

VISVESVARAYA TECHNOLOGICAL UNIVERSITY



BELAGAVI-590018,Karnataka

INTERNSHIP REPORT

ON

“Virtual Assistant For Visually Impaired”

**BACHELOR OF ENGINEERING
IN
COMPUTER SCIENCE AND ENGINEERING
Of VTU University, Belagavi**

Submitted by

**NAME: Karigouda M
USN : 4MK19CS021**



**Conducted at
COMPSOFT TECHNOLOGIES**



**Department of Computer Science And Engineering Off
Moodalkatte, Kundapur Taluk, Mudalkatte,
Karnataka 576211**



VISVESVARAYA TECHNOLOGICAL UNIVERSITY
BELAGAVI-590018,Karnataka

CERTIFICATE

This is to certify that the Internship titled “**Virtual Assisant For Visually Impaired**” carried out by **Karigouda M(4MK19CS045)**,a bonafide student of Moodlakatte Institute of Technology, in partial fulfillment for the award of **Bachelor of Engineering**, in **Computer Science And Engineering** under Visvesvaraya Technologic University, Belagavi, during the year 2022-2023. It is certified that all corrections/suggestions indicated have been in corporate in the report.

The project report has been approved as it satisfies the academic requirements inrespect of Internship prescribed for the course Internship/Professional Practice (18CSI85)

Signature of Guide

Signature of HOD

Signature of Principal

External Viva:

Name of the Examiner

Signature with Date

1)_____

2)_____

DECLARATION

I, **Karigouda M**, final year student of Computer Science And Engineering O Moodlakatte Institute Of Technology, Kundapura - 576221, declare that the Internship has been successfully completed, in **COMPSOFT TECHNOLOG**. This report is submitted in partial fulfillment of the requirements for award of Bachelor Degree in Computer Science And Engineering, during the academic year 2022-2023.

Date: _____ :

Place :

USN: 4MK19CS021

NAME: Karigouda M

OFFER LETTER



Date: 6th February, 2023

Name: **Karigouda M**
USN: **4MK19CS021**

Dear Student,

We would like to congratulate you on being selected for the **Machine Learning with Python (Research Based)** Internship position with **Compsoft Technologies**, effective Start Date **6th February, 2023**. All of us are excited about this opportunity provided to you!

This internship is viewed as being an educational opportunity for you, rather than a part-time job. As such, your internship will include training/orientation and focus primarily on learning and developing new skills and gaining a deeper understanding of concepts of **Machine Learning with Python (Research Based)** through hands-on application of the knowledge you learn while you train with the senior developers. You will be bound to follow the rules and regulations of the company during your internship duration.

Again, congratulations and we look forward to working with you!

Sincerely,

Nithin K. S
Project Manager
COMPSOFT TECHNOLOGIES
*No. 363, 19th main road,
1st Block Rajajinagar
Bangalore - 560010*

ACKNOWLEDGEMENT

The satisfaction that accompanies the successful completion of this project would be incomplete without the mention of the people who made it possible, without whose constant guidance and encouragement would have made efforts go in vain.

I consider myself privileged to express gratitude and respect towards all those who guided me through the completion of the project. I express my thanks to my Internal Internship Guide, Department of Computer Science And Engineering, VTU University for his constant support.

I express my sincere gratitude to my internship external guide or Team Certiefy for guiding me throughout this internship and making it successful.

I would like to express my thanks to Mr. Muralidhar BK, HOD ,Department of Computer Science And Engineering, School of Engineering and Technology, VTU University, Belagavi , for his encouragement that motivated me for the successful completion of internship work.

Prof. Bibi Ameena for her support, invaluable guidance and encouragement throughout the tenure of this internship.

Karigouda M
4MK19CS021

ABSTRACT

The increasing use of digital devices and services has created new challenges for visually impaired individuals who rely on visual cues to navigate the world around them. Virtual assistants have the potential to address many of these challenges by providing a range of features and tools that can help visually impaired users interact with their devices and access information more easily. This abstract explores the key features and benefits of a virtual assistant for visually impaired individuals, including voice recognition, text-to-speech, navigation assistance, calendar and reminder assistance, access to information, and personalized assistance. By providing these tools, virtual assistants can help visually impaired users to navigate the digital world more easily and live more independent and fulfilling lives.

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CHAPTER 1

COMPANY PROFILE

A Brief History of Compsoft Technologies

Compsoft Technologies, was incorporated with a goal "To provide high quality and optimal Technological Solutions to business requirements of our clients". Every business is different and has a unique business model and so are the technological requirements. They understand this and hence the solutions provided to these requirements are different as well. They focus on clients requirements and provide them with tailor made technological solutions. They also understand that Reach of their Product to its targeted market or the automation of the existing process in toe-client and simple process are the key features that our clients desire from Technological Solution they are looking for and these are the features that we focus on while designing the solutions for their clients.

Sarvamoola Software Services. is a Technology Organization providing solutions for all web design and development, MYSQL, PYTHON Programming, HTML, CSS, ASP.NET and LINQ. Meeting the ever increasing automation requirements, Sarvamoola Software Services. specialize in ERP, Connectivity, SEO Services, Conference Management, effective web promotion and tailor-made software products, designing solutions best suiting clients requirements.

Compsoft Technologies, strive to be the front runner in creativity and innovation in software development through their well-researched expertise and establish it as an out of the box software development company in Bangalore, India. As a software development company, they translate this software development expertise into value for their customers through their professional solutions.

They understand that the best desired output can be achieved only by understanding the clients demand better. Compsoft Technologies work with their clients and help them to define their exact solution requirement. Sometimes even they wonder that they have completely redefined their solution or new application requirement during the brain storming session, and here they position themselves as an IT solutions consulting group comprising of high caliber consultants.

They believe that Technology when used properly can help any business to scale and achieve new heights of success. It helps Improve its efficiency, profitability, reliability; to put it in one sentence ” Technology helps you to Delight your Customers” and that is what we want to achieve

CHAPTER 2

ABOUT THE COMPANY



Compsoft Technologies is a Technology Organization providing solutions for all web design and development, MYSQL, PYTHON Programming, HTML, CSS, ASP.NET and LINQ. Meeting the ever increasing automation requirements, Compsoft Technologies specializing ERP, Connectivity, SEO Services, Conference Management, effective web promotion and tailor-made software products, designing solutions best suiting clients requirements. The organization where they have a right mix of professionals as a stake holders to help us serve our clients with best of our capability and with at par industry standards. They have young, enthusiastic, passionate and creative Professionals to develop technological innovations in the field of Mobile technologies, Web applications as well as Business and Enterprise solution. Motto of our organization is to “Collaborate with our clients to provide them with best Technological solution hence creating Good Present and Better Future for our client which will bring a cascading a positive effect in their business shape as well”. Providing a Complete suite of technical solutions is not just our tag line, it is Our Vision for Our Clients and for Us, We strive hard to achieve it.

Products of Compsoft Technologies.

Android Apps

It is the process by which new applications are created for devices running the Android operating system. Applications are usually developed in Java (and/or Kotlin; or other such option) programming language using the Android software development kit (SDK), but other development environments are also available, some such as Kotlin support the exact same Android APIs (and byte code), while others such as Go have restricted API access.

The Android software development kit includes a comprehensive set of development tools. These include a debugger, libraries, a handset emulator based on QEMU, documentation, sample code, and tutorials. Currently supported development platforms include computers running Linux (any modern desktop Linux distribution),

Mac OS X 10.5.8 or later, and Windows 7 or later. As of March 2015, the SDK is not available on Android itself, but software development is possible by using specialized Android applications.

Web Application

It is a client–server computer program in which the client (including the user interface and client- side logic) runs in a web browser .Common web applications include web mail,online retail sales, online auctions, wikis, instant messaging services and many other functions. Web applications use web documents written in a standard format such as HTML and JavaScript , which are supported by a variety of web browsers. Web applications can be considered as a specific variant of client- server software where the client software is downloaded to the client machine when visiting the relevant webpage, using standard procedures such as HTTP. The Client web software updates may happen each time the web page is visited. During the session, the web browser interprets and displays the pages, and acts as the universal client for any web application. The use of web application frame works can often reduce the number of errors in a program, both by making the code simpler, and by allowing one team to concentrate on the framework while another focuses on a specified usecase. In applications which are exposed to constant hacking attempts on the Internet, security-related problems can because by errors in the program.

Frame works can also promote the use of best practices such as GET after POST. There are some who view a web application as a two-tier architecture. This can be a “smart” client that performs all the work and queries a “dumb” server,ora“dumb”client that relies on a“smart”server.The client would handle the presentationtier, the server would have the database(storagetier),and the business logic(applicationtier) would be on one of the moron both. While this increases the scalability of the applications and separates the display and the database ,it still doesn’t allow for true specialization of layers, so most applications will outgrow this model .An emerging strategy for application software companies is to provide web access to software previously distributed as local applications. Depending on the type of application, it may require the development of an entirely different browser-based interface,or merely adapting an existing application ouse different presentation technology. These programs allow the user to pay monthly or yearly fee for use of a software application with out having to installiton a local hard drive. Acompany which follows this strategy is known as an application service provider(ASP),and ASPs are currently receiving much attention in the software industry.

Security breaches on these kinds of applications are a major concern because it can involve both enterprise information and private customer data. Protecting these assets is an important part of any web application and there are some key operational areas that must be included in the development process. This includes processes for authentication, authorization, asset handling, input, and logging and auditing. Building security into the applications from the beginning can be more effective and less disruptive in the long run.

Web design

It encompasses many different skills and disciplines in the production and maintenance of websites. The different areas of web design include web graphic design; interface design; authoring, including standardized code and proprietary software; user experience design; and search engine optimization. The term web design is normally used to describe the design process relating to the front-end (client side) design of a website including writing mark up. Web design partially overlaps web engineering in the broader scope of web development. Web designers are expected to have an awareness of usability and if their role involves creating markup then they are also expected to be up to date with web accessibility guidelines. Web design partially overlaps web engineering in the broader scope of web development.

Departments and services offered

Compsoft Technologies plays an essential role as an institute, the level of education, development of student's skills are based on their trainers. If you do not have a good mentor then you may learn many things from others and that is why we at Compsoft Technologies gives you the facility of skilled employees so that you do not feel unsecured about the academics. Personality development and academic status are some of those things which lie on mentor's hands. If you are trained well then you can do well in your future and knowing its importance of Compsoft Technologies always tries to give you the best.

They have a great team of skilled mentors who are always ready to direct their trainees in the best possible way they can and to ensure the skills of mentors we held many skill development programs as well so that each and every mentor can develop their own skills with the demands of the companies so that they can prepare a complete package trainee.

Services provided by Compsoft Technologies.

- Core Java and Advanced Java
- Web services and development
- Dot Net Framework
- Python
- Selenium Testing
- Conference /Event Management Service
- Academic Project Guidance
- On The Job Training
- Software Training

The race for digital transformation is on. In this globally connected on-demand world with rapid advancements in internet technologies, businesses worldwide are under constant pressure to add innovative real-time capabilities to their applications to respond to market opportunities.

We have a proven record of building highly scalable, world-class consulting processes that offer tremendous business advantages to our clients in the form of huge cost-benefits, definitive results and consistent project deliveries across the globe.

We prominently strive to improve your business by delivering the full range of competencies including operational performance, developing and applying business strategies to improve financial reports, defining strategic goals and measure and manage those goals along with measuring and managing them.

Vision

We are committed to going the extra mile to bring success to the clients consistently
We are dedicated to delivering the right people, solutions, and services to the clients that they require to meet their technology challenges and business goals.

Mission

Optimizing client satisfaction with quality services

Delivering the most efficient and the best solution to our clients to every client leveraging leading technologies & industry best

CHAPTER 3

INTRODUCTION

Introduction to ML

Machine learning (ML) is a branch of artificial intelligence (AI) that involves the development of algorithms and models that enable computers to learn and improve from experience. The goal of ML is to enable computers to make predictions or take actions based on patterns or relationships that they identify in large datasets, without being explicitly programmed to do so. In other words, ML algorithms allow computers to automatically identify patterns and relationships in data, and use these insights to make predictions or take actions. This can be used for a wide range of applications, from image and speech recognition to recommendation systems and predictive analytics. There are three main types of machine learning algorithms: supervised learning, unsupervised learning, and reinforcement learning. Supervised learning involves training a model on labeled data, where the algorithm is provided with examples of inputs and the corresponding outputs. Unsupervised learning involves training a model on unlabeled data, where the algorithm is left to identify patterns and relationships on its own. Reinforcement learning involves training a model through trial and error, where the algorithm receives feedback based on its actions and adjusts its behavior accordingly. Overall, ML is a powerful tool for analyzing and making predictions based on large datasets, and has the potential to revolutionize a wide range of industries and applications.

Problem Statement A machine learning problem statement typically involves defining a task or objective that can be solved using ML techniques. This task may involve predicting a value or class label based on input data, identifying patterns or anomalies in a dataset, or clustering data into groups based on similarities. For example, a machine learning problem statement might be to predict the likelihood of a customer purchasing a product based on their past purchase history and demographic information. Another example might be to classify images of animals based on their species.

To create a machine learning problem statement, it is important to define the problem clearly and identify the relevant data sources and features that will be used to train the model. The problem statement should also include any constraints or requirements for the solution, such as accuracy thresholds or real-time processing requirements. In addition to defining the problem statement, it is also important to select an appropriate ML algorithm and evaluate its performance using relevant metrics.

This may involve splitting the data into training and testing sets, tuning model parameters, and comparing the results of different algorithms. Overall, creating a well-defined machine learning problem statement is a critical first step in developing an effective ML solution, and requires careful consideration of the problem domain, available data, and desired outcome

CHAPTER 4

SYSTEM ANALYSIS

The system comprises a modular client server distributed architecture. The system consists of the main menu which first runs on the startup of the software and the website modules. The client communicates with the server and back with the use of REST APIs, thus the website modules are not local to the client. Throughout the system, the user communicates with the software via speech-to-text interface. The Google library of speech-to-text (Speech Recognition) for Python is used for this purpose. For communicating the system's output to the user as well as for confirming the user input, the recognized input is played back to the user using the Python text-to-speech library (pyttsx3). The modules are written in Python and make use of Selenium for automation of the respective module and BeautifulSoup for scraping the contents of the web page. The "Script" component of each module consists of the customized code that entails the features of the website contained in the module. For instance, the Wikipedia module consists of a Question and Answer and Summary feature along with the traditional feature of reading out the entire article. The former is implemented by training a BERT model on the Stanford Question Answering Dataset (SQuAD). The APIs that hold the system together are written in Flask. The software is operating system independent to support hassle free application and usage of the system

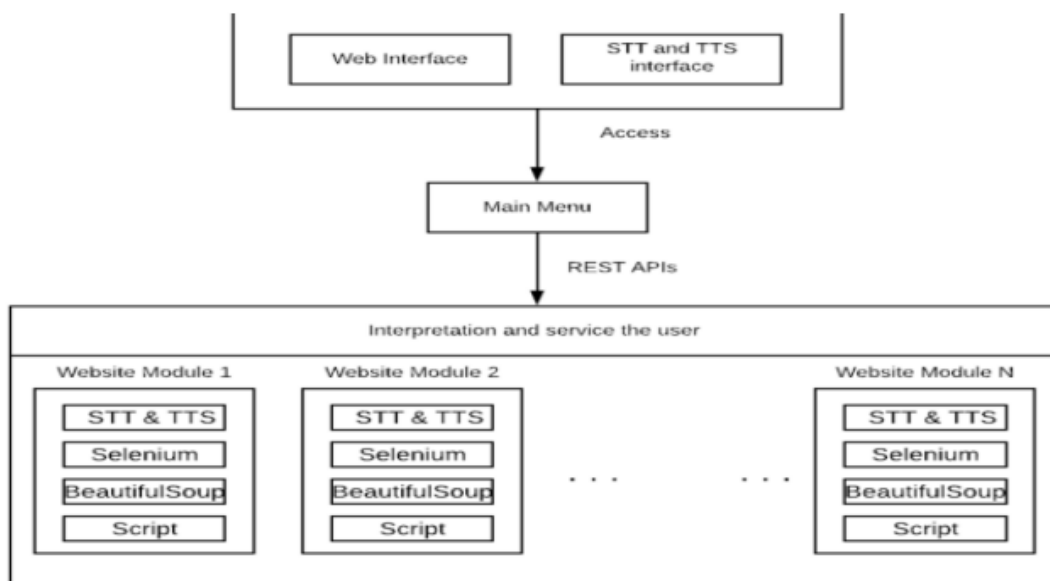


Figure 1: System Architecture

Figure 1 is a representation of the system architecture of our software. The user accesses the software using the web interface where the speech to text (STT) module converts the voice input to text. The user is then presented with the main menu where they have three options to choose from and decide which website they want to browse. Accordingly, the module is invoked with its corresponding speech to text modules, web driver and machine learning module. The output is played to the user using text to speech (TTS) module. This is the overview of the software.

CHAPTER 5

REQUIREMENT ANALYSIS

Software Requirement Specification

1. VSCODE
2. Python 3.9
3. Android Device

VSCODE

Visual Studio Code is a source-code editor that can be used with a variety of programming languages, including C, C#, C++, Fortran, Go, Java, JavaScript, Node. js, Python, Rust. It is based on the Electron framework, which is used to develop Node. js web applications that run on the Blink layout engine.

PYTHON 3.9

Python 3.9 is the last version providing those Python 2 backward compatibility layers, to give more time to Python projects maintainers to organize the removal of the Python 2 support and add support for Python 3.9. Aliases to Abstract Base Classes in the collections module, like collections.

ANDROID DEVICE

Android is a mobile operating system based on a modified version of the Linux kernel and other open-source software, designed primarily for touchscreen mobile devices such as smartphones and tablet

CHAPTER 6

DESIGN & ANALYSIS

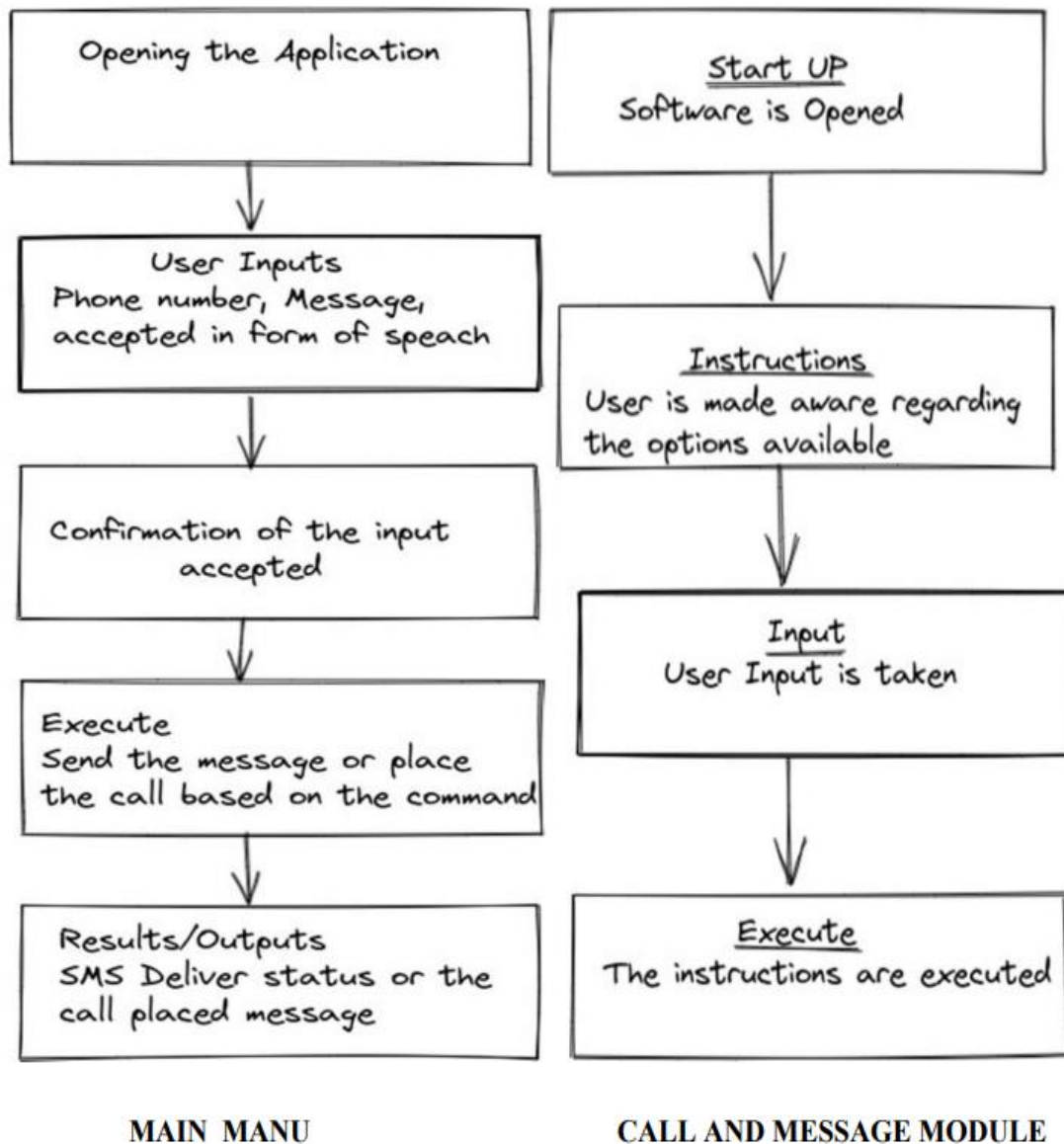
Methodology & Survey The system comprises a modular client-server distributed architecture. The system consists of the main menu which first runs on the startup of the software and the website modules .

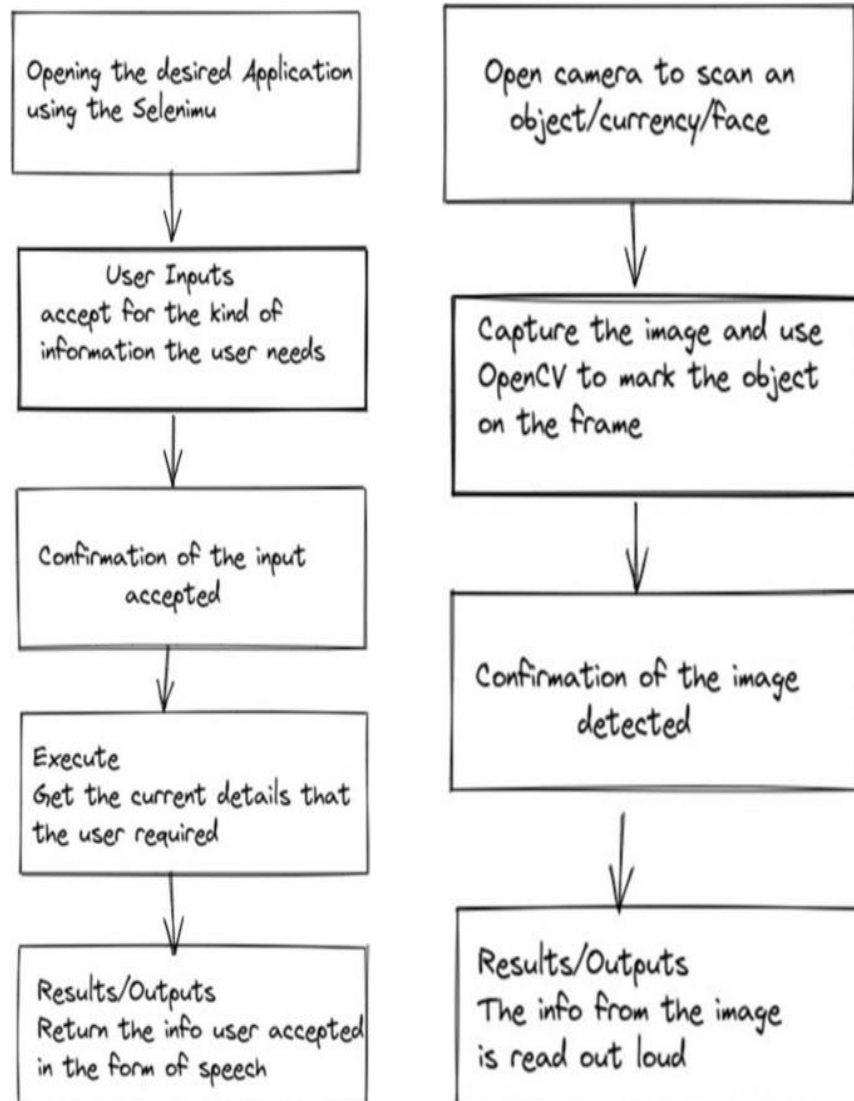
The client communicates with the server and back with the use of REST APIs, thus the website modules are not local to the client. Throughout the system, the user communicates with the software via a speech-to-text interface. The Google library of speech-to-text (Speech Recognition) for Python is used for this purpose. For communicating the system's output to the user as well as for confirming the user input, the recognized input is played back to the user using the Python text-to-speech library (pyttsx3). The modules are written in Python and make use of Selenium for automation of the respective module and BeautifulSoup for scraping the contents of the web page. The "Script" component of each module consists of customized code that entails the features of the website contained in the module. For instance, the Wikipedia module consists of a Question and Answer and A summary feature along with the traditional feature of reading out the entire article. The former is implemented by training a BERT model on the Stanford Question Answering Dataset (SQuAD). The APIs that hold the system together are written in Flask. The software is operating system independent to support hassle-free application and usage of the system.

Many researchers have contributed to this field. Various combinations of existing technologies have been used. Braille systems, screen magnifiers, etc. went through some developments but later faced technical issues.

Pilling et al. conducted a study to determine whether the internet provides opportunities for disabled people to carry out activities which they were previously unable to do or whether it leads to greater social exclusion. Sinks and kings et al. state that there is no known research to determine the reasons people with disabilities can't access the internet. Muller et al on the other hand state that the primary barrier to inaccessibility is that of economic and technical capabilities. This thought is seconded by Kirsty et al. who state that bad HTML code and use of pdf causes a hindrance in accessing the internet for the visually impaired Although the W3C mentions a list of guidelines for maintaining a high level of accessibility for the visually impaired, Power et al. [5] state that only 50.4% of the problems encountered by users were covered by Success Criteria in

the Web Content Accessibility Guidelines 2.0 (WCAG 2.0) and 16.7% of websites implemented techniques recommended in WCAG 2.0 but the techniques did not solve the problems. Android phone-controlled voice gesture and touchscreen operated wheelchair where voice and gesture are recognized through android. Developers also created a universal voice control on android which is used to launch android applications via voice commands





Time/Date/Location/BatterlyLevel/Weather/News/About/Dictionary/CurrencyDetection

Applications:

Virtual Assistant provides the feature of providing answers to a particular question from a given text of data, thus now the user does not have to read the entire text to figure out the answer, he/she has to simply input the question, the software will find out the answer from the text data on itself using machine learning. The software also provides a summary of the text using machine learning, so the user doesn't have to read the entire thing and thus making it easy to access the website. Thus, using machine learning and speech to text techniques we make the task of accessing the website, which was earlier difficult Now super easy, quick and efficient. Thus, we believe that virtual assistants for the visually impaired are the beginning of Web 3.0

CHAPTER 7

IMPLEMENTATION

Implementation is the stage where the theoretical design is turned into a working system. The most crucial stage in achieving a new successful system and in giving confidence on the new system for the users that it will work efficiently and effectively.

The system can be implemented only after thorough testing is done and if it is found to work according to the specification. It involves careful planning, investigation of the current system and its constraints on implementation, design of methods to achieve the change over and an evaluation of change over methods as a part from planning.

Two major tasks of preparing the implementation are education and training of the users and testing of the system. The more complex the system being implemented, the more involved will be the system analysis and design effort required just for implementation.

The implementation phase comprises of several activities. The required hardware and software acquisition is carried out. The system may require some software to be developed. For this, programs are written and tested. The user then changes over to his new fully tested system and the old system is discontinued.

TESTING

The testing phase is an important part of software development. It is the Information zed system will help in automate process of finding errors and missing operations and also a complete verification to determine whether the objectives are met and the user requirements are satisfied. Software testing is carried out in three steps:

1. The first includes unit testing, where in each module is tested to provide its correctness, validity and also determine any missing operations and to verify whether the objectives have been met. Errors are noted down and corrected immediately.
2. Unit testing is the important and major part of the project. So errors are rectified easily in particular module and program clarity is increased. In this project entire system is divided into several modules and is developed individually. So unit testing is conducted to individual modules.
3. The second step includes Integration testing. It need not be the case, the software whose modules when run individually and showing perfect results, will also show perfect results when run as a whole.

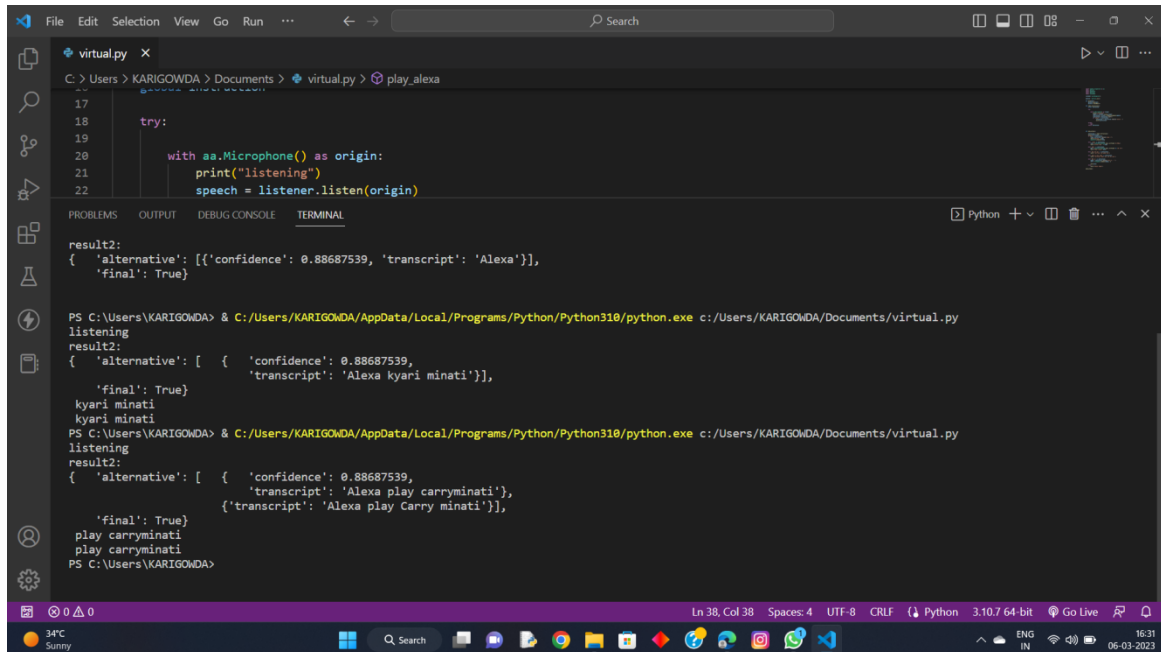
VIRTUAL ASSISTANT CODE SNIPPET

```
jarvis.py > ...
1 import speech_recognition as aa
2 import pyttsx3
3 import pywhatkit
4 import datetime
5 import wikipedia
6
7 listener = aa.Recognizer()
8
9 machine = pyttsx3.init()
10
11 def talk(text):
12     machine.say(text)
13     machine.runAndWait()
14
15 def input_instruction():
16     global instruction
17     try:
18         with aa.Microphone() as origin:
19             print('listening...')
20             speech = listener.listen(origin)
21             instruction = listener.recognize_google(speech)
22             instruction = instruction.lower()
23             if 'Jarvis' in instruction:
24                 instruction = instruction.replace('jarvis', " ")
25                 print(instruction)
26
27     except:
28         pass
29     return instruction()
30
31
32 def play_Jarvis():
33
34     instruction = input_instruction()
35     print(instruction)
36     if "play" in instruction:
37         song = instruction.replace('play', "")
38         talk("playing" + song)
39         pywhatkit.playonyt(song)
40
41
42     elif 'time' in instruction:
43         time = datetime.datetime.now().strftime('%I:%M%p')
44         talk('Current time' + time)
45
46     elif 'date' in instruction:
47         date = datetime.datetime.now().strftime('%d /%m /%Y')
48         talk("Today's date " + date)
49
50     elif 'how are you' in instruction:
51         talk('I am fine, how about you')
52
53     elif 'what is your name' in instruction:
54         talk('I am Jarvis, what can i do for you?')
55
56     elif 'who is' in instruction:
57         human = instruction.replace('who is', " ")
58         info = wikipedia.summary(human, 1)
59         print(info)
60         talk(info)
61
62     else:
63         talk('Please repeat')
64
65 play_Jarvis()
```


CHAPTER 8

SNAPSHOTS

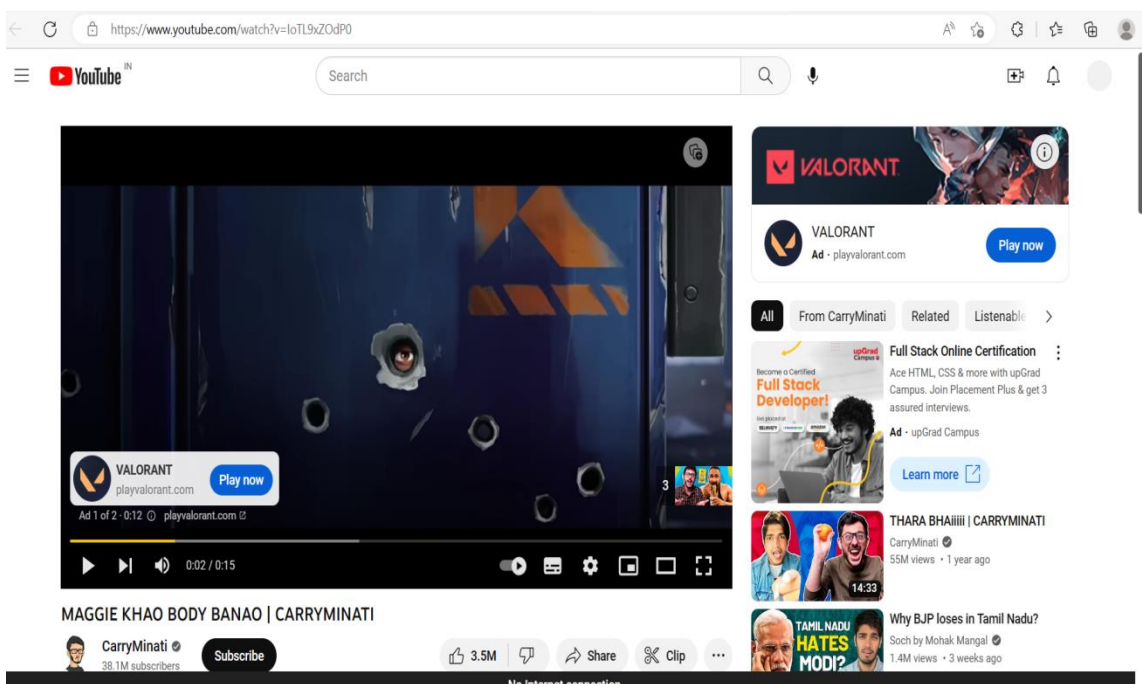
1. OUTPUT FOR REDIRECTING YOUTUBE BY VOICE ASSISTANT



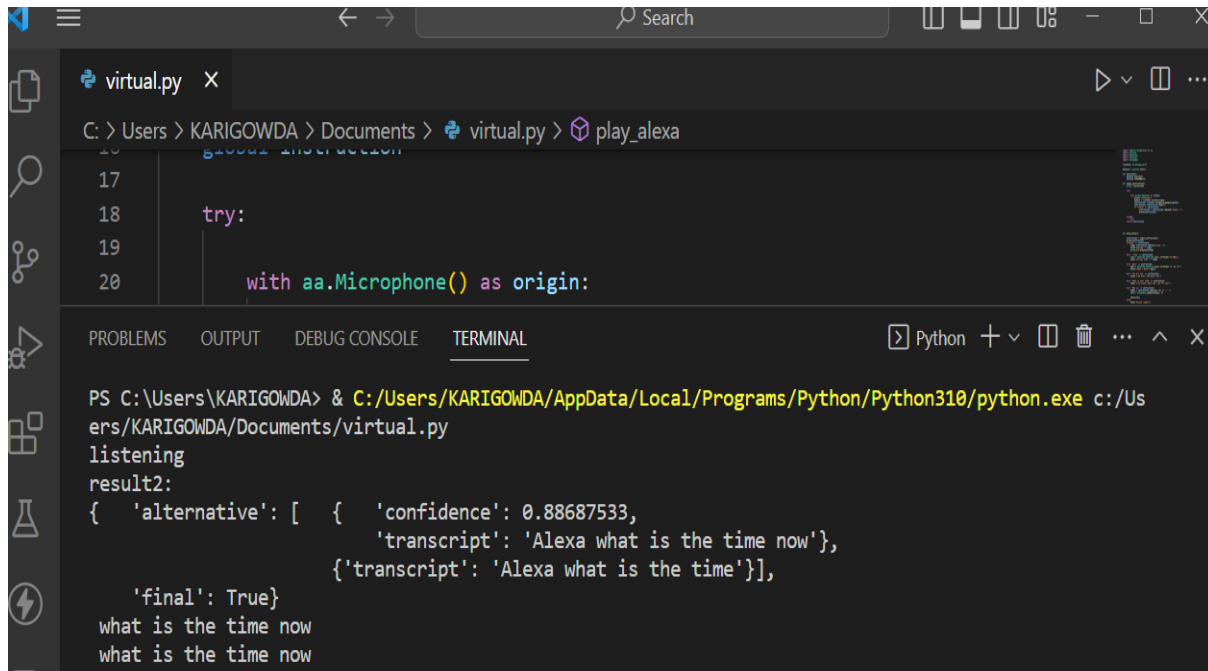
```
File Edit Selection View Go Run ... Search
virtual.py x
C:\Users\KARIGOWDA\Documents> virtual.py > play_alex
17
18
19
20
21
22
    try:
        with aa.Microphone() as origin:
            print("listening")
            speech = listener.listen(origin)

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
result2:
{ 'alternative': [{ 'confidence': 0.88687539, 'transcript': 'Alexa' }],
  'final': True }

PS C:\Users\KARIGOWDA> & C:/Users/KARIGOWDA/AppData/Local/Programs/Python/Python310/python.exe c:/Users/KARIGOWDA/Documents/virtual.py
listening
result2:
{ 'alternative': [ { 'confidence': 0.88687539, 'transcript': 'Alexa kyari minati' }],
  'final': True }
kyari minati
kyari minati
PS C:\Users\KARIGOWDA> & C:/Users/KARIGOWDA/AppData/Local/Programs/Python/Python310/python.exe c:/Users/KARIGOWDA/Documents/virtual.py
listening
result2:
{ 'alternative': [ { 'confidence': 0.88687539, 'transcript': 'Alexa play carryminati' },
                   { 'confidence': 0.88687539, 'transcript': 'Alexa play Carry minati' } ],
  'final': True }
play carryminati
play carryminati
PS C:\Users\KARIGOWDA>
```



2 OUTPUT FOR THE KNOW THE **TIME** BY VOICE ASSISTANT



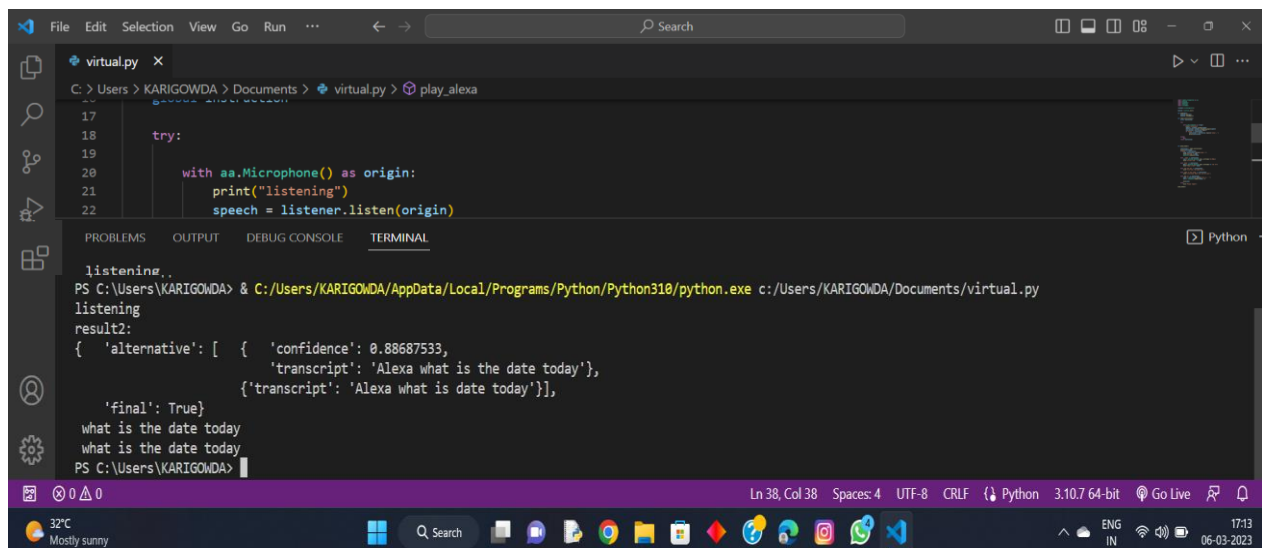
The screenshot shows a Visual Studio Code editor with a file named `virtual.py` open. The code in the editor is as follows:

```
17
18     try:
19
20         with aa.Microphone() as origin:
```

The bottom panel shows the TERMINAL output for the command `python.exe c:/Users/KARIGOWDA/Documents/virtual.py`:

```
PS C:\Users\KARIGOWDA> & C:/Users/KARIGOWDA/AppData/Local/Programs/Python/Python310/python.exe c:/Users/KARIGOWDA/Documents/virtual.py
listening
result2:
{ 'alternative': [ { 'confidence': 0.88687533,
                    'transcript': 'Alexa what is the time now'},
                  {'transcript': 'Alexa what is the time'}],
  'final': True}
what is the time now
what is the time now
```

3 OUTPUT FOR THE KNOW THE **DATE** BY VOICE ASSISTANT



The screenshot shows a Visual Studio Code editor with a file named `virtual.py` open. The code in the editor is as follows:

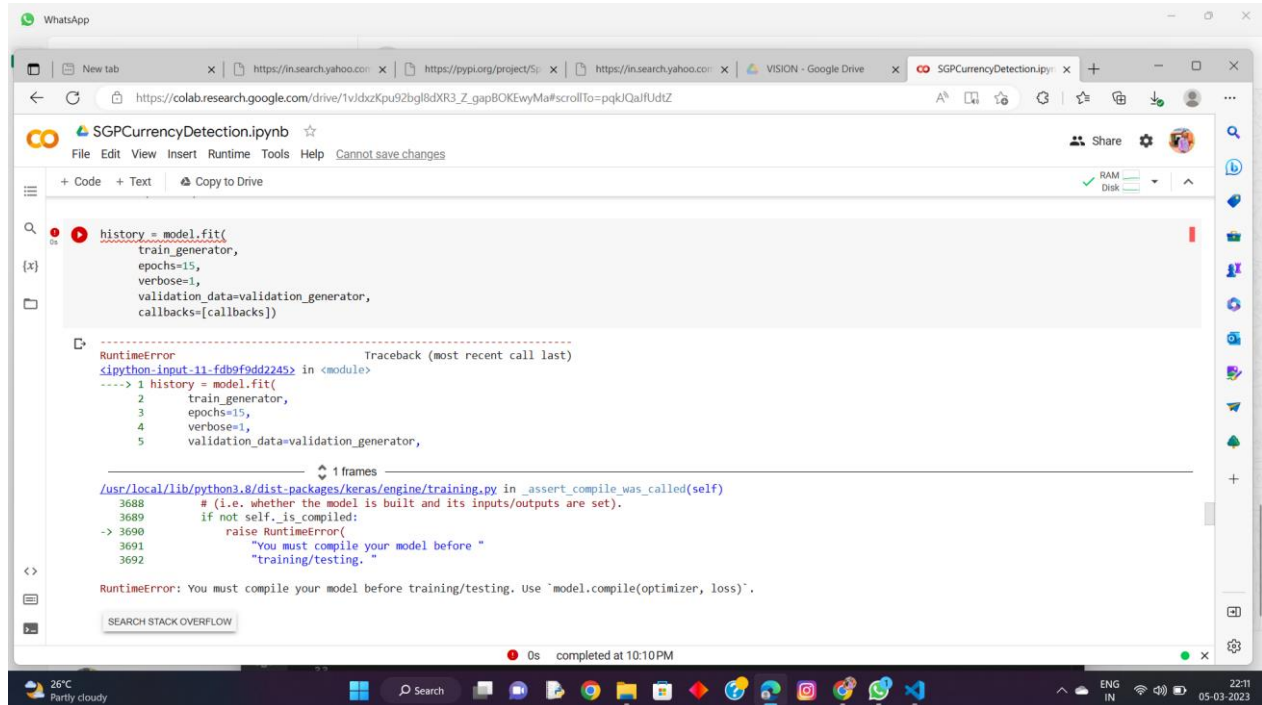
```
17
18     try:
19
20         with aa.Microphone() as origin:
21             print("listening")
22             speech = listener.listen(origin)
```

The bottom panel shows the TERMINAL output for the command `python.exe c:/Users/KARIGOWDA/Documents/virtual.py`:

```
PS C:\Users\KARIGOWDA> & C:/Users/KARIGOWDA/AppData/Local/Programs/Python/Python310/python.exe c:/Users/KARIGOWDA/Documents/virtual.py
listening..
listening
result2:
{ 'alternative': [ { 'confidence': 0.88687533,
                    'transcript': 'Alexa what is the date today'},
                  {'transcript': 'Alexa what is date today'}],
  'final': True}
what is the date today
what is the date today
PS C:\Users\KARIGOWDA>
```

SNAPSHOTS

ERROR 1: RUN TIME ERRORS

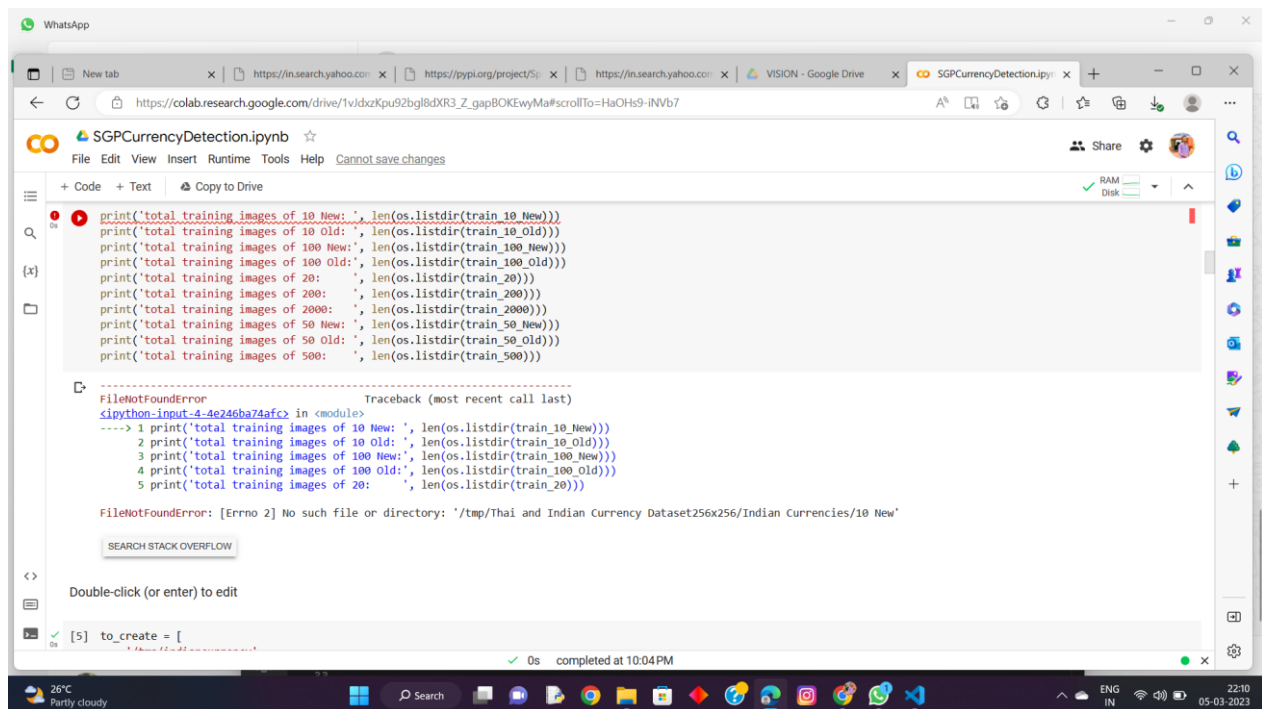


The screenshot shows a Google Colab notebook titled "SGPCurrencyDetection.ipynb". The code cell contains the following Python code:

```
history = model.fit(
    train_generator,
    epochs=15,
    verbose=1,
    validation_data=validation_generator,
    callbacks=[callbacks])
```

The output shows a `RuntimeError` with the message: "You must compile your model before training/testing. Use 'model.compile(optimizer, loss)'". The traceback indicates the error occurred in the `model.fit` method.

ERROR 2 : FILE NOT FOUND



The screenshot shows a Google Colab notebook titled "SGPCurrencyDetection.ipynb". The code cell contains the following Python code:

```
print('total training images of 10 New: ', len(os.listdir(train_10_New)))
print('total training images of 10 Old: ', len(os.listdir(train_10_Old)))
print('total training images of 100 New: ', len(os.listdir(train_100_New)))
print('total training images of 100 Old: ', len(os.listdir(train_100_Old)))
print('total training images of 20: ', len(os.listdir(train_20)))
print('total training images of 200: ', len(os.listdir(train_200)))
print('total training images of 2000: ', len(os.listdir(train_2000)))
print('total training images of 50 New: ', len(os.listdir(train_50_New)))
print('total training images of 50 Old: ', len(os.listdir(train_50_Old)))
print('total training images of 500: ', len(os.listdir(train_500)))
```

The output shows a `FileNotFoundError` with the message: "[Errno 2] No such file or directory: '/tmp/Thai and Indian Currency Dataset256x256/Indian Currencies/10 New'". The traceback indicates the error occurred in the `os.listdir` function.

8. CONCLUSION

The package was designed in such a way that future modifications can be done easily. The following conclusions can be deduced from the development of the project:

- ❖ Automation of the entire system improves the efficiency
- ❖ It provides a friendly graphical user interface which proves to be better when compared to the existing system.
- ❖ It gives appropriate access to the authorized users depending on their permissions.
- ❖ It effectively overcomes the delay in communications.
- ❖ Updating of information becomes so easier
- ❖ System security, data security and reliability are the striking features.
- ❖ The System has adequate scope for modification in future if it is necessary.

9. REFERENCE

1. D. Pilling, P. Barrett and M. Floyd, Disabled people and the Internet: experiences barriers and opportunities, 2004.
2. https://en.wikipedia.org/wiki/Virtual_assistant
3. https://www.researchgate.net/publication/264001644_Virtual_Personal_Assistant
4. <https://www.youtube.com/watch?v=JotriGSKgxo>