# DAVANGERE UNIVERSITY

SHIVAGANGOTRI,THOLAHUNASE,DAVANGERE-577002

## BAPUJI INSTITUTE OF HI-TECH EDUCATION

LAKE VIEW CAMPUS, S.S LAYOUT, DAVANGERE-577 004

# *CERTIFICATE*

This is to certified that the project work entitled **"INTERACTIVE VOICE RESPONSE SYSTEM"** is carried out by **Miss.LAKSHMI. R A with Reg.no: B2020507** in partial fulfillment for the award of **BACHELOR OF COMPUTER APPLICATION (BCA)** of the **Davangere University, Davangere** during the academic year 2022-2023.

**Under the Guidance of**

**Prof.Siddalingappa .K.PGDCA,M.Sc(IT)**

**Vice Principal**

**Prof. Bakkesh K. S** MCA
**Head of the Department**

**Dr.B.Veerappa** M.Sc.,M.Phil., Ph.D.,MISTE
**Principal**

Name of the Examiners | Signature with Date

1. ..... .....
2. ..... .....

# DAVANGERE UNIVERSITY

SHIVAGANGOTRI,THOLAHUNASE,DAVANGERE-577002

## BAPUJI INSTITUTE OF HI-TECH EDUCATION

LAKE VIEW CAMPUS, S.S LAYOUT, DAVANGERE-577 004

# *CERTIFICATE*

This is to certified that the project work entitled **"INTERACTIVE VOICE RESPONSE SYSTEM"** is carried out by **Miss.LAKSHMI R.A. with Reg.No:B2020507, Miss.RADHIKA A. with Reg.no: B2020591, Miss.SANJANA S.M with Reg.no: B2020626 , Miss.SHEENA LIZA R. with Reg.no : B2020638** in partial fulfillment for the award of **BACHELOR OF COMPUTER APPLICATION (BCA)** of the **Davangere University, Davangere** during the academic year 2022-2023.

**Under the Guidance of**

**Prof.Siddalingappa.K** PGDCA,M.Sc(IT)

Vice Principal

**Prof. Bakkesh K. S** MCA
Head of the Department

**Dr.B.Veerappa** M.Sc.,M.Phil., Ph.D.,MISTE
Principal

Name of the Examiners

Signature with Date

1. ..... .....

..... .....

# ABSTRACT

Transportation is one the major aspect of current civilization. Travelling from one place to another is also a needy process for any person based on the requirement. In this regard, the proposed project is trying to develop an automated voice based interactive solution to provide a travel details to the requested user.

The solution is able to provide a voice output to the user by detailing namely source, destination, timings, duration and other information. Since, project involves voice to text conversion for analysis and then conversion from text to speech for output, a python language is used for implementation along with MS Excel to store the database.

The voice-based transport enquiry system is a technological solution designed to provide users with an efficient and convenient way to obtain information related to transportation services. This system utilizes voice recognition and natural language processing techniques to understand user queries and provide accurate responses in real-time. By leveraging speech-to-text conversion and intelligent algorithms, users can interact with the system through spoken commands or questions, eliminating the need for manual input.

The system's abstract workflow involves multiple stages. Initially, the user's voice input is captured and processed using voice recognition technology, converting it into text format. Natural language processing algorithms analyze the text to understand the user's intent and extract relevant keywords or phrases related to transportation inquiries. These inquiries may include information about public transportation schedules, routes, fares, nearby stations, or any other transportation-related queries.

Upon understanding the user's intent, the system employs a combination of real-time data retrieval and integration with transportation databases to fetch the requested information. This includes accessing up-to-date schedules, route maps, fare details, and other relevant data sources. The retrieved information is then converted into a suitable response format, typically in speech synthesis form, to provide the user with accurate and concise information.

The voice-based transport enquiry system aims to improve the user experience by enabling hands-free interaction and reducing the reliance on manual input. It enhances accessibility for users who may have difficulty using traditional input methods or those who prefer voice-based interactions. The system can be integrated into various platforms, such as mobile applications, smart speakers, or in-vehicle voice assistants, providing users with a seamless and efficient way to inquire about transportation services.

In summary, the voice-based transport enquiry system combines voice recognition, natural language processing, and real-time data integration to create a user-friendly interface for obtaining transportation-related information. By leveraging the power of voice-based interactions, the system aims to enhance convenience and accessibility in the domain of transportation services.

# TABLE OF CONTENTS

# ACKNOWLEDGEMENT

The satisfaction that accompanies the successful completion of any task would be Incomplete without mention of the people who made it possible, whose constant Guidance and encouragement crowned our effort with appreciation to all those helped Us directly or indirectly towards the successful completion of the project.

First, we would like to thank our esteemed college “Bapuji Institute of Hi-Tech Education” which has provided us all facilities required.

We thank our beloved Principal Dr. B. Veerappa and Vice Principal Prof.Siddlingappa.k. for providing an academic environment in the college and thank to Head of the Department Prof.Bakkesh K. S. further support which played a major role In reaching our goal.

We are highly grateful to our project guide Prof.Siddalingappa.K. for his valuable Guidance, support and encouragement throughout the execution of the project.

We are thankful to all the staff members and non-staff members of our college, who Have provided instant solutions to our problems and helping us to make this project Successful.

The guidance and support received from all our family and friends who contribute Became a vital for the success of the project.

PROJECT ASSOCIATES

LAKSHMI R A

RADHIKA A.

SANJANA S.M

SHEENA LIZA R.

# INTRODUCTION

# EXISTING SYSTEM

# SYSTEM ANALYSIS

# HARDWARE AND SOFTWARE TECHNOLOGY USED

# SYSTEM DESIGN

# SYSTEM IMPLEMENTATION

# SYSTEM TESTING

# RESULTS AND SNAPSHOTS

# CONCLUSION

# BIBILOGRAPHY

# DAVANGERE UNIVERSITY

**SHIVAGANGOTRI,THOLAHUNASE, DAVANGERE-577002**

**A Project Report on**

# INTERACTIVE VOICE RESPONSE SYSTEM

*Submitted in the partial fulfillment of the requirements for the award of the degree of*

## BACHELOR OF COMPUTER APPLICATION (BCA)

Submitted by


| | |
|---|---|
| LAKSHMI R.A | B2020507 |
| RADHIKA .A. | B2020492 |
| SANJANA S.M. | B2020626 |
| SHEENA LIZA .R. | B2020638 |


UNDER THE GUIDANCE OF

Prof.Siddalingappa.K.

**Vice Principal**

## BAPUJI INSTITUTE OF HI-TECH EDUCATION

**S.S LAYOUT, DAVANGERE- 577004**

**ACADEMIC YEAR 2022-2023**

# DAVANGERE UNIVERSITY

SHIVAGANGOTRI,THOLAHUNASE,DAVANGERE-577002

## BAPUJI INSTITUTE OF HI-TECH EDUCATION

LAKE VIEW CAMPUS, S.S LAYOUT, DAVANGERE-577 004

# *CERTIFICATE*

This is to certified that the project work entitled **"INTERACTIVE VOICE RESPONSE SYSTEM"** is carried out by **Miss.RADHIKA A. with Reg.no: B2020591** in partial fulfillment for the award of **BACHELOR OF COMPUTER APPLICATION (BCA)** of the **Davangere University, Davangere** during the academic year 2022-2023.

**Under the Guidance of**

**Prof.Siddalingappa .K.PGDCA,M.Sc(IT)**

**Vice Principal**

**Prof. Bakkesh K. S** MCA
**Head of the Department**

**Dr.B.Veerappa** M.Sc.,M.Phil., Ph.D.,MISTE
**Principal**

Name of the Examiners

Signature with Date

1. ..... .....
2. ..... .....

# DAVANGERE UNIVERSITY

SHIVAGANGOTRI,THOLAHUNASE,DAVANGERE-577002

## BAPUJI INSTITUTE OF HI-TECH EDUCATION

LAKE VIEW CAMPUS, S.S LAYOUT, DAVANGERE-577 004

# *CERTIFICATE*

This is to certified that the project work entitled **"INTERACTIVE VOICE RESPONSE SYSTEM"** is carried out by **Miss.SANJANA S.M. with Reg.no: B2020626** in partial fulfillment for the award of **BACHELOR OF COMPUTER APPLICATION (BCA)** of the **Davangere University, Davangere** during the academic year 2022-2023.

**Under the Guidance of**

**Prof.Siddalingappa .K.**PGDCA,M.Sc(IT)

**Vice Principal**

**Prof. Bakkesh K. S** MCA
**Head of the Department**

**Dr.B.Veerappa** M.Sc.,M.Phil., Ph.D.,MISTE
**Principal**

Name of the Examiners | Signature with Date

1. ..... .....
2. ..... .....

# DAVANGERE UNIVERSITY

SHIVAGANGOTRI,THOLAHUNASE,DAVANGERE-577002

## BAPUJI INSTITUTE OF HI-TECH EDUCATION

LAKE VIEW CAMPUS, S.S LAYOUT, DAVANGERE-577 004

# *CERTIFICATE*

This is to certified that the project work entitled **"INTERACTIVE VOICE RESPONSE SYSTEM"** is carried out by **Miss.SHEENA LIZA R. with Reg.no: B2020638** in partial fulfillment for the award of **BACHELOR OF COMPUTER APPLICATION (BCA)** of the **Davangere University, Davangere** during the academic year 2022-2023.

**Under the Guidance of**

**Prof.Siddalingappa .K.PGDCA,M.Sc(IT)**

**Vice Principal**

**Prof. Bakkesh K. S** MCA
**Head of the Department**

**Dr.B.Veerappa** M.Sc.,M.Phil., Ph.D.,MISTE
**Principal**

Name of the Examiners

Signature with Date

1. ..... .....
2. ..... .....

# Chapter1

# INTRODUCTION

## Overview

VoiceBasedAutomatedTransportEnquirySystemwithGPSEnabledTrackingisdeveloped for providing the information for the enquiry in transport terminals. This usessql server for storing the database i.e. information to be provided to the user. This userMicrosoft Speech recognition to detect the voice from the user and gives appropriateoutput. As the name suggest it also gives the feature of live tracking of the Train.

Therearemanyapplicationsavailablerightnowwhichgivedetailsabouttransportmodesformaparticularsourcetodestination.Butalltheseapplicationsareeitherlimitedforaparticulartypeoftransportorgiveslimitedinformation.Googlemapsapplicationprovides similar kinds of facilities It takes input form the user, namely, the source and thedestination and display all the modes of transport available. It also shows the route plot onmap.However,itdoes notprovidevoicemessages.This system aimsattakingthefeatures from all the existing applications and making them available at a single place andalsoaddingsome new features,like the livevideo feed.

A voice-based transport enquiry system for trains is specifically designed to provide users with information related to train services, schedules, fares, and other relevant details using voice commands or queries. Here's an overview of how such a system might work:

1. Voice Input: Users interact with the system by speaking their train-related queries or commands into a voice-enabled device or application.
2. Speech Recognition: The system utilizes speech recognition technology to convert the spoken words into text, allowing the software to understand and process the user's query accurately.
3. Natural Language Processing (NLP): The text representation of the user's query is analyzed using NLP techniques to understand the intent and extract relevant information. This involves identifying keywords, understanding the context, and determining the specific train-related information the user is seeking.
4. Train Database: The system accesses a comprehensive train database that contains information about train schedules, routes, stations, fares, seat availability, and other relevant data. This database may be regularly updated to ensure accurate and up-to-date information.

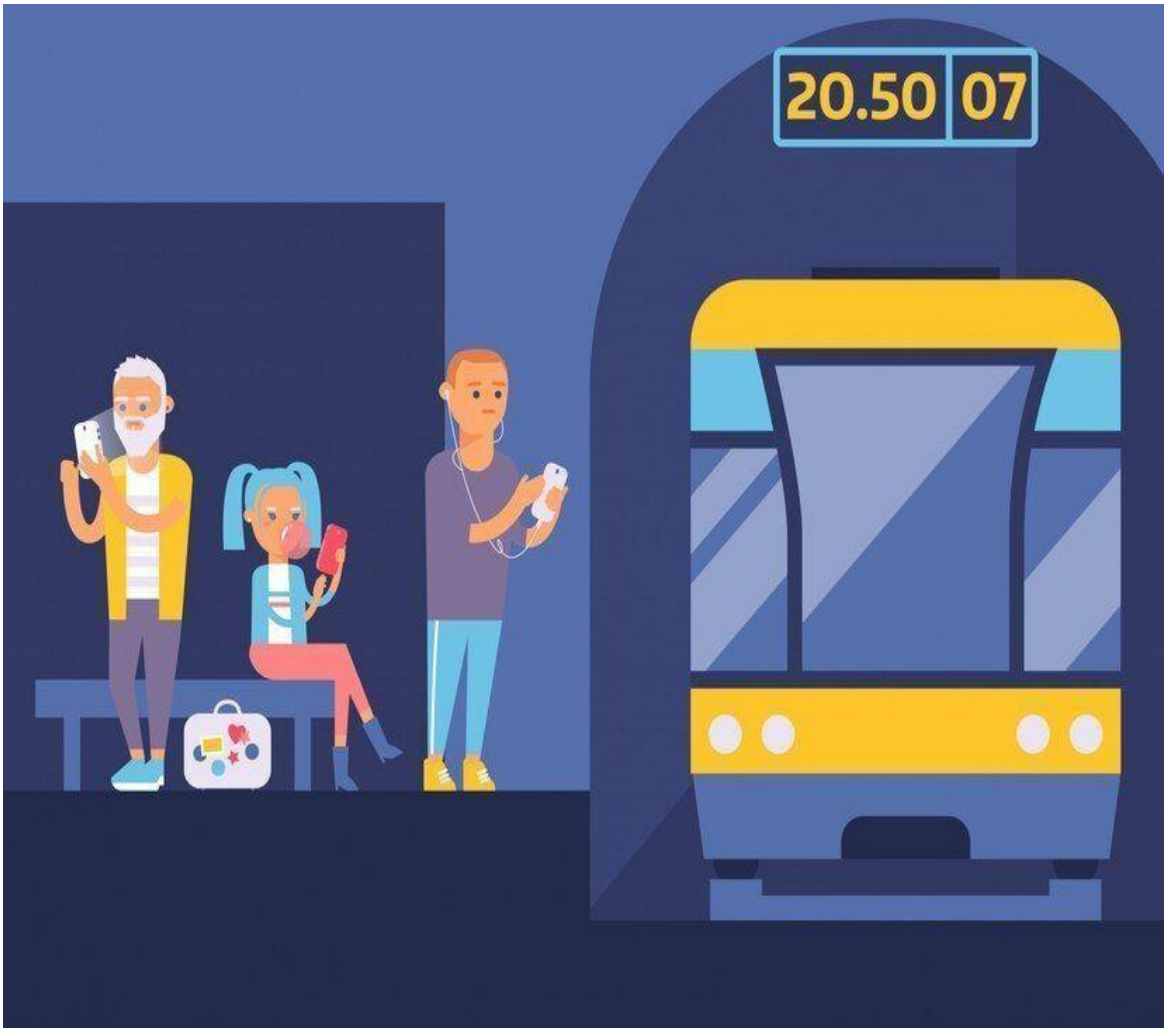
5. Information Retrieval: Based on the user's query, the system retrieves relevant information from the train database. For example, it may provide details about train timings, departure and arrival stations,train numbers, platform numbers, seat availability, ticket prices, and any other information related to train travel.

6. Response Generation: Using the retrieved information, the system generates a response in a human-like voice. It may provide the user with spoken information about the train, display the details on a screen, or send a text-based response depending on the interface being used.

7. Follow-up Interaction: The system may allow users to ask additional questions or provide follow-up commands to refine their search or gather more specific details. This iterative process enables users to obtain comprehensive and accurate information about train services.

8. Integration with Real-time Data: In some cases, the voice-based transport enquiry system may integrate with real-time data sources to provide live updates on train statuses, delays, cancellations, or any other time-sensitive information. This ensures that users have access to the most current information about train services.

9. Additional Features: The system may offer additional features such as ticket booking or reservation capabilities, allowing users to seamlessly transition from inquiry to ticket purchase if desired.


20.50 07

Interactive voice responsive system (IVRS) is a technology that allows users to interactwith a mobile phone through the use of voice and give the response or replay throughvoice. In telecommunications, IVR allows customers to interact with a company's hostsystem via a telephone keypad or by speech recognition, after which services can beinquired about through the IVR dialogue. IVR systems can respond with pre-recorded ordynamically generated audio to further direct users on how to proceed. IVR systemsdeployed in the network are sized to handle large call volumes and also used for outboundcallingasIVR systemsare moreintelligentthanmany predictivedialer systems. Voice-based transport enquiry systems are innovative solutions that utilize voice recognition and natural language processing technologies to facilitate convenient and efficient transportation information retrieval. These systems allow users to interact with a computerized system using spoken commands or queries, eliminating the need for manual input or navigation through complex menus.

By leveraging the power of artificial intelligence, voice-based transport enquiry systems provide a user-friendly and hands-free way to access real-time transportation information, including schedules, routes, fares, and other relevant details. With the increasing popularity of smart speakers, virtual assistants, and mobile voice assistants, voice-based transport enquiry systems have gained significant traction. They cater to the growing demand for seamless and personalized transportation services, simplifying the user experience and reducing the reliance on traditional methods of information retrieval, such as websites or mobile apps.

The core functionality of a voice-based transport enquiry system revolves around understanding user queries, interpreting them, and providing accurate and up-to-date information in response. The system employs sophisticated algorithms to process spoken language and extract intent, enabling users to converse naturally and effortlessly. Whether it's asking about the next bus arrival time, searching for the best route to a specific destination, or inquiring about train delays, voice-based transport enquiry systems can quickly retrieve and relay the requested information.

One of the key advantages of voice-based transport enquiry systems is their accessibility. They cater to a wide range of users, including those with visual impairments or limited mobility, who may find traditional interfaces challenging to navigate. By simply using their voice, users can engage with the system, enabling equal access to transportation information for all individuals.

Furthermore, voice-based transport enquiry systems can be integrated with other technologies, such as geolocation services, to provide personalized and context-aware responses. For example, users can inquire about nearby transportation options or receive alerts about service disruptions in their vicinity.

This level of customization and real-time information enhances the overall user experience and contributes to more efficient travel planning. In conclusion, voice-based transport enquiry systems offer a convenient, hands-free, and accessible method for accessing transportation information.

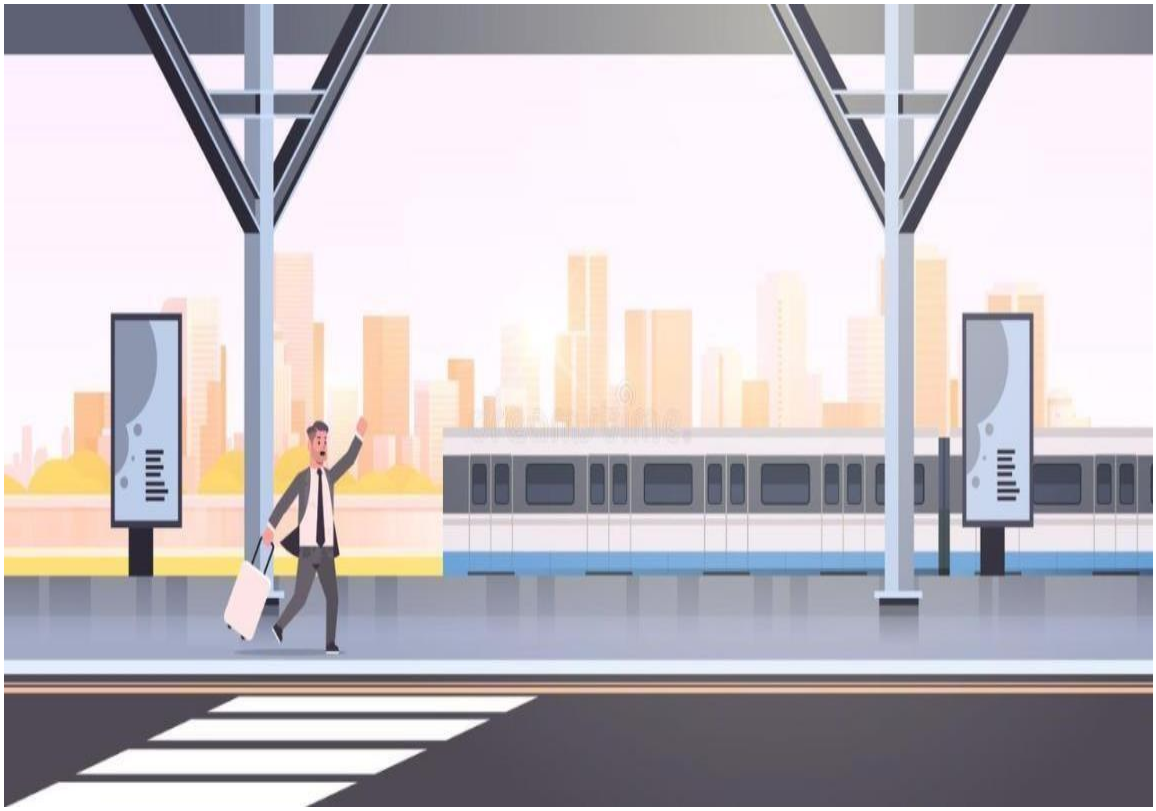
By harnessing the power of voice recognition and natural language processing, these systems streamline the process of retrieving real-time transport details, ensuring users can make informed decisions and navigate their journey's more efficiently.


IVRsystemscanbeusedstandingalonetocreateself-servicesolutionsformobilepurchases,bankingpayments,services,retailorders,utilities,travelinformationand weather conditions. In combination with systems such an automated attendant and ACD,call routing can be optimized for a better caller experience and workforce efficiency. IVRsystemsareoftencombinedwithautomatedattendantfunctionality.Thetermvoiceresponseunit (VRU)is

sometimes used as well.

Despite the increase in IVR technology during the 1970s, the technology was consideredcomplex and expensive for automating tasks in call centers. Early voice response systemswere DSP technology based and limited to small vocabularies. In the early 1980s, LeonFerber'sPerceptionTechnologybecamethefirstmainstreammarketcompetitor,afterhard drive technology had reached a cost-effective price point. At that time, a systemcouldstore digitized speechon disk, playthe appropriate spoken message,and processthehuman'sDTMFresponse.

By implementing a voice-based transport enquiry system for trains, users can conveniently and efficiently obtain train-related information using natural language voice commands. This system enhances the user experience, simplifies the process of accessing train details, and provides users with accurate and real-time information about train service



As call centers began to migrate to multimedia in the late 1990s, companies started toinvest in computer telephony integration (CTI) with IVR systems. IVR became vital forcall centers deploying universal queuing and routing solutions and acted as anagentwhich collected customer data to enable intelligent routing decisions. With improvementsin technology, systems could use speaker-independent voice recognition of a limitedvocabularyinstead of requiringthe person touseDTMFsignaling.

Starting in the 2000s, voice response became more common and cheaper to deploy. ThiswasduetoincreasedCPUpowerandthemigrationofspeechapplicationsfromproprietarycode to theVXMLstandard.

**Problemstatements**

- Itisavoicebasedsoftwarewhichhelpsuserstogetinformationthroughvoicerelatedtotrain like traintiming, location of trainetc...

- Itisabasicsystem,whichsimplyrecordsthemessageandgivereplaytothemessagethrough voice.

# Chapter2

# EXISTINGSYSTEM

Thischapterexplainstheexistingaspectsoftheproposedprojectwork.

## SIRI

Siri is a virtual assistant that is part of Apple Inc.'s iOS, iPadOS, watchOS, macOS, tvOS,andaudioOSoperatingsystems.Itusesvoicequeries,gesturebasedcontrol,focus-trackingandanatural-languageuserinterfacetoanswerquestions,makerecommendations, and perform actions by delegating requests to a set of Internet services.Withcontinueduse,itadaptstousers'individuallanguageusages,searches,andpreferences,returning individualizedresults.

Siri is a spin-off from a project developed by the SRI International Artificial IntelligenceCenter. Its speech recognition engine was provided by Nuance Communications, and ituses advanced machine learning technologies to function. Its original American, British,and Australian voice actors recorded their respective voices around 2005, unaware of therecordings' eventual usage. Siri was released as an app for iOS in February 2010. Twomonths later, Apple acquired it and integrated it into iPhone 4S at its release on 4 October2011, removing the separate app from the iOS App Store. Siri has since been an integralpartofApple'sproducts,havingbeenadaptedintootherhardwaredevicesincludingneweriPhonemodels,iPad,iPodTouch,Mac,AirPods,AppleTV,andHomePod.

Sirisupportsawiderangeofusercommands,includingperformingphoneactions,checking basic information, scheduling events and reminders, handling device settings,searching the Internet, navigating areas, finding information on entertainment, and beingable to engage with iOS-integrated apps. With the release of iOS 10 in 2016, Appleopened up limited third-party access to Siri, including third-party messaging apps, as wellas payments, ride-sharing, and Internet calling apps. With the release of iOS 11, Appleupdated Siri's voice and added support for follow-up questions, language translation, andadditionalthird-partyactions.

Siri's original release on iPhone 4S in 2011 received mixed reviews. It received praise foritsvoicerecognitionandcontextualknowledgeofuserinformation,includingcalendar appointments, but was criticized for requiring stiff user commands and having a lack offlexibility. It was also criticized for lacking information on certain nearby places and forits inability to understand certain English accents. In 2016 and 2017, a number of mediareportssaidthatSirilackedinnovation,particularlyagainstnewcompetingvoiceassistants. The reports concerned Siri's limited set of features, "bad"voice recognition,and undeveloped service integrations as causing trouble for Apple in the field of artificialintelligence and cloud-basedservices; thebasisforthe complaints reportedly due tostifled development, as caused by Apple's prioritization of user privacy and executivepower struggles within the company. Its launch was also overshadowed by the death ofSteveJobs,whichoccurred one day after the launch.

# AmazonAlexa

AmazonAlexa,alsoknownsimplyasAlexa,isavirtualassistanttechnologylargelybasedonaPolishspeechsynthesizernamedIvona,boughtbyAmazonin2013.Itwasfirst used in the Amazon Echo smart speaker and the Echo Dot, Echo Studio and AmazonTap speakers developed by Amazon Lab126. It is capable of voice interaction, musicplayback, making to-do lists, setting alarms, streaming podcasts, playing audiobooks, andproviding weather, traffic, sports, and other real-time information, such as news. Alexacan also control several smart devices using itself as a home automation system. Users areabletoextendtheAlexacapabilitiesbyinstalling"skills"(additionalfunctionalitydeveloped by third-party vendors, in other settings more commonly called apps) such asweatherprogramsandaudiofeatures.Itusesautomaticspeechrecognition,naturallanguageprocessing, and other forms ofweakAI to performthesetasks.

Most devices with Alexa allow users to activate the device using a wake-word (such asAlexa or Amazon); other devices (such as the Amazon mobile app on iOS or Android andAmazon Dash Wand) require the user to click a button to activate Alexa's listening mode,although, some phones also allow a user to say a command, such as "Alexa" or "Alexawake".

As of November 2018, Amazon had more than 10,000 employees working on Alexa andrelated products. In January 2019, Amazon's devices team announced that they had soldover100millionAlexa-enableddevices.InSeptember2019,Amazonlaunchedmanynewdevicesachievingmanyrecordswhilecompetingwiththeworld'ssmarthomeindustry. The new Echo Studio became the first smart speaker with 360 sound and Dolbysound.OthernewdevicesincludedanEchodotwithaclockbehindthefabric,anewthird generation Amazon Echo, Echo Show 8, a plug-in Echo device, Echo Flex, Alexabuilt-in wireless earphones, Echo buds, Alexa built-in spectacles, Echo frames, an Alexabuilt-inRing, and Echo Loop as wellas the Echo Showgeneration.

Indian Railway Catering and Tourism Corporation (IRCTC) is an Indian public sectorundertakingthatprovidesticketing,catering,andtourismservicesfortheIndianRailways.Itwasinitially wholly ownedbytheGovernmentofIndiaandoperatedunder theadministrativecontroloftheMinistryofRailwaysbuthasbeenlistedontheNationalStockExchangesince2019,withtheGovernmentcontinuingtoholdmajorityownership.


## Whereis myTrain

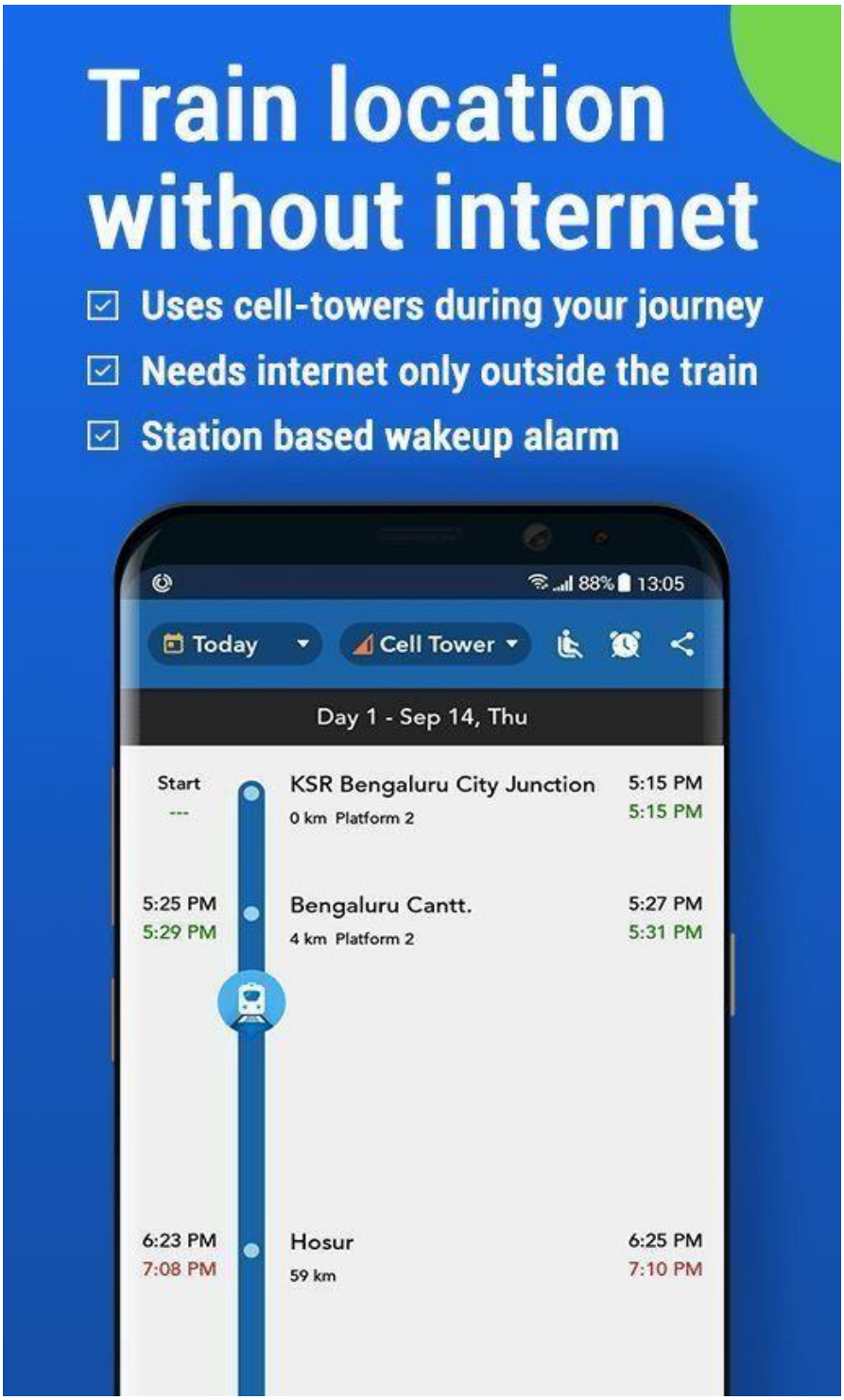
Where is my Train is a smartphone application developed by Google for Indian Railways.The application was developed by Sigmoid Labs, composed of former TiVo Corporationdevelopers.The company wasacquired by Google in 2018. "Where is my train" was a popular train tracking application in India. It provided real-time information about the location and status of trains, as well as their estimated arrival and departure times. The app was developed by Sigmoid Labs and was available for Android and iOS devices.

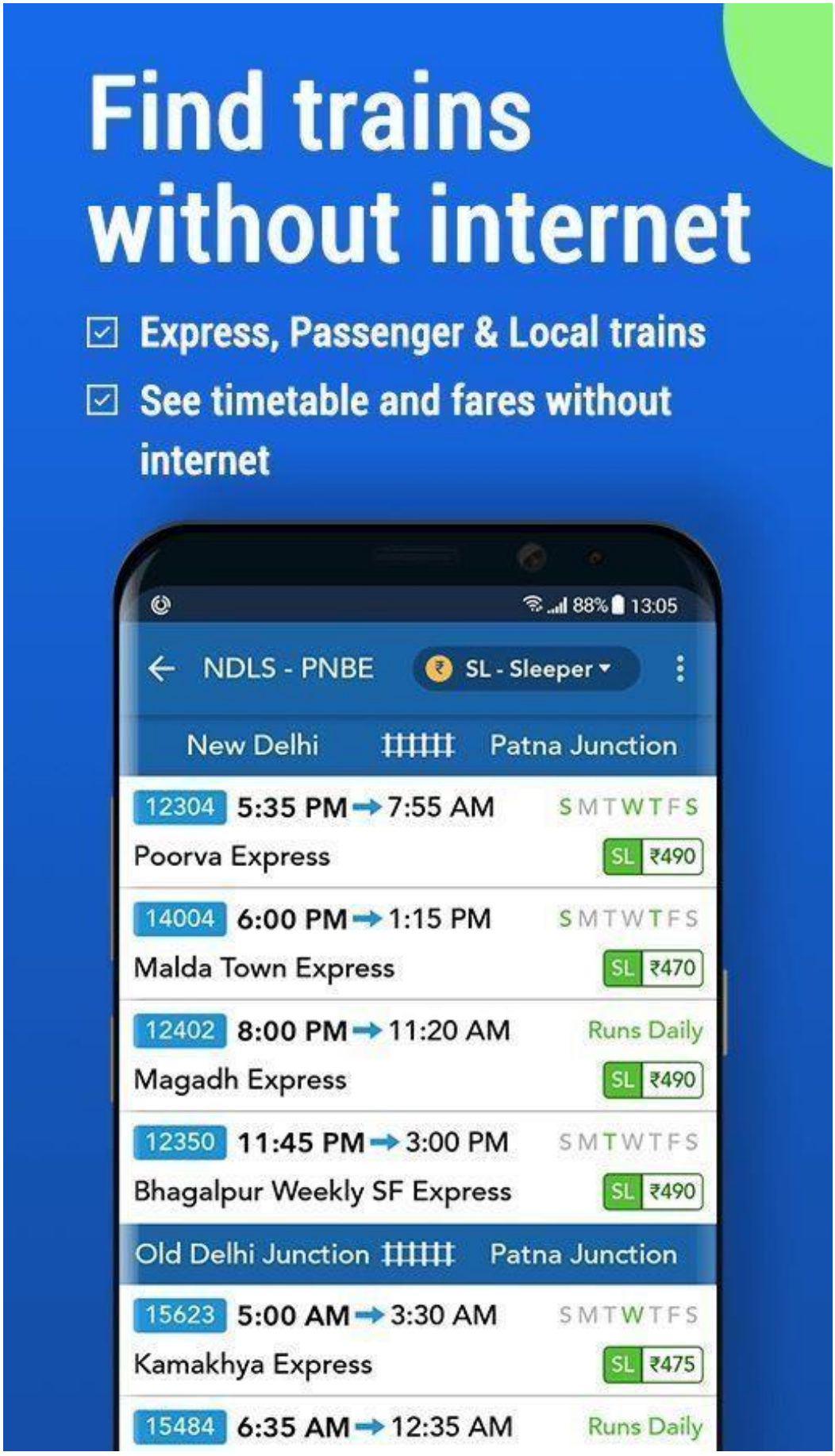
The unique feature of "Where is my train" was its ability to function without the need for an internet connection. It used cell tower information and GPS to track the train's location and provide accurate updates to users even in areas with poor or no internet connectivity. This feature was particularly useful in remote areas or during train journeys where internet access was limited.

The app allowed users to search for trains, check their schedules, and track their progress along the route. It also provided information on train delays, platform numbers, and seat availability. Users could set up alerts to receive notifications about the status of their selected trains.

In November 2018, Google acquired the "Where is my train" app and integrated its features into Google Maps. The app was subsequently renamed as "Google Maps for Railways" in India. With the integration, users could continue to track trains, check schedules, and receive updates through Google Maps.

Please note that my information might be outdated, as my training data goes up until September 2021. It's always a good idea to check for the latest updates and information from official sources or the respective app stores.


Train location without internet
Uses cell-towers during your journey
Needs internet only outside the train
Station based wakeup alarm
88% 13:05
Today
Cell Tower
Day 1 - Sep 14, Thu
Start
---
KSR Bengaluru City Junction
0 km Platform 2
5:15 PM
5:15 PM
5:25 PM
5:29 PM
Bengaluru Cantt.
4 km Platform 2
5:27 PM
5:31 PM
6:23 PM
7:08 PM
Hosur
59 km
6:25 PM
7:10 PM


Find trains without internet
Express, Passenger & Local trains
See timetable and fares without internet
88% 13:05
NDLS - PNBE
SL - Sleeper
New Delhi
Patna Junction
12304 5:35 PM → 7:55 AM
S M T W T F S
Poorva Express
SL ₹490
14004 6:00 PM → 1:15 PM
S M T W T F S
Malda Town Express
SL ₹470
12402 8:00 PM → 11:20 AM
Runs Daily
Magadh Express
SL ₹490
12350 11:45 PM → 3:00 PM
S M T W T F S
Bhagalpur Weekly SF Express
SL ₹490
Old Delhi Junction
Patna Junction
15623 5:00 AM → 3:30 AM
S M T W T F S
Kamakhya Express
SL ₹475
15484 6:35 AM → 12:35 AM
Runs Daily

## Establishmentandownership

TheIRCTCwasestablishedon27September1999,asapublicsectorundertakingcompletely owned by the Government of India through the Indian Railways. It is the onlyentity that is authorised to provide certain services to the Indian Railways, includingonline ticketing, catering, and selling drinking water on trains and at railway stations. InMay 2008, it was classed as a Miniratna public corporation, which allowed it a certaindegreeof financial autonomy.

The IRCTC was listed on the National Stock Exchange in 2019, following which theGovernment of India's holding was reduced to 87%, with the remaining shares beingpublicly traded. In December 2020, theGovernmentof India divested another 20%,reducingits holding inthe IRCTC to 67%.

## Onlineticketing

It pioneered internet-based rail ticket booking through its website, as well as from mobilephones via Wi-Fi, GPRS, or SMS. It also provides an SMS facility to check PNR statusand Live Train Status as well. In addition to e-tickets, Indian Railways Catering andTourism Corporation also offers I-tickets that are basically like regular tickets except thatthey are booked online and delivered by post. The ticket's PNR status is also madeavailable. Commuters on the suburban rail can also book season tickets through thewebsite. It has also launched a loyalty program called Shubh Yatra for frequent travelers.Through this program, passengers can avail of discounts on all tickets booked around theyearby paying an upfront annual fee.

Seeking to make it easier to book e-tickets, It launched a scheme called Rolling DepositScheme (RDS). RDS is an e-ticket booking scheme allowing passengers to reserve seatsagainst advance money kept with the corporation. It has also added flight and hotelbookingfacilitiesto their line of online reservation services.

On11August2021,theorganisationintroducedasmartcardsystemforpassengerstravelingthroughunreserved trainticketswhichcanbeboughtatrailwaystationsandcanhelp them to avoid long queues these cards can also be recharged online Railway

IRCTCIndianRailwayCateringandTourismCorporation(IRCTC)isanIndianpublicsectorundertakingcompany.Itprovidesticketing,catering,andtourismservicesfortheIndian Railways.

TheIRCTCwasputupon27September1999.Itwasoriginallyandcompletely owned by the Government of India. It was operated under the administrativecontroloftheMinistryofRailways.LaterithasbeenlistedontheNationalStockExchange since 2019, after the Government reduced the percentage of the ownership tothecompany itself.

It began with online rail ticket booking through its website and also from the mobilephones through Wi-Fi, GPRS or SMS. It also provides SMS facility to send PNR statusand Live Train Status to the passengers. Along with e-tickets, IRCTC also provides I-tickets that are basically like regular tickets. But they are booked online and delivered bypost.

IRCTC brought pantry cars at long or medium distance trains which serves to passengersby giving freshly cooked food. IRCTC has exclusive rights for onboard catering of foodon all trains operated by the Indian Railways. It also operates food plazas, cafeterias andrefreshmentroomsat various railwaystations.

IndianRailwayCateringandTourismCorporationLtd.(IRCTC)isa"MiniRatna(Category-I)" Central Public Sector Enterprise under Ministry of Railways, Governmentof India. IRCTC was incorporated on 27th September, 1999 as an extended arm of theIndianRailwaystoupgrade,professionalizeandmanagethecatering andhospitalityservicesatstations,ontrainsandotherlocationsandtopromotedomesticandinternationaltourismthroughdevelopmentofbudgethotels,specialtourpackages,information&commercialpublicityandglobal reservationsystems.Theauthorizedcapital of the company is 250 crores and paid up capital is 160 crores. It's registered andCorporateOffice is situated at NewDelhi.

- Fourteen Rail Near Plants at Nangloi-Delhi, Danapur-Bihar, Palur-Tamil Nadu,Ambernath-Maharashtra, Amethi (Uttar Pradesh), Parassala-Tamil Nadu, Bilaspur(Chhattisgarh) , Halper (Uttar Pradesh), Sanand- Gujarath, Mandideep-MadhyaPradesh, Jagiroad-Assam, Manti-(Madhya Pradesh), Nagpur, (Maharashtra) andSankrail-Kolkatta.

•Eleven Base Kitchens at located at New Delhi, Howrah, Ahmedabad, Patna, Mumbai Central, Mumbai CST, Ballarshah, Nagpur, Balasore, Sealdah and Kharagpur JN.

- FiveZonalOffices,namely,NewDelhi,Mumbai,Kolkata,Chennai,Secundrabad.
- TenRegionalOfficesatLucknow,Chandigarh,Jaipur,Bhopal,Ahmadabad,Guwahati,Bhubaneswar ,Patna, Ernakulamand Bangalore.
- OneInternetTicketingOfficeatNewDelhi.
- OneTourismofficeat NewDelhi.

# History

WhereismyTrain applicationwasreleased in2015forAndroid.

## MBTACommuterRail

The MBTA Commuter Rail system serves as the commuter rail arm of the MassachusettsBayTransportationAuthority's(MBTA's)transportationcoverageofGreaterBostoninthe United States. Trains run over 394 mi (634 km) of track to 134 stations. It is operatedundercontractbyKeolis,whichtookoveroperationsonJuly1,2014,fromtheMassachusetts Bay Commuter Railroad Company (MBCR). In 2022, the system had aridership of 19,000,800, or about 78,800 per weekday as of the fourth quarter of 2022,making it the fifth-Train commuter rail system in the U.S., behind the three New York-areasystemsandtheChicago-areasystem.Theline'scharacteristicpurple-trimmedcoaches operate as far south as North Kingstown, Rhode Island, and as far north asNewburyportand asfarwestas Fitchburg, bothin Massachusetts.Trains originate at two major terminals in Boston – South Station and North Station. Theonly connection between thetwo halves of the system is the non-revenue Grand JunctionBranch.TheNorth–SouthRailLinkisaproposed tunnelbetween NorthStationandSouthStation to allow through-runningservice.

# Service

Thesystemconsistsoftwelvelines–fourofwhichhavebranches–radiatingfromdowntownBoston.Eight"southside"linesterminateatSouthStation,withfourFramingham/Worcester,Needham,Franklin/Foxboro,andProvidence/StoughtonalsorunningthroughBackBaystation.Four"northside"linesterminateatNorthStation.TheKingston Line and Middleborough/Lakeville Line are often grouped together as the OldColonyLines.Thelinesvaryinlengthfromthe9.2-mile(14.8km)FairmountLinetothe62.9-mile(101.2km)Providence/StoughtonLine,withtypicallengthsinthe25–40-mile(40–64km)range.Thesystemhas394miles(630km)ofrevenuetrackageandcoversroughlytheeasternthirdof Massachusettsplus centralRhode Island.

## Eurail

The Eurail Pass, introduced in 1959 and formerly known as Euro pass or Euro rail Pass, isa rail pass which permits travel through 33 European countries on nearly all railroads andseveralshippinglines.TheEurailGroup,basedinUtrecht,isresponsibleforthemarketing and management of the Eurail andInterracial passes. The company is ownedby over 35 European railway and shipping companies. The Eurail Pass is available tonon-Europeanresidents,andtheInterrailPass(introducedin1972)isavailabletoEuropean residents. The passes, which provide access to 250,000 kilometers (160,000 mi)ofEuropean railway, are used by over 33,000 travelersannually.

## Eligibility

The Eurail pass is available to non-European citizens. The Interrail Pass is available tocitizens and residents of European Union countries and the non-EU countries of Albania,Andorra, Belarus, Bosnia-Herzegovina, North Macedonia, Gibraltar, Iceland, Kosovo,Liechtenstein, Moldova, Monaco, Montenegro, Norway, Russian Federation, San Marino,Serbia, Switzerland, Turkey, Ukraine, United Kingdom (Great Britain), and Vatican City.ToobtainanInterrailpassproofofcitizenshipmustbeestablishedwithapassportor identity card or proof of residency must be establishedwith government issued residency document.

## Fareavoidance

Fare avoidance, as distinct from fare evasion, is the lawful use of knowledge to travelusing tickets which cost significantly less than the 'normal' fare for a given journey, whichis what one might be expected to use. It is common in some parts of the world withcomplextravel networks,notably the NationalRail networkof Great Britain.

Thetermissometimes used asa synonymof fare evasion.

## Splitticketing

The practice of buying multiple tickets instead of one ticket for a transport itinerary iscalledsplit ticketing. Somerailsystemsorairlinescalculatefaresbasedonanindividualroute'spopularityanda host of other factors in addition to mileage. Thus, the total cost of two tickets, from A toP and from P to B, may be less than one ticket from A to B, giving an opportunity to savemoney,especially if Pis en route between Aand B.

For example, a train from London Paddington to Bristol can stop on the way at Did cotParkway.Whenasplitticketisused,thishasbeenshowntoreducethefarefrom£118to £75, helping travelers make a significant saving. This is a well-known station to splitticketsand among others has been used for this purpose.

## Startingandstoppingshort

Even if mileage is the sole factor in pricing apart from discounts, applicable to journeysexceedingacertainmileage,theremaybeananomalyforborderlinecases.Forexample,a rail system may charge a fare of $100 for the first 100 km and $6 for each additional 10km. A ticket from A to B, 380 km apart, costs $268. If a discount of 15% applies tomileages exceeding 400 km only, a ticket from A to C, 420 km apart, would cost $292 ×85%= $248.20. Atraveler may buy a ticket fromAto Cand alight at B, saving $19.80.

## Runninganegativebalanceonstored-valuetickets

Frequently, smart cards, as a convenience, allow the user to run a negative balance. If thisbalance is greater than the cost of the card, the user may profit by simply discarding thecardand purchasing another.

# Chapter3

# SYSTEMANALYSIS

The proposed system is to development an online web application environment to allow user toupload the activity reports in the form of pdf format and later verifying the same for the scoregained.Alsotheprojectisabletoestimatethegradefortheinstitutebasedonthescoregained.

## FunctionalRequirements

Thiswebapplicationisdevelopingtwomodules

- Adminmodule
- Usermodule

### i. AdminModule:

- Admincanlogintothesystem
- Admincanaddorremove thetraindetailsfromthe database
- Admincanlogout.

### ii. UserModule:

- Usercanlogintothesystem.
- Usercanrequestthesystemthroughvoiceinputregardingtraindetails
- Systemresponduserthroughthespeechaboutthetraindetails
- Usercanlogout.

## Non-FunctionalRequirements:

### i. Accessible:

Since the project is Web based, the database and all its corresponding documentsare stored in centralized database and storage. Hence it can be accessed from anypartof the world.

### ii. Security:

Sincethecredentialsareprovidedforallusersforloginandlogout,thesystemis highlysecure

### iii. Portability:

Sincethesoftwareiswebbasedcanbebrowsedindevicesnamelymobile,laptop,tablets and etc. hencethe system is portable.

# Chapter4

# HARDWARE AND SOFTWARETECHNOLOGYUSED

## Productperspective:

Thisprojectcanbecreatedasawebportalandmadeavailabletopublic.There by itcan be broughttothe market as productthrough login credentials.

### Softwarerequirements

1. AnacondaServer
2. AnacondaJupyterNotebook
3. MSExcel

### Hardwarerequirements

1. CPU:2x64-bit, 2.8GHz,8.00 GT/sCPUsorbetter.
2. Memory:minimumRAMsizeof32GB,or16GBRAMwith1600MHzDDR3installed

### 1.Anaconda Server :

Anaconda is a distribution of the Python and R programming languages for scientific computing (data science, machine learning applications, large-scale data processing, predictive analytics, etc.), that aims to simplify package management and deployment. The distribution includes data-science packages suitable for Windows, Linux, and macOS. It is developed and maintained by Anaconda, Inc., which was founded by Peter Wang and Travis Oliphant in 2012.[8] As an Anaconda, Inc. product, it is also known as Anaconda Distribution or Anaconda Individual Edition, while other products from the company are Anaconda Team Edition.

### 2.Anaconda Jupyter Notebook:

The Jupyter Notebook application allows you to create and edit documents that display the input and output of a Python or R language script. Once saved, you can share these files with others.
For the official Jupyter Notebook user instructions, see Jupyter documentation.
For information on the notebook extensions available in AEN, see Using Jupyter Notebook extensions.

## Opening the Jupyter Notebook application

1.Log in to AEN.

2.Select the project you want to work on, or create a new project and open it.

3.On the project home page, click the Jupyter Notebook icon


Creating a new Jupyter Notebook:

1. At the top right of the Files tab, click the New button.

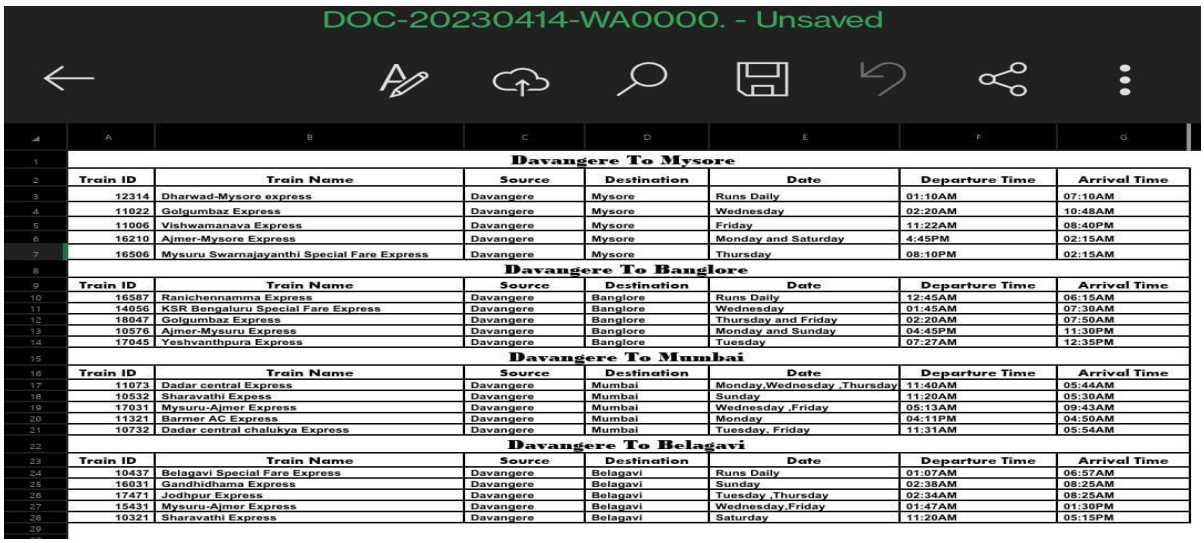

2. Select the kernel environment to create your new notebook in.

## 3. MS Excel:

Microsoft Excel is a spreadsheet developed by Microsoft for Windows, macOS, Android, iOS and iPadOS. It features calculation or computation capabilities, graphing tools, pivot tables, and a macro programming language called Visual Basic for Applications (VBA). Excel forms part of the Microsoft 365 suite of software.Microsoft Excel has the basic features of all spreadsheets,using a grid of cells arranged in numbered rows and letter-named columns to organize data manipulations like arithmetic operations.

It has a battery of supplied functions to answer statistical, engineering, and financial needs. In addition, it can display data as line graphs, histograms and charts, and with a very limited three

dimensional graphical display.A PivotTable is a tool for data analysis. It does this by simplifying large data sets via PivotTable fields. It has a programming aspect, Visual Basic for Applications, allowing the user to employ a wide variety of numerical methods.




**Davangere To Mysore**

| Train ID | Train Name | Source | Destination | Date | Departure Time | Arrival Time |
|---|---|---|---|---|---|---|
| 12314 | Dharwad-Mysore express | Davangere | Mysore | Runs Daily | 01:10AM | 07:10AM |
| 11022 | Golgumbaz Express | Davangere | Mysore | Wednesday | 02:20AM | 10:48AM |
| 11006 | Vishwamanava Express | Davangere | Mysore | Friday | 11:22AM | 08:40PM |
| 16210 | Ajmer-Mysore Express | Davangere | Mysore | Monday and Saturday | 4:45PM | 02:15AM |
| 16506 | Mysuru Swarnajayanthi Special Fare Express | Davangere | Mysore | Thursday | 08:10PM | 02:15AM |

**Davangere To Banglore**

| Train ID | Train Name | Source | Destination | Date | Departure Time | Arrival Time |
|---|---|---|---|---|---|---|
| 16587 | Ranichennamma Express | Davangere | Banglore | Runs Daily | 12:45AM | 06:15AM |
| 14056 | KSR Bengaluru Special Fare Express | Davangere | Banglore | Wednesday | 01:45AM | 07:30AM |
| 18047 | Golgumbaz Express | Davangere | Banglore | Thursday and Friday | 02:20AM | 07:50AM |
| 10576 | Ajmer-Mysuru Express | Davangere | Banglore | Monday and Sunday | 04:45PM | 11:30PM |
| 17045 | Yeshvanthpura Express | Davangere | Banglore | Tuesday | 07:27AM | 12:35PM |

**Davangere To Mumbai**

| Train ID | Train Name | Source | Destination | Date | Departure Time | Arrival Time |
|---|---|---|---|---|---|---|
| 11073 | Dadar central Express | Davangere | Mumbai | Monday,Wednesday ,Thursday | 11:40AM | 05:44AM |
| 10532 | Sharavathi Express | Davangere | Mumbai | Sunday | 11:20AM | 05:30AM |
| 17031 | Mysuru-Ajmer Express | Davangere | Mumbai | Wednesday ,Friday | 05:13AM | 09:43AM |
| 11321 | Barmer AC Express | Davangere | Mumbai | Monday | 04:11PM | 04:50AM |
| 10732 | Dadar central chalukya Express | Davangere | Mumbai | Tuesday, Friday | 11:31AM | 05:54AM |

**Davangere To Belagavi**

| Train ID | Train Name | Source | Destination | Date | Departure Time | Arrival Time |
|---|---|---|---|---|---|---|
| 10437 | Belagavi Special Fare Express | Davangere | Belagavi | Runs Daily | 01:07AM | 06:57AM |
| 16031 | Gandhidhama Express | Davangere | Belagavi | Sunday | 02:38AM | 08:25AM |
| 17471 | Jodhpur Express | Davangere | Belagavi | Tuesday ,Thursday | 02:34AM | 08:25AM |
| 15431 | Mysuru-Ajmer Express | Davangere | Belagavi | Wednesday,Friday | 01:47AM | 01:30PM |
| 10321 | Sharavathi Express | Davangere | Belagavi | Saturday | 11:20AM | 05:15PM |

- **Python:**

Python can be used in various aspects of building an Interactive Voice Response (IVR) system for transportation and train information. Here are some specific areas where Python can be leveraged:

1. Speech recognition: Python offers libraries like SpeechRecognition and pocketsphinx that enable you to convert spoken language into text. This allows your IVR system to understand and process user inputs received via voice calls.
2. Natural language processing (NLP): Python provides powerful NLP libraries such as NLTK (Natural Language Toolkit) and spaCy. These libraries can help you analyze and understand the meaning behind user queries, extract intents and entities, and generate appropriate responses.
3. Dialogue flow and call routing: Python web frameworks like Flask and Django can be used to handle HTTP requests and responses. They allow you to design the dialogue flow of your IVR system, create routes for different menu options, and handle user interactions during phone calls.
4. Train information retrieval: Python can be used to connect to train information sources, such as APIs or databases, and retrieve relevant data. You can utilize libraries like requests or the Python standard library's urllib to make HTTP requests and fetch train schedules, delays, station details, and other related information.
5. Text-to-speech synthesis: Python provides libraries like pyttsx3 and gTTS (Google Text-to-Speech) that enable you to convert text into speech. This allows your IVR system to provide audible responses to users, effectively relaying train information and other details.

# Chapter5

# SYSTEMDESIGN

## Architecture

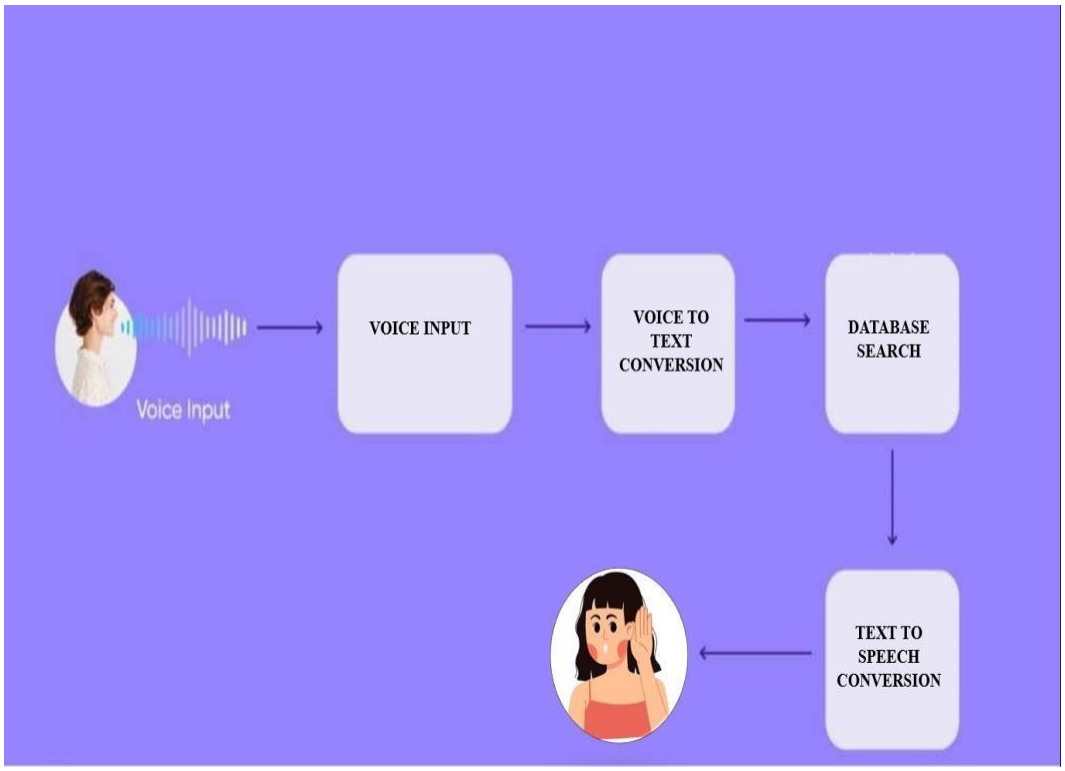



Figure:Architectureoftheproposedsystem

•FigureshowsthearchitectureoftheprojectIVRS.Itisabasicsystem,whichsimplyrecordsthe message and give replayto the message through voice.

## DatabaseDesign

### 5.2.1 ERdiagram

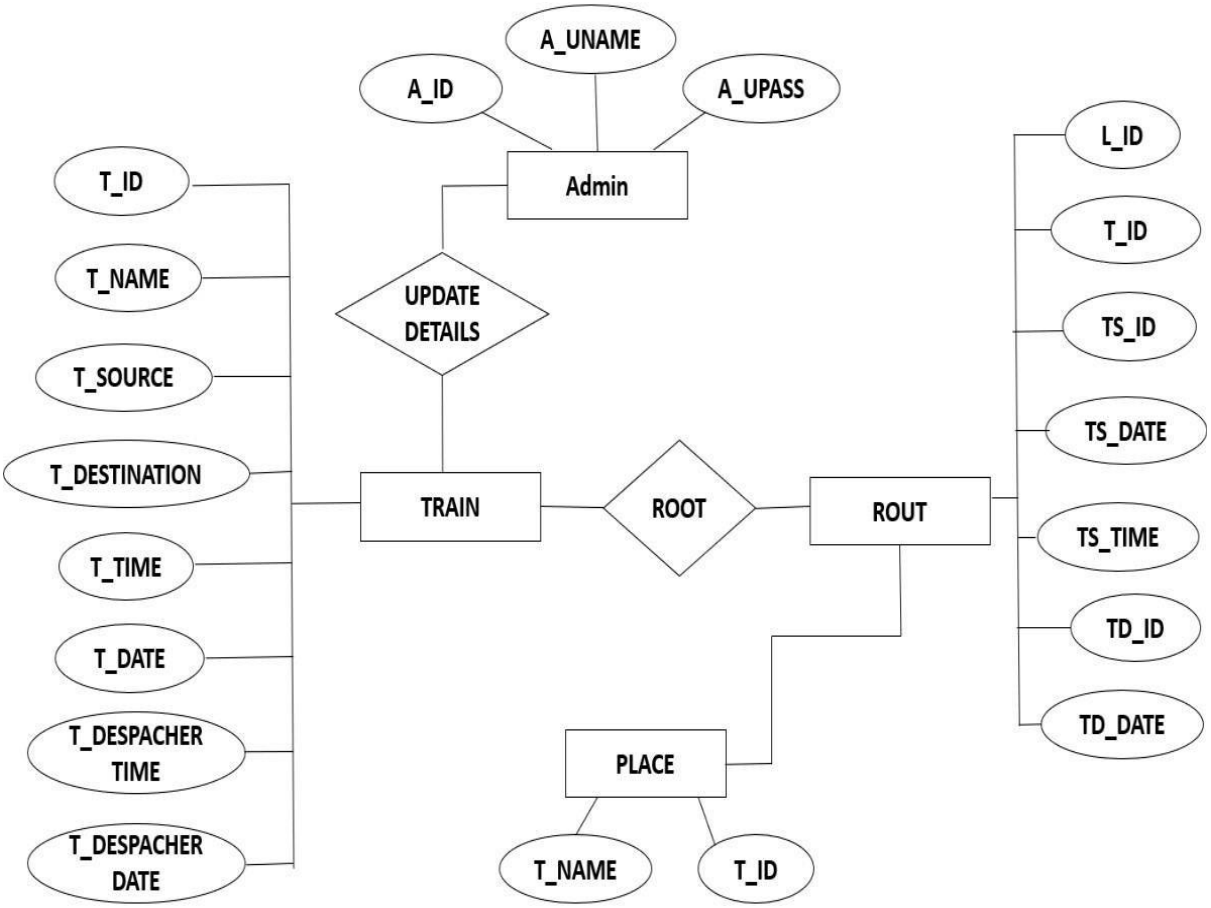
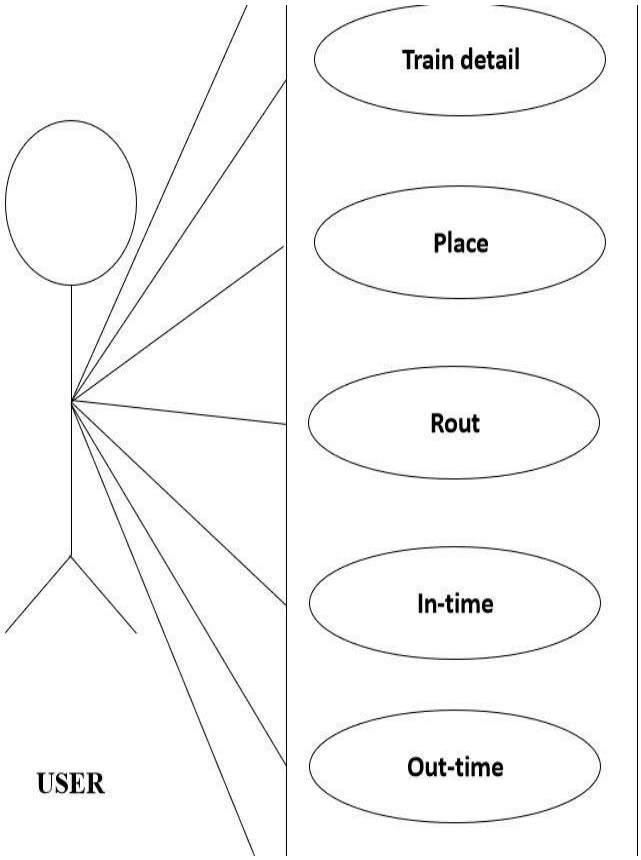



Figure:ERDiagram

The above ER diagram has entities namely file, user and activity. These entities areattachedwiththe required properties.

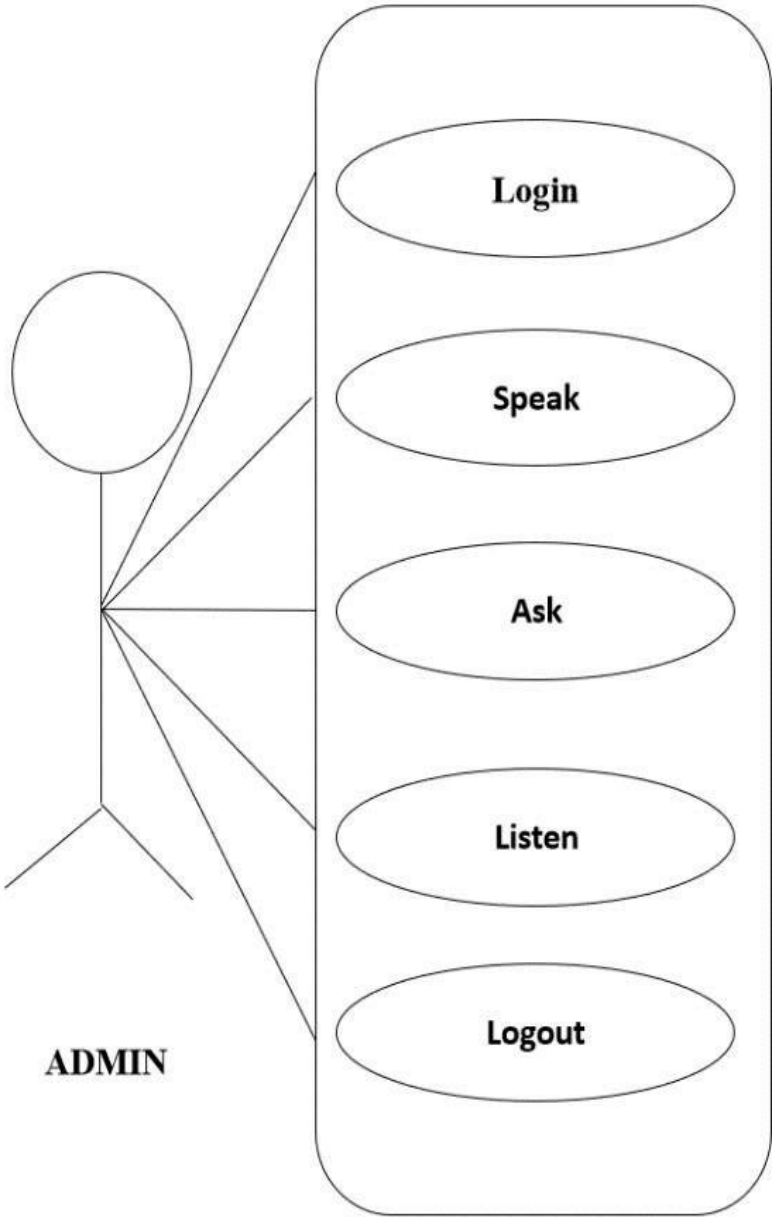
## 5.5.2Schemadiagram

**UserUsecasediagram**



## AdminUsecasediagram

**Fig:ERdiagram**



# Chapter6

# SYSTEMIMPLEMENTATION

## Importingpythonpackages

```
import speech recognition as sr
import pyttsx3
 import pandasaspd
 import time
importcsv
```

## Initializingthevoicerecognizer

```
# Initialize the recognizer
r=sr.Recognizer()
# Function to convert text to
#speech def SpeakText(command):
# Initialize the engine
engine =
pyttsx3.init()engine.say(command)
engine.runAndWait()
```

## Convertingspeechtotext

```
# Loop infinitely for user to
#speak
while(1):
    # Exception handling to handle
    #exceptionsattheruntime
try:
# use the microphone as source for input.
withsr.Microphone()assource2:
#waitfor a secondto letthe recognizer
# adjust the energy threshold based on
#the surroundingnoise level
r.adjust_for_ambient_noise(source2, duration=0.6)
#listensfortheuser'sinput
```

```
audio2 =r.listen(source2)
#Usinggoogletorecognizeaudio
MyText = r.recognize_google(audio2)
MyText= MyText.lower()
```

## Searchfordatabase

```
#adding 2 seconds time delay
with open('ivrs.csv') as file_obj:
reader_obj=csv.reader(file_obj)
forrowinreader_obj:
try:
#print(row[0])
 ifrow[0]==MyText:
value = row[1]
except:
continue
print("Didyousay",MyText)
```

### Speakthefoundresult

```
SpeakText(value)
```

### HandlingExceptions

```
exceptsr.RequestErrorase:
print("Couldnotrequestresults; {0}".format(e))
except sr.UnknownValueError:
 print("unknownerror occurred")
```

# Chapter7

# SYSTEMTESTING

This chapter explains the testing part of the project work. Here some of the use cases havebeentested and documented asper the table.

**Software Testing** is a method to check whether the actual software product matchesexpected requirements and to ensure that software product is Defect free. It involvesexecutionofsoftware/systemcomponentsusingmanualorautomatedtoolstoevaluateone or more properties of interest. The purpose of software testing is to identify errors,gapsor missing requirements in contrastto actual requirements.

Some prefer saying Software testing definition as a White Box and Black Box Testing. Insimple terms, Software Testing means the Verification of Application Under Test (AUT).This Software Testing course introduces testing software to the audience and justifies theimportanceof softwaretesting.

**WhySoftwareTestingisImportant?**

SoftwareTestingisImportantbecauseiftherareanybugsorerrorsinthesoftware,itcanbeidentifiedearlyandcanbesolvedbeforedeliveryofthesoftwareproduct.properly tested software product ensures reliability, security and high performance whichfurtherresultsin timesaving,costeffectivenessand customersatisfaction.

**WhatistheneedofTesting?**

Testingisimportantbecausesoftwarebugscouldbeexpensiveorevendangerous.Software bugs can potentially cause monetary and human loss, and history is full of suchexamples.

InApril2015, Bloombergterminal inLondon crashed due tosoftware glitchaffectedmore than 300,000 traders on financial markets. It forced the government to postpone a3bn pound debt sale. Nissan cars recalled over 1 million cars from the market due tosoftware failure in the airbag sensory detectors. There has been reported two accident duetothis software failure.

Starbucks was forced to close about 60 percent of stores in the U.S and Canada due tosoftware failure in its POS system. At one point, the store served coffee for free as theywere unable to process the transaction. Some of Amazon's third-party retailers saw theirproduct price is reduced to 1p due to a software glitch. They were left with heavy losses.Vulnerability in Windows 10. This bug enables users to escape from security sandboxesthrough a flaw in the win32k system. In 2015 fighter plane F-35 fell victim to a softwarebug,making it unable to detect targets correctly.

China Airlines Airbus A300 crashed due to a software bug on April 26, 1994, killing 264innocentslive.In1985,Canada'sTherac-25radiationtherapymachinemalfunctioneddue to software bug and delivered lethal radiation doses to patients, leaving 3 people deadandcriticallyinjuring3others.InAprilof1999,asoftwarebugcausedthefailureofa $1.2billionmilitary satellitelaunch,thecostliestaccident inhistory.
InMayof1996,asoftwarebugcausedthebankaccountsof823customersofamajor U.S.banktobecreditedwith920millionUSdollars.

**Unittesting**

A unit test is a way of testing a unit - the smallest piece of code that can be logicallyisolated in a system. In most programming languages, that is a function, a subroutine, amethod or property.Modern versions of unit testing can be found in frameworks likeJ Unit, or testing tools like Test Complete. Look a little further and you will find SI Unit,themother of all unittesting frameworks created by KentBeck.

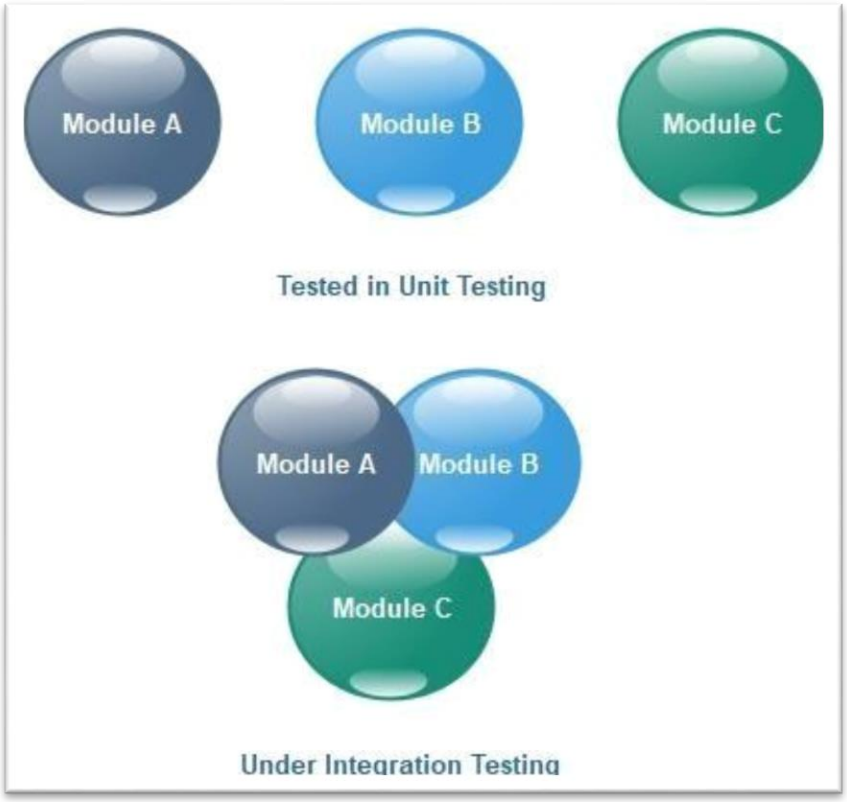
A unit can be almost anything you want it to be -- a line of code, a method, or a class.Generally though, smaller is better. Smaller tests give you a much more granular view ofhow your code is performing. There is also the practical aspect that when you test verysmall units,yourtests canbe runfast; likea thousandtests ina secondfast.

Considerthissamplecode:

```
def divider (a, b)returna/bend
```

UsingRuby,thosesmalltestsmightlooksomethinglikethis:

```
class small Test < MiniTest::Unit::testCasedef tiny test
  @a=9
  @b=3assert_equal(3, divider(a, b))
  end
```




This example is overly simple, but it gives you an idea of what I mean by small. Smalltests also have the benefit of making it harder to cross systems from code into a database,or 3rd party system. Strictly speaking, there isn't anything wrong with crossing systems,butthere areconsequences like gradually slowing your tests.

**Integrationtesting**

Integrationtesting(sometimescalledintegrationandtesting,abbreviatedI&T)isthephaseinsoftwaretestingin whichindividualsoftwaremodulesarecombinedandtestedas a group. Integration testing is conducted to evaluate the compliance of a system orcomponent withspecified functional requirements.

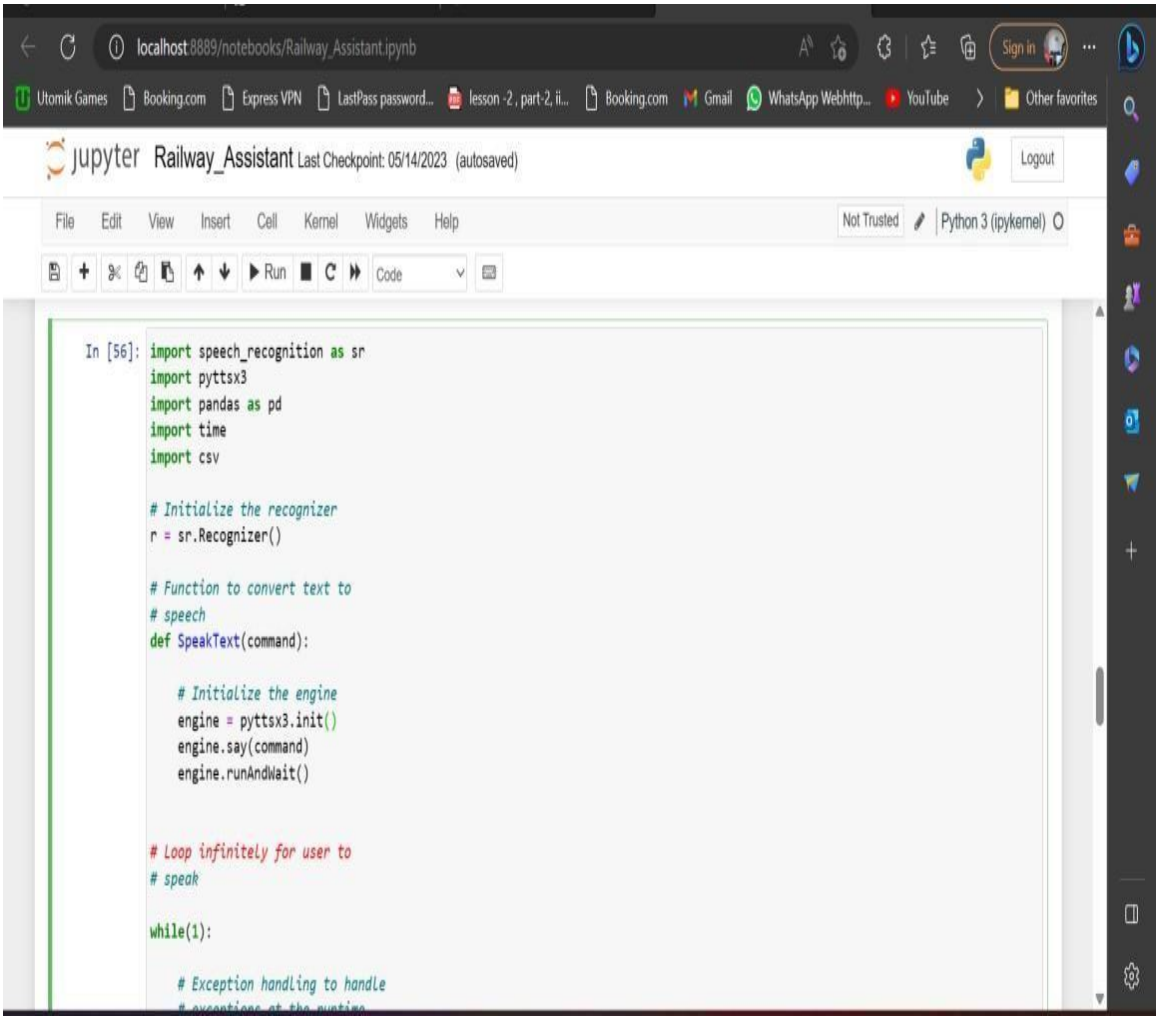
**Testcasesasperttheprojectwork**

| TestCaseID | TestCase | Expectedoutcome | ActualOutcome | Remarks |
|---|---|---|---|---|
| TC#1 | Readvoiceinput | System should readtheuservoicein put | System is able toread the voice inputoftheuser | PASS |
| TC#2 | ConvertintoText | System shouldconvertthes peechtotext | Systemisabletoconve rttheuservoiceintotex tform | PASS |
| TC#3 | Search the databasefortheou tput | System shouldsearch for thedatabaseandresu ltsthe correspondingoutpu t | System is able tosearch the requestedtrain details to returnthe same in textformat | PASS |
| TC#4 | Convertttheresultedt extinto speech | System shouldconvert the resultedtextinto speech | System is ableconvertthesearc hedoutput from textformatto voice | PASS |

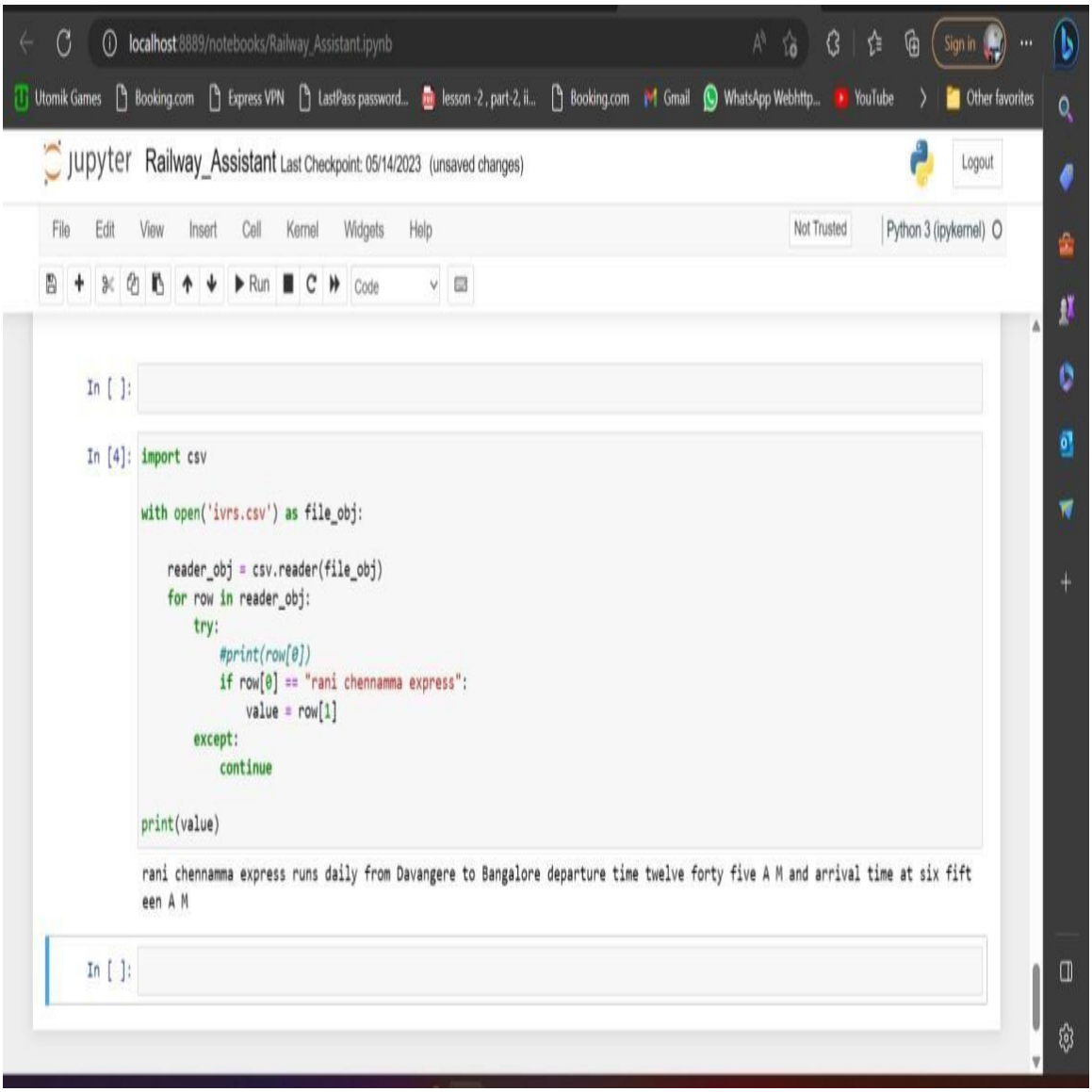
# Chapter8

# RESULTANDSNAPSHOTS

## Mainpageoftheproject



## Providinginputthroughvoice



# CHAPTER9

# CONCLUSION

The proposed project work is able to read the voice inputfromthetravelusersandsearchforthedatabasethenproduce the output in the form of the speech. This projectwas aiming at supporting the people who are illiterates incomputerormobileoperating.Theprojectisdevelopedusing Python programming language. The Anaconda serverhasbeenusedtoimplementpythonprogramsfortheenvironment.By leveraging voice recognition technology, this system allows users to access information and services related to transport in a seamless and hands-free manner.

The voice-based transport enquiry system offers several benefits. Firstly, it provides a user-friendly interface, eliminating the need for manual input and enabling users to interact with the system naturally through voice commands. This makes it particularly useful in situations where hands-free operation is necessary, such as when driving or multitasking.

Furthermore, the system improves accessibility by catering to individuals with visual impairments or limited dexterity, who may struggle with traditional text-based interfaces. With voice recognition capabilities, these users can easily inquire about transport schedules, routes, fares, and other related information.

Another advantage of the voice-based transport enquiry system is its ability to provide real-time updates. By integrating with live data sources, such as transportation APIs or databases, the system can deliver accurate and up-to-date information on factors like bus or train arrivals, delays, and route changes. This helps users plan their journeys more effectively and stay informed about any disruptions or changes in the transport network.

# CHAPTER10

## Bibliography


1. https://introcs.cs.princeton.edu/python/home/
2. https://assistant.google.com/
3. https://en.m.wikipedia.org/wiki/Amazon_Echo
4. https://www.w3schools.com/php/php_intro.asp
5. https://whereismytrain.in/
6. https://www.w3schools.com/python/pandas/pandas_intro.asp
7. https://store.google.com/in/magazine/compare_nest_speakers_displays?hl=en-GB&pli=1
8. https://alexa.amazon.com/
9. Srinath, K. R. "Python–the fastest growing programming language." International Research Journal of Engineering and Technology 4.12 (2017): 354-357.