	TC for Automation(Y/N)	BUG ID	Executed By
1	Functional	Ticket generation	a user can download the generated e ticket for my journey along with the QR code which is used for authentication during my journey.		1.Enter method of reservation 2.Enter name,age,gender 3.Enter how many tickets wants to be booked 4.Also enter the number member's details like name,age,gender		Tickets booked to be displayed	Working as expected	Pass				Gayathri
2	UI	Ticket status	a user can see the status of my ticket Whether it's confirmed/waiting/RAC		1.known to the status of the tivkets booked		known to the status of the tivkets booked	Working as expected	pass				Ramya
3	Functional	Remainder notification	a user, I get remainders about my journey A day before my actual journey		1.user can get reminder nofication		user can get reminder nofication	Working as expected	pass				Mahalakshmi
4	Functional	GPS tracking	user can track the train using GPS and can get information such as ETA, Current stop and delay		1.tracking train for getting information		tracking process through GPS	Working as expected	pass				Santhosh Kumar

				Date	17.11.2022								
				Team ID	PNT2022TMID40634								
				Project Name	smart solutions for railways								
				Maximum Marks	4 marks								
Test case ID	Feature Type	Component	Test Scenario	Pre-Requisite	Steps To Execute	Test Data	Expected Result	Actual Result	Status	Commnets	TC for Automation(Y/N)	BUG ID	Executed By
1	Functional	Ticket cancellation	user can cancel my tickets there's any Change of plan		1.tickets to be cancelled		Tickets booked to be cancelled	Working as expected	Pass				Gayathri
2	UI	Raise queries	user can raise queries through the query box or via mail.		1.raise the queries		raise the queries	Working as expected	pass				Ramya
3	Functional	Answer the queries	user will answer the questions/doubts Raised by the customers.		1.answer the queries		answer the queries	Working as expected	pass				Mahalakshmi
4	Functional	Feed details	a user will feed information about the trains delays and add extra seats if a new compartment is added		1.information feeding on trains		information feeding on trains	Working as expected	pass				santhosh kumar

RESULTS

9.1.PERFORMANCE METRICS

ADVANTAGES &DISADVANTAGES

10.1.ADVANTAGES

- Openness – compatibility between different system modules, potentially from different vendors;
- Orchestration – ability to manage large numbers of devices, with full visibility over them; ○Dynamic scaling – ability to scale the system according to the application needs, through resource virtualization and cloud operation;
- Automation – ability to automate parts of the system monitoring application, leading to better performance and lower operation costs.

10.2.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;

CONCLUSION

Accidents occurring in Railway transportation system cost a large number of lives. So this system helps us to prevent accidents and giving information about faults or cracks in advance to railway authorities. So that they can fix them and accidents cases becomes less. This project is cost effective. By using more techniques they can be modified and developed according to their applications. By this system many lives can be saved by avoiding accidents. The idea can be implemented in large scale in the long run to facilitate better safety standards for rail tracks and provide effective testing infrastructure for achieving better results in the future.

FUTURE SCOPE

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

APPENDIX

13.1.SOURCE PROGRAM

```
import math, random
import os
import smtplib import sqlite3 import requests
from bs4 import BeautifulSoup from
django.contrib.auth.base_user import AbstractBaseUser
from django.db import models
import logging
import pandas as pd
import pyttsx3
from plyer import notification import time
import
numpy as np import matplotlib.pyplot as plt
from PIL import Image, ImageDraw from
pickle import load,dump
import smtplib, ssl
from email.mime.text import MIMEText
from email.mime.multipartimport MIMEMultipart
import email

from email import encoders
from email.mime.base import MIMEBase


import attr
```

```
from flask import Blueprint, flash, redirect, request,
url_for                 from flask.views import MethodView
from flask_babelplus import gettext as _
            from flask_login import current_user, login_required
from pluggy import HookimplMarker


          from tkinter import*    base = Tk()
           base.geometry("500x500")    base.title("registration
           form")

           labl_0 = Label(base, text="Registration
           form",width=20,font=("bold",
           20))    labl_0.place(x=90,y=53)

           lb1= Label(base, text="Enter Name", width=10,
           font=("arial",12))
           lb1.place(x=20, y=120)   en1= Entry(base)
           en1.place(x=200, y=120)

           lb3= Label(base, text="Enter Email", width=10,
           font=("arial",12))
           lb3.place(x=19, y=160)   en3= Entry(base)
           en3.place(x=200, y=160)

           lb4= Label(base, text="Contact Number",
           width=13,font=("arial",12))
           lb4.place(x=19, y=200)   en4= Entry(base)
           en4.place(x=200, y=200)
```

```
lb5= Label(base, text="Select Gender", width=15,
font=("arial",12))
lb5.place(x=5, y=240)   var = IntVar()
Radiobutton(base, text="Male", padx=5,variable=var,
value=1).place(x=180, y=240)
Radiobutton(base, text="Female", padx
=10,variable=var, value=2).place(x=240,y=240)
Radiobutton(base, text="others", padx=15, variable=var,
value=3).place(x=310,y=240)

list_of_cntry = ("United States", "India", "Nepal",
"Germany")   cv = StringVar()   drplist=
OptionMenu(base, cv, *list_of_cntry)
drplist.config(width=15)   cv.set("United States")   lb2=
Label(base, text="Select Country",
width=13,font=("arial",12))   lb2.place(x=14,y=280)
drplist.place(x=200, y=275)

lb6= Label(base, text="Enter Password",
width=13,font=("arial",12))
lb6.place(x=19, y=320)   en6= Entry(base, show='*')
en6.place(x=200, y=320)

lb7= Label(base, text="Re-Enter Password",
width=15,font=("arial",12))
lb7.place(x=21, y=360)   en7 =Entry(base, show='*')
en7.place(x=200, y=360)

Button(base, text="Register",
```

```
width=10).place(x=200,y=400)   base.mainloop()

defgenerateOTP() :

   # Declare a digits variable      # which stores all digits
digits = "0123456789"
   OTP = ""

  # length of password can be changed    # by changing
value in range     for i in range(4) :
       OTP += digits[math.floor(random.random() * 10)]

   return OTP

# Driver code if __name__ == "__main__" :

   print("OTP of 4 digits:", generateOTP())

digits="0123456789" OTP=""  for i in range(6):
OTP+=digits[math.floor(random.random()*10)] otp =
OTP + " is your OTP" msg= otp s =
smtplib.SMTP('smtp.gmail.com', 587)
s.starttls()
s.login("Your Gmail Account", "You app password")
emailid
= input("Enter your email: ")
s.sendmail('&&&&&&&&&&',emailid,msg) a =
input("Enter Your OTP >>: ")  if a == OTP:
```

```
    print("Verified") else:
    print("Please Check your OTP again") root
= Tk() root.title("Python: Simple Login Application")
width = 400 height = 280 screen_width =
root.winfo_screenwidth() screen_height =
root.winfo_screenheight() x =
(screen_width/2) - (width/2)
y = (screen_height/2) - (height/2)
root.geometry("%dx%d+%d+%d" % (width, height, x,
y)) root.resizable(0, 0)
USERNAME = StringVar()
PASSWORD = StringVar()
Top = Frame(root, bd=2,  relief=RIDGE)
Top.pack(side=TOP, fill=X)
Form = Frame(root, height=200) Form.pack(side=TOP,
pady=20)
lbl_title = Label(Top, text = "Python: Simple Login
Application",
font=('arial', 15)) lbl_title.pack(fill=X) lbl_username =
Label(Form, text = "Username:", font=('arial', 14),
bd=15)  lbl_username.grid(row=0, sticky="e")
lbl_password = Label(Form, text = "Password:",
font=('arial', 14), bd=15) lbl_password.grid(row=1,
sticky="e") lbl_text = Label(Form)  lbl_text.grid(row=2,
columnspan=2) username = Entry(Form,
textvariable=USERNAME, font=(14))
username.grid(row=0, column=1) password =
Entry(Form, textvariable=PASSWORD, show="*",
font=(14)) password.grid(row=1, column=1) def
```

```
Database():
    global conn, cursor     conn =
sqlite3.connect("pythontut.db")
cursor = conn.cursor()     cursor.execute("CREATE
TABLE IF
NOT EXISTS `member` (mem_id INTEGER NOT
NULL PRIMARY KEY
AUTOINCREMENT, username TEXT, password
TEXT)")          cursor.execute("SELECT * FROM
`member` WHERE `username` =
'admin' AND `password` = 'admin'")     if
cursor.fetchone() is None:
cursor.execute("INSERT INTO `member` (username,
password)
VALUES('admin', 'admin')")         conn.commit() def
Login(event=None):     Database()     if USERNAME.get()
== "" or PASSWORD.get() == "":
lbl_text.config(text="Please complete the required
field!", fg="red")
else:
cursor.execute("SELECT * FROM `member` WHERE
`username`  = ? AND `password` = ?",
(USERNAME.get(), PASSWORD.get()))         if
cursor.fetchone() is not None:
HomeWindow()
USERNAME.set("")           PASSWORD.set("")
lbl_text.config(text="")         else:
lbl_text.config(text="Invalid username or password",
fg="red")
USERNAME.set("")           PASSWORD.set("")
```

```
cursor.close()
conn.close()
btn_login = Button(Form, text="Login", width=45,
command=Login)
btn_login.grid(pady=25, row=3, columnspan=2)
btn_login.bind('<Return>', Login)


defHomeWindow():
global Home     root.withdraw()
   Home = Toplevel()
Home.title("Python: Simple Login Application")     width
= 600     height = 500     screen_width =
root.winfo_screenwidth()     screen_height =
root.winfo_screenheight()     x = (screen_width/2) -
(width/2)     y = (screen_height/2) - (height/2)
root.resizable(0, 0)
Home.geometry("%dx%d+%d+%d" % (width, height,
x, y))     lbl_home = Label(Home, text="Successfully
Login!", font=('times new roman', 20)).pack()
btn_back = Button(Home, text='Back',
command=Back).pack(pady=20, fill=X)

def Back():
Home.destroy()     root.deiconify() defgetdata(url):     r =
requests.get(url)     return r.text


# input by geek
```

```
from_Station_code = "GAYA"
from_Station_name = "GAYA"

To_station_code = "PNBE"
To_station_name = "PATNA"
# url
url = "https://www.railyatri.in/booking/trains-between-
stations?from_code="+from_Station_code+"&from_nam
e="+from_Station_name+"+JN+&journey_date=+Wed&
src=tbs&to_code=" + \
To_station_code+"&to_name="+To_station_name + \
    "+JN+&user_id=-
1603228437&user_token=355740&utm_source=dwebsea
rch_tbs_search_ trains"

# pass the url
# into getdata function htmldata = getdata(url) soup =
BeautifulSoup(htmldata,
'html.parser')

# find the Html tag
# with find()
# and convert into string  data_str = "" for item in
soup.find_all("div", class_="col-xs-12
TrainSearchSection"):   data_str = data_str +
item.get_text() result
= data_str.split("\n")

print("Train between "+from_Station_name+" and
```

```
"+To_station_name)
print("")

# Display the result for item in result:     if item != "":
print(item)
print("\n\nTicket Booking System\n")  restart = ('Y')
while restart != ('N','NO','n','no'):
          print("1.Check PNR status")   print("2.Ticket
Reservation")
                                option = int(input("\nEnter your
option : "))

                               if option == 1:
                                 print("Your PNR status is t3")
                                 exit(0)

                    elif option == 2:           people =
int(input("\nEnter no. of Ticket you
want :  "))     name_l = []    age_l = []
          sex_l = []           for p in
  range(people):                 name =
str(input("\nName : "))
          name_l.append(name)
    age  = int(input("\nAge  : "))      age_l.append(age)
sex  = str(input("\nMale or Female : "))
                                        sex_l.append(sex)

                                restart = str(input("\nDid you
forgot someone? y/n:
```

```
")) if restart in ('y','YES','yes','Yes'):
restart = ('Y') else :
        x = 0
            print("\nTotal Ticket : ",people)
for p in range(1,people+1): print("Ticket :
",p) print("Name : ", name_l[x])
print("Age :
", age_l[x])
                    print("Sex : ",sex_l[x]) x
+= 1
```

7.2.FEATURE 2

```
class User(AbstractBaseUser):
    """
    User model.
    """

    USERNAME_FIELD = "email"

    REQUIRED_FIELDS = ["first_name", "last_name"]

email = models.EmailField( verbose_name="E-
mail",
        unique=True
    )

    first_name = models.CharField(
```

```
verbose_name="First name",
max_length=30
    )

last_name = models.CharField(
verbose_name="Last name",          max_length=40
    )

city = models.CharField(         verbose_name="City",
max_length=40
    )

stripe_id = models.CharField(
verbose_name="Stripe ID",
        unique=True,         max_length=50,         blank=True,
        null=True
    )

    objects = UserManager()

    @property     defget_full_name(self):
        return f"{self.first_name} {self.last_name}"

    class Meta:
verbose_name = "User"
verbose_name_plural = "Users"
```

```
class Profile(models.Model):
    """
    User's profile.
    """

phone_number = models.CharField(
verbose_name="Phone number",        max_length=15
    )

date_of_birth = models.DateField(
verbose_name="Date of birth"
    )

postal_code = models.CharField(
verbose_name="Postal code",        max_length=10,
        blank=True
    )

    address = models.CharField(
verbose_name="Address",        max_length=255,
blank=True
    )

    class Meta:
        abstract = True


class UserProfile(Profile):
```

```
    """
    User's profile model.
    """

user = models.OneToOneField(        to=User,
on_delete=models.CASCADE, related_name="profile",
    )

    group = models.CharField(
verbose_name="Group type",
choices=GroupTypeChoices.choices(),
max_length=20,
default=GroupTypeChoices.EMPLOYEE.name,
    )

def __str__(self):
        return self.user.email

    class Meta:

# user 1 - employer  user1, _ =
User.objects.get_or_create(
email="foo@bar.com",
first_name="Employer",     last_name="Testowy",
city="Białystok",
)

user1.set_unusable_password()
```

```
group_name = "employer"

_profile1, _ = UserProfile.objects.get_or_create(
user=user1,     date_of_birth=datetime.now() -
timedelta(days=6600),
group=GroupTypeChoices(group_name).name,
   address="Myśliwska 14",     postal_code="15569",
phone_number="+48100200300",
)

# user2 - employee  user2, _ =
User.objects.get_or_create()
email="bar@foo.com",     first_name="Employee",
last_name="Testowy",
   city="Białystok",
)

user2.set_unusable_password()

group_name = "employee"

_profile2, _ = UserProfile.objects.get_or_create()
user=user2,     date_of_birth=datetime.now() -
timedelta(days=7600),
group=GroupTypeChoices(group_name).name,
address="Myśliwska 14",     postal_code="15-
569",     phone_number="+48200300400",
```

```
)

response_customer = stripe.Customer.create()
email=user.email,    description=f"EMPLOYER -
{user.get_full_name}",    name=user.get_full_name,
phone=user.profile.phone_number,
)

user1.stripe_id = response_customer.stripe_id
user1.save()

mcc_code, url = "1520", "https://www.softserveinc.com/"

response_ca = stripe.Account.create()    type="custom",
country="PL",    email=user2.email,
default_currency="pln",    business_type="individual",
settings={"payouts": {"schedule": {"interval":
"manual", }}},
requested_capabilities=["card_payments", "transfers",
],    business_profile={"mcc": mcc_code, "url": url},
individual={
      "first_name": user2.first_name,
      "last_name": user2.last_name,
      "email": user2.email,
      "dob": {
         "day": user2.profile.date_of_birth.day,
         "month": user2.profile.date_of_birth.month,
"year": user2.profile.date_of_birth.year,
      },
```

```
        "phone": user2.profile.phone_number,
        "address": {
            "city": user2.city,
            "postal_code": user2.profile.postal_code,
            "country": "PL",
    "line1": user2.profile.address,
        },
    },
)

user2.stripe_id = response_ca.stripe_id user2.save()

tos_acceptance = {"date": int(time.time()), "ip":
user_ip},

stripe.Account.modify(user2.stripe_id,
tos_acceptance=tos_acceptance)

passport_front = stripe.File.create(
purpose="identity_document",     file=_file,
# ContentFile object      stripe_account=user2.stripe_id,
)

individual = {      "verification": {
"document": {"front": passport_front.get("id"),},
        "additional_document": {"front":
passport_front.get("id"),},
    }
```

```
}


stripe.Account.modify(user2.stripe_id,
individual=individual)  new_card_source =
stripe.Customer.create_source(user1.stripe_id,
source=token)

stripe.SetupIntent.create(
payment_method_types=["card"],
customer=user1.stripe_id,    description="some
description",    payment_method=new_card_source.id,
)

payment_method =
stripe.Customer.retrieve(user1.stripe_id).default_source

payment_intent = stripe.PaymentIntent.create(
amount=amount,    currency="pln",
payment_method_types=["card"],
capture_method="manual",    customer=user1.stripe_id,
# customer    payment_method=payment_method,
application_fee_amount=application_fee_amount,
transfer_data={"destination": user2.stripe_id}, # connect
account    description=description,
   metadata=metadata,
)

payment_intent_confirm =
```

```
stripe.PaymentIntent.confirm(
payment_intent.stripe_id,
payment_method=payment_method
)

stripe.PaymentIntent.capture(     payment_intent.id,
amount_to_capture=amount
)
stripe.Balance.retrieve(stripe_account=user2.stripe_id)
stripe.Charge.create(     amount=amount,
currency="pln",      source=user2.stripe_id,
   description=description
)

stripe.PaymentIntent.cancel(payment_intent.id)



unique_together = ("user", "group")
@attr.s(frozen=True, cmp=False, hash=False, repr=True)
class UserSettings(MethodView):
   form = attr.ib(factory=settings_form_factory)
settings_update_handler =
attr.ib(factory=settings_update_handler)

   decorators = [login_required]

def get(self):
       return self.render()
```

```
def post(self):        if self.form.validate_on_submit():
try:
self.settings_update_handler.apply_changeset(
current_user, self.form.as_change()
                )
            except StopValidation as e:
self.form.populate_errors(e.reasons)
                return self.render()            except
PersistenceError:                logger.exception("Error
while updating user settings")
flash(_("Error while updating user settings"), "danger")
return self.redirect()

            flash(_("Settings updated."), "success")
            return self.redirect()
        return self.render()

def render(self):        return
render_template("user/general_settings.html",
form=self.form)

def redirect(self):
        return redirect(url_for("user.settings"))


@attr.s(frozen=True, hash=False, cmp=False, repr=True)
class ChangePassword(MethodView):
    form =
```

```
attr.ib(factory=change_password_form_factory)
password_update_handler =
attr.ib(factory=password_update_handler)
   decorators = [login_required]

def get(self):
       return self.render()

def post(self):
       if self.form.validate_on_submit():
          try:
self.password_update_handler.apply_changeset(
current_user, self.form.as_change()
             )
          except StopValidation as e:
self.form.populate_errors(e.reasons)
             return self.render()          except
PersistenceError:
logger.exception("Error while changing password")
flash(_("Error while changing password"), "danger")
return self.redirect()

          flash(_("Password updated."), "success")
          return self.redirect()
       return self.render()

def render(self):
       return
```

```
render_template("user/change_password.html",
form=self.form)

def redirect(self):
        return redirect(url_for("user.change_password"))


@attr.s(frozen=True, cmp=False, hash=False, repr=True)
class ChangeEmail(MethodView):
    form = attr.ib(factory=change_email_form_factory)
update_email_handler =
attr.ib(factory=email_update_handler)     decorators =
[login_required]

def get(self):
        return self.render()

def post(self):         if self.form.validate_on_submit():
try:
self.update_email_handler.apply_changeset(
current_user, self.form.as_change()
                )
            except StopValidation as e:
self.form.populate_errors(e.reasons)
                return self.render()            except
PersistenceError:
logger.exception("Error while updating email")
flash(_("Error while updating email"), "danger")
return self.redirect()
```

```
            flash(_("Email address updated."), "success")
return self.redirect()
        return self.render()

def render(self):
        return render_template("user/change_email.html",
form=self.form)

def redirect(self):
        return redirect(url_for("user.change_email")) def
berth_type(s):

    if s>0 and s<73:
        if s % 8 == 1 or s % 8 == 4:
            print (s), "is lower berth"          elif s % 8 == 2 or s
% 8 == 5:
print (s), "is middle berth"          elif s % 8 == 3 or s % 8
== 6:              print (s), "is upper berth"          elif s % 8 ==
7:
            print (s), "is side lower berth"          else:
print (s), "is side upper berth"      else:
        print (s), "invalid seat number"

# Driver code s = 10 berth_type(s)      # fxn call for berth
type

s = 7 berth_type(s)     # fxn call for
```

berth type

s = 0 berth_type(s) # fxn call for berth type class Ticket: counter=0 def __init__(self,passenger_name,source,destination):

self.__passenger_name=passenger_nameself.__source=source self.__destination=destination self.Counter=Ticket.counterTicket.counter+=1 defvalidate_source_destination(self):
if (self.__source=="Delhi" and (self.__destination=="Pune" or self.__destination=="Mumbai" or self.__destination=="Chennai" or self.__destination=="Kolkata")): return True else:
return False

defgenerate_ticket(self): if True:

__ticket_id=self.__source[0]+self.__destination[0]+"0"+str(self.Counter) print("Ticket id will be:",__ticket_id) else:
return False def get_ticket_id(self): return self.ticket_iddefget_passenger_name(self): return self.__passenger_namedefget_source(self): if self.__source=="Delhi": return self.__source

```
else:
        print("you have written invalid soure option")
return None     defget_destination(self):        if
self.__destination=="Pune":
        return
self.__destinationelifself.__destination=="Mumbai":
        return
self.__destinationelifself.__destination=="Chennai":
return
self.__destinationelifself.__destination=="Kolkata":
        return self.__destination

else:
        return None        # user define function # Scrape
the data defgetdata(url):
                        r = requests.get(url)
                        return r.text

# input by geek  train_name = "03391-rajgir-new-delhi-
clone-special-rgd-to-ndls"  # urlurl =
"https://www.railyatri.in/live-train-status/"+train_name

# pass the url # into getdata function htmldata
= getdata(url) soup =
BeautifulSoup(htmldata, 'html.parser')

# traverse the live status from
# this Html code data = [] for item in
soup.find_all('script', type="application/ld+json"):
```

```
                                    data.append(item.get_text())

            # convert into dataframe
            df = pd.read_json(data[2])

            # display this column of # dataframe
            print(df["mainEntity"][0]['name'])
            print(df["mainEntity"][0]['acceptedAnswer']['text'])
            Speak method def Speak(self, audio):

                                     # Calling the initial constructor
                                    # of pyttsx3
                        engine = pyttsx3.init('sapi5')
                    # Calling the getter method                voices =
engine.getProperty('voices')
                    # Calling the setter method
engine.setProperty('voice', voices[1].id)
                                    engine.say(audio)
                                    engine.runAndWait()
                            def
                    Take_break():


                                    Speak("Do you want to start sir?")
                                    question = input()

                                    if "yes" in question:

                                    Speak("Starting Sir")
```

```
                                    if "no" in question:
                                     Speak("We will automatically start after 5 Mins
Sir.")
                                    time.sleep(5*60)
                                     Speak("Starting Sir")

                                    # A notification we will held that
                                    # Let's Start sir and with a message of
                                    # will tell you to take a break after 45
                                    # mins for 10 seconds
                                    while(True):
                                    notification.notify(title="Let's Start sir",
                                    message="will tell you to take a break after 45
mins",
                                     timeout=10)

                                     # For 45 min the will be no notification but


                                     # after 45 min a notification will pop
                                    up.
                                        time.sleep(0.5*60)

                                         Speak("Please Take a break Sir")

                notification.notify(title="Break Notification",
                message="Please do use your device after sometime  as
                you have"
```

"been continuously using it for 45 mins and it will affect your eyes",

timeout=10)

 # Driver's Code if __name__ == '__main__':

Take_break()

data_path = 'data.csv' data = pd.read_csv(data_path, names=['LATITUDE', 'LONGITUDE'], sep=',') gps_data = tuple(zip(data['LATITUDE'].values, data['LONGITUDE'].values))

image = Image.open('map.png', 'r') # Load map image. img_points = [] for d in gps_data:

x1, y1 = scale_to_img(d, (image.size[0], image.size[1])) # Convert GPS coordinates to image coordinates. img_points.append((x1, y1)) draw = ImageDraw.Draw(image) draw.line(img_points, fill=(255, 0, 0), width=2) # Draw converted records to the map image.

image.save('resultMap.png') x_ticks = map(lambda x: round(x, 4), np.linspace(lon1, lon2, num=7)) y_ticks = map(lambda x: round(x, 4), np.linspace(lat1, lat2, num=8)) y_ticks = sorted(y_ticks, reverse=True) # y ticks must be reversed

```
due to conversion to image coordinates.
fig, axis1 = plt.subplots(figsize=(10, 10))
axis1.imshow(plt.imread('resultMap.png'))  # Load the
image to matplotlib plot.
axis1.set_xlabel('Longitude')  axis1.set_ylabel('Latitude')
axis1.set_xticklabels(x_ticks)
axis1.set_yticklabels(y_ticks) axis1.grid() plt.show() class
tickets:     def __init__(self):
self.no_ofac1stclass=0         self.totaf=0
self.no_ofac2ndclass=0         self.no_ofac3rdclass=0
self.no_ofsleeper=0         self.no_oftickets=0
self.name=''         self.age=''         self.resno=0
self.status=''         def ret(self):
        return(self.resno)     defretname(self):
return(self.name)     def display(self):         f=0
fin1=open("tickets.dat","rb")
if not fin1:
            print "ERROR"
else:             print
            n=int(raw_input("ENTER PNR NUMBER : "))
print "\n\n"
            print ("FETCHING DATA . . .".center(80))
time.sleep(1)
            print             print('PLEASE
WAIT...!!'.center(80))             time.sleep(1)
os.system('cls')             try:                 while True:
                    tick=load(fin1)
if(n==tick.ret()):                       f=1
print "="*80                       print("PNR
```

```
STATUS".center(80))
                print"="*80                print
                print "PASSENGER'S NAME
:",tick.name
print
          print "PASSENGER'S AGE :",tick.age
print
                print "PNR NO :",tick.resno
print
                print "STATUS :",tick.status
print
              print "NO OF SEATS BOOKED :
",tick.no_oftickets          print          except:
pass          fin1.close()          if(f==0):
             print
             print "WRONG PNR NUMBER..!!"
print def pending(self):
self.status="WAITING LIST"          print "PNR
NUMBER :",self.resno
print        time.sleep(1.2)        print
"STATUS = ",self.status
       print
print "NO OF SEATS BOOKED : ",self.no_oftickets
print    def confirmation (self):
self.status="CONFIRMED"          print "PNR NUMBER
: ",self.resno
print        time.sleep(1.5)        print
"STATUS = ",self.status
print    def
```

```
cancellation(self):          z=0
        f=0          fin=open("tickets.dat","rb")
fout=open("temp.dat","ab")
        print
        r= int(raw_input("ENTER PNR NUMBER : "))
try:             while(True):                  tick=load(fin)
z=tick.ret() if(z!=r):
                    dump(tick,fout)
elif(z==r):
                    f=1
except:             pass          fin.close()
fout.close()          os.remove("tickets.dat")
os.rename("temp.dat","tickets.dat")          if (f==0):
print
print "NO SUCH RESERVATION NUMBER FOUND"
print             time.sleep(2)             os.system('cls')
else:
print
            print "TICKET CANCELLED"
print"RS.600 REFUNDED...."     def reservation(self):
trainno=int(raw_input("ENTER THE TRAIN NO:"))
z=0
        f=0
        fin2=open("tr1details.dat")          fin2.seek(0)          if
not fin2:             print "ERROR"          else:
try:
                while True:
tr=load(fin2)
z=tr.gettrainno()                    n=tr.gettrainname()
```

```
if (trainno==z):
                print                print "TRAIN NAME
IS : ",n
f=1                print                print "-"*80
no_ofac1st=tr.getno_ofac1stclass()
no_ofac2nd=tr.getno_ofac2ndclass()
no_ofac3rd=tr.getno_ofac3rdclass()
no_ofsleeper=tr.getno_ofsleeper()                if(f==1):
                fout1=open("tickets.dat","ab")
print
self.name=raw_input("ENTER THE PASSENGER'S
NAME ")
          print
self.age=int(raw_input("PASSENGER'S AGE : "))
print
                print"\t\t SELECT A CLASS YOU
WOULD LIKE TO TRAVEL IN :- "
print "1.AC FIRST CLASS"
print
                print "2.AC SECOND CLASS"
print
                print "3.AC THIRD CLASS"
print
                print "4.SLEEPER CLASS"
print
                c=int(raw_input("\t\t\tENTER YOUR
CHOICE = "))
os.system('cls')                amt1=0
if(c==1):
```

```
self.no_oftickets=int(raw_input("ENTER NO_OF
FIRST CLASS AC SEATS TO BE BOOKED : "))
i=1                    while(i<=self.no_oftickets):
self.totaf=self.totaf+1
amt1=1000*self.no_oftickets=i+1                    print
                print "PROCESSING. .",
time.sleep(0.5)
print ".",          time.sleep(0.3)                print'.'
time.sleep(2)                os.system('cls')
                print "TOTAL AMOUNT TO BE PAID
= ",amt1
self.resno=int(random.randint(1000,2546))
                x=no_ofac1st-self.totaf
print                    if(x>0):
self.confirmation()                    dump(self,fout1)
                  break                  else:
self.pending()                    dump(tick,fout1)
break                elif(c==2):
self.no_oftickets=int(raw_input("ENTER NO_OF
SECOND CLASS AC SEATS TO BE BOOKED :  "))
i=1



def menu():
tr=train()
tick=tickets()    print
   print "WELCOME TO PRAHIT
AGENCY".center(80)
```

```
while True:
        print          print "="*80          print " \t\t\t\t
RAILWAY"
print          print "="*80
        print
        print "\t\t\t1. **UPDATE TRAIN DETAILS."
print
        print "\t\t\t2. TRAIN DETAILS. "
print
        print "\t\t\t3. RESERVATION OF TICKETS."
print
        print "\t\t\t4. CANCELLATION OF TICKETS. "
print
        print "\t\t\t5. DISPLAY PNR STATUS."
print
        print "\t\t\t6. QUIT."          print"** - office
use....." ch=int(raw_input("\t\t\tENTER YOUR
CHOICE : "))
os.system('cls')          print
"\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\t\t
\t\t\t\t\tLOADI NG. .",
time.sleep(1)
print ("."),       time.sleep(0.5)          print (".")
time.sleep(2)          os.system('cls')          if ch==1:
            j="******"
r=raw_input("\n\n\n\n\n\n\n\n\n\n\n\t\t\t\tENTER THE
PASSWORD: ")
os.system('cls')              if (j==r):                  x='y'
while (x.lower()=='y'):
```

```
fout=open("tr1details.dat","ab")
tr.getinput()                    dump(tr,fout)
fout.close()

print"\n\n\n\n\n\n\n\n\n\n\n\t\t\tUPDATING TRAIN
LIST PLEASE WAIT . .",
time.sleep(1)
print ("."),                    time.sleep(0.5)
print ("."),
time.sleep(2)
os.system('cls')
                print "\n\n\n\n\n\n\n\n\n\n\n"
                x=raw_input("\t\tDO YOU WANT TO
ADD ANY MORE TRAINS DETAILS ? ")
os.system('cls')
continue              elif(j<>r):
print"\n\n\n\n\n"                  print "WRONG
PASSWORD".center(80)          elifch==2:
            fin=open("tr1details.dat",'rb')
if not fin:
              print "ERROR"              else:
try:                  while True:
                    print"*"*80
print"\t\t\t\tTRAIN DETAILS"
                    print"*"*80
print                       tr=load(fin)
tr.output()
```

```
raw_input("PRESS ENTER TO VIEW NEXT TRAIN DETAILS")
os.system('cls')                    except EOFError:
                        pass
elifch==3:                  print'='*80
                print "\t\t\t\tRESERVATION OF TICKETS"
print'='*80                  print                  tick.reservation()
elifch==4:
                print"="*80
print"\t\t\t\tCANCELLATION OF TICKETS"
print                  print"="*80                  print
tick.cancellation()             elifch==5:                  print
"="*80
print("PNR STATUS".center(80))
                print"="*80                  printclass tickets:     def
__init__(self):         self.no_ofac1stclass=0         self.totaf=0
self.no_ofac2ndclass=0         self.no_ofac3rdclass=0
self.no_ofsleeper=0         self.no_oftickets=0
self.name=''         self.age=''
self.resno=0         self.status=''         def ret(self):
        return(self.resno)     defretname(self):
return(self.name)     def display(self):          f=0
fin1=open("tickets.dat","rb")
if not fin1:
            print "ERROR"
else:              print
            n=int(raw_input("ENTER PNR NUMBER : "))
print "\n\n"              print ("FETCHING DATA . .
```

```
.".center(80))          time.sleep(1)          print
        print('PLEASE WAIT...!!'.center(80))
time.sleep(1)
os.system('cls')          try:              while
True:
                tick=load(fin1)
if(n==tick.ret()):                  f=1
print "="*80                  print("PNR
STATUS".center(80))
                print"="*80                  print
                print "PASSENGER'S NAME
:",tick.name
print
print "PASSENGER'S AGE :",tick.age
print
                print "PNR NO :",tick.resno
print
                print "STATUS :",tick.status
print
    print "NO OF SEATS BOOKED : ",tick.no_oftickets
print          except:              pass          fin1.close()
if(f==0):              print
            print "WRONG PNR NUMBER..!!"
printdef pending(self):
self.status="WAITING LIST"          print "PNR
NUMBER :",self.resno
print          time.sleep(1.2)          print "STATUS =
",self.status          print          print "NO OF SEATS
BOOKED : ",self.no_oftickets
```

```
print     def confirmation (self):
self.status="CONFIRMED"         print "PNR NUMBER
: ",self.resno
print
time.sleep(1.5)         print
"STATUS = ",self.status
        print     def
cancellation(self):          z=0          f=0
fin=open("tickets.dat","rb")
fout=open("temp.dat","ab")
        print
        r= int(raw_input("ENTER PNR NUMBER : "))
try:             while(True):                 tick=load(fin)
z=tick.ret()                 if(z!=r):
                    dump(tick,fout)
elif(z==r):
                    f=1
except:             pass         fin.close()
fout.close()          os.remove("tickets.dat")
os.rename("temp.dat","tickets.dat")         if (f==0):
print
           print "NO SUCH RESERVATION NUMBER
FOUND"             print             time.sleep(2)
os.system('cls')
        else:             print
           print "TICKET CANCELLED"
print"RS.600 REFUNDED...."     def reservation(self):
trainno=int(raw_input("ENTER THE TRAIN NO:"))
z=0
```

```
        f=0
        fin2=open("tr1details.dat")        fin2.seek(0)        if
not fin2:            print
"ERROR"        else:                  try:                while
True:
tr=load(fin2)
z=tr.gettrainno()                  n=tr.gettrainname()
if (trainno==z):
                    print                    print "TRAIN NAME
IS : ",n
f=1                    print                    print "-"*80
no_ofac1st=tr.getno_ofac1stclass()
no_ofac2nd=tr.getno_ofac2ndclass()
no_ofac3rd=tr.getno_ofac3rdclass()
no_ofsleeper=tr.getno_ofsleeper()                  if(f==1):
                    fout1=open("tickets.dat","ab")
print
self.name=raw_input("ENTER THE PASSENGER'S
NAME ")
                print
self.age=int(raw_input("PASSENGER'S AGE : "))
print
                    print"\t\t SELECT A CLASS YOU
WOULD LIKE TO TRAVEL IN :- "
                    print "1.AC FIRST CLASS"
print
                    print "2.AC SECOND CLASS"
print
                    print "3.AC THIRD CLASS"
```

```
print
print "4.SLEEPER CLASS"
print
                    c=int(raw_input("\t\t\tENTER YOUR
CHOICE = "))
os.system('cls')                    amt1=0
if(c==1):
self.no_oftickets=int(raw_input("ENTER NO_OF
FIRST CLASS AC SEATS TO BE BOOKED : "))
i=1                         while(i<=self.no_oftickets):
self.totaf=self.totaf+1
amt1=1000*self.no_oftickets=i+1                         print
                    print "PROCESSING. .",
time.sleep(0.5)                         print ".",
time.sleep(0.3)
print'.'                       time.sleep(2)
os.system('cls')
                    print "TOTAL AMOUNT TO BE PAID
= ",amt1
self.resno=int(random.randint(1000,2546))
                    x=no_ofac1st-self.totaf
print                       if(x>0):
self.confirmation()                         dump(self,fout1)
                        break                       else:
self.pending()                          dump(tick,fout1)
break                   elif(c==2):
self.no_oftickets=int(raw_input("ENTER NO_OF
SECOND CLASS AC SEATS TO BE BOOKED :  "))
i=1
```

```
def menu():
tr=train()
tick=tickets()    print
   print "WELCOME TO PRAHIT
AGENCY".center(80)
while True:
          print          print "="*80          print " \t\t\t\t
RAILWAY"
          print          print "="*80
          print
    print "\t\t\t1. **UPDATE TRAIN DETAILS."
print
          print "\t\t\t2. TRAIN DETAILS. "
print
          print "\t\t\t3. RESERVATION OF TICKETS."
print
          print "\t\t\t4. CANCELLATION OF TICKETS. "
print
          print "\t\t\t5. DISPLAY PNR STATUS."
print
          print "\t\t\t6. QUIT."          print"** - office
use....."          ch=int(raw_input("\t\t\tENTER YOUR
CHOICE : "))
os.system('cls')          print
"\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\t\t
\t\t\t\t\tLOADI
```

```
NG. .",
time.sleep(1)
print ("."),          time.sleep(0.5)          print (".")
time.sleep(2)          os.system('cls')          if ch==1:
j="*****"
r=raw_input("\n\n\n\n\
n\n\n\n\n\n\n\t\t\t\tENT ER THE
PASSWORD: ")
os.system('cls')              if (j==r):                  x='y'
while (x.lower()=='y'):
fout=open("tr1details.dat","ab")
tr.getinput()                  dump(tr,fout)
fout.close()

print"\n\n\n\n\n\n\n\n\n\n\n\t\t\tUPDATING TRAIN
LIST PLEASE WAIT . .",
time.sleep(1)
print ("."),                  time.sleep(0.5)
print ("."),
time.sleep(2)
os.system('cls')
                print "\n\n\n\n\n\n\n\n\n\n\n"
                x=raw_input("\t\tDO YOU WANT TO
ADD ANY MORE TRAINS DETAILS ? ")
os.system('cls')
continue              elif(j<>r):
print"\n\n\n\n\n"                  print "WRONG
PASSWORD".center(80)          elifch==2:
            fin=open("tr1details.dat",'rb')
```

```
if not fin:
                print "ERROR"              tick.display()
elifch==6:
            quit()

raw_input("PRESS ENTER TO GO TO BACK MENU".center(80))
os.system('cls')

menu() sender_email = "my@gmail.com" receiver_email = "your@gmail.com" password = input("Type your password and press enter:")

message = MIMEMultipart("alternative")
message["Subject"] = "multipart test" message["From"] = sender_email  message["To"] = receiver_email

# Create the plain-text and HTML version of your message text = """\
Hi,
How are you?
Real Python has many great tutorials:
www.realpython.com"""  html = """\ <html>
<body>
<p>Hi,<br>
     How are you?<br>
<a href="http://www.realpython.com">Real Python</a> has many great tutorials.
```

</p>
</body>
</html>
"""
# Turn these into plain/html MIMEText objects part1 = MIMEText(text, "plain")
part2 = MIMEText(html, "html")

Add HTML/plain-text parts to MIMEMultipart message
The email client will try to render the last part first message.attach(part1) message.attach(part2)

# Create secure connection with server and send email context = ssl.create_default_context() with smtplib.SMTP_SSL("smtp.gmail.com", 465, context=context) as server:
server.login(sender_email, password) server.sendmail(sender_email, receiver_email, message.as_string()
)
subject = "An email with attachment from Python" body = "This is an email with attachment sent from Python" sender_email = "my@gmail.com" receiver_email = "your@gmail.com" password = input("Type your password and press enter:") # Create a multipart message and set headers message = MIMEMultipart() message["From"] = sender_email message["To"] = receiver_email message["Subject"] = subject message["Bcc"] = receiver_email # Recommended for

mass emails

 # Add body to email message.attach(MIMEText(body, "plain")) filename = "document.pdf" # In same directory as script

 # Open PDF file in binary mode with open(filename, "rb") as attachment:
**   # Add file as application/octet-stream**
**   # Email client can usually download this automatically as attachment   part = MIMEBase("application", "octet-stream")   part.set_payload(attachment.read())**

 # Encode file in ASCII characters to send by email
encoders.encode_base64(part)

 # Add header as key/value pair to attachment part
part.add_header("Content-Disposition",
f"attachment; filename= {filename}",
)
 # Add attachment to message and convert message to string message.attach(part)
text = message.as_string()

 # Log in to server using secure context and send email
context = ssl.create_default_context() with smtplib.SMTP_SSL("smtp.gmail.com", 465, context=context) as server:
server.login(sender_email, password)

```
server.sendmail(sender_email, receiver_email, text)
api_key = "Your_API_key"

# base_url variable to store url
base_url = "https://api.railwayapi.com/v2/pnr-status/pnr/"
# Enter valid pnr_number
pnr_number = "6515483790"

# Stores complete url address  complete_url = base_url + pnr_number + "/apikey/" + api_key + "/"

# get method of requests module # return response object
response_ob = requests.get(complete_url)

# json method of response object convert # json format data into python format data result = response_ob.json()

# now result contains list # of nested dictionaries if result["response_code"] == 200: # train name is extracting # from the result variable data train_name = result["train"]["name"]

        # train number is extracting from   # the result variable data
                                train_number = result["train"]["number"]
```

```
# from station name is extracting   # from the result variable data
                from_station = result["from_station"]["name"]

# to_station name is extracting from          # the result variable data
                to_station = result["to_station"]["name"]

# boarding point station name is          # extracting from the result variable data   boarding_point = result["boarding_point"]["name"]

# reservation upto station name is   # extracting from the result variable data
                reservation_upto = result["reservation_upto"]["name"]

                # store the value or data of "pnr" key in pnr_num variable pnr_num = result["pnr"] # store the value or data of "doj" key # in variable date_of_journey variable
                date_of_journey = result["doj"]

# store the value or data of
                # "total_passengers" key in variable
```

```
                                    total_passengers =
result["total_passengers"]

            # store the value or data of "passengers"   # key in
        variable passengers_list
                                    passengers_list =
result["passengers"]

            # store the value or data of        #
        "chart_prepared" key in variable
                                    chart_prepared =
result["chart_prepared"]

                                    # print following values
                print(" train name : " + str(train_name)    + "\n
train
        number : " + str(train_number)
                                     + "\n from station : " +
str(from_station)
                                    + "\n to station : " +
str(to_station)
                                     + "\n boarding point : " +
str(boarding_point)
                                     + "\n reservation upto : " +
str(reservation_upto)
                                     + "\n pnr number : " +
str(pnr_num)
                                     + "\n date of journey : " +
str(date_of_journey)
```

```
                    + "\n total no. of passengers: " +
str(total_passengers)
 + "\n chart prepared : " + str(chart_prepared))

                                # looping through passenger list for
                                passenger in passengers_list:

                                # store the value or data  # of "no"
                                key in variable  passenger_num =
                                passenger["no"]

          # store the value or data of    # "current_status" key in
        variable    current_status = passenger["current_status"]

          # store the value or data of    # "booking_status" key in
        variable    booking_status = passenger["booking_status"]

                                    # print following values
              print(" passenger number : " +
        str(passenger_num)          + "\n current status : " +
        str(current_status)
                                     + "\n booking_status : " +
str(booking_status))
            else:
 print("Record Not Found")
```