Summary Report

Mini project Group Member

CHAN Tickey Shek Nam(Team leader)	200064348
CHENG HO MAN	200169785
XU HAO LE	200057879

Content

Background

Voice systems are systems that a user interacts with by listening to spoken prompts from an autom ated system.

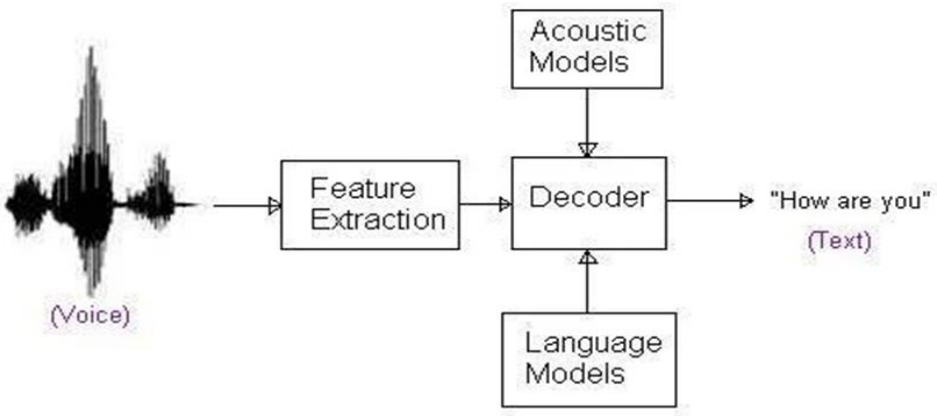
What is Speech recognition?

- Speech recognition is an interdisciplinary subfield of computer science and computational linguistics.

- It has developed some methods and technologies that can recognize and translate spoken l anguage into text through computers.

- It is also called Automatic Speech Recognition (ASR), Computer Speech Recognition, or Speech to Text (STT).

Principle



Significance

In this hectic society, people will need convenience and speed, and they need an assistant to help manage your daily life all the time, so we need a voice assistant.

Python Library

- gtts
- pygame
- datetime
- speech_recognition
- temfile

Features

```
def speak(sentence, lang):
    with tempfile.NamedTemporaryFile(delete=True) as fp:
        tts = gTTS(text=sentence, lang=lang)
        tts.save('{}.mp3'.format(fp.name))
        mixer.init()
        mixer.music.load('{}.mp3'.format(fp.name))
        mixer.music.play(1)
```

Program

```
import speech_recognition as sr
from gtts import gTTS
from pygame import mixer
import tempfile
import datetime
import time

t = time.time()
dt = datetime.datetime.fromtimestamp(t)
dt_1 = datetime.datetime.fromtimestamp(t).strftime('%d')
dt_4 = datetime.datetime.fromtimestamp(t).strftime('%m')
Speech = ''
r = sr.Recognizer()


def speak(sentence, lang):
    with tempfile.NamedTemporaryFile(delete=True) as fp:
        tts = gTTS(text=sentence, lang=lang)
        tts.save('{}.mp3'.format(fp.name))
        mixer.init()
        mixer.music.load('{}.mp3'.format(fp.name))
        mixer.music.play(1)

if dt_4 == "01":
    dt_4 = "January"
if dt_4 == "02":
    dt_4 = "February"
if dt_4 == "03":
    dt_4 = "March"
if dt_4 == "04":
    dt_4 = "April"
if dt_4 == "05":
    dt_4 = "may"
if dt_4 == "06":
    dt_4 = "June"
if dt_4 == "07":
    dt_4 = "July"
if dt_4 == "08":
    dt_4 = "August"
if dt_4 == "09":
    dt_4 = "September"
if dt_4 == "10":
    dt_4 = "October"
if dt_4 == "11":
    dt_4 = "November"
if dt_4 == "12":
    dt_4 = "December"

while True:

    with sr.Microphone() as source:
        print("how can I help you....")
        speak("how can I help you....", 'en')
        audio = r.listen(source)
    Speech = r.recognize_google(audio, language='en-US')

    if Speech == "what day is it":
        speak("today is" + dt_4 + " of " + dt_1, 'en')

    else:
        speak("say it again", 'en')
```

Demonstration

link:https://youtu.be/VIyfi1z1-n4

References

- https://www.youtube.com/watch?v=dGY9en_z5bQ
- https://www.lfd.uci.edu/~gohlke/pythonlibs/
- https://www.programiz.com/python-programming/datetime/current-datetime
- https://www.programiz.com/python-programming/datetime/current-time

The objective of the project

- ### Target users

  My target users are the user group and young people who have a certain degree of knowle dge of smartphones or the early people who can’ t understand how to use the phone.

- ### Special features

  the system can analysis my voice, then save it, and convert to text

- ### Applications

  You can use your mouth to asking everything

- Call someone
- Play, pause, switch the music
- The real-time query of weather, street, and time information.
- Other functions: control window, wipers, etc.

Reason for use

1. Convenient

No matter where you go/what do you doing, you can control your appliances at any time.

2. Fast & Accurate

The speed of voice transmission is faster than typing or control and the accuracy is very hi gh.

Timeline of the project

Will be three weeks to finish this project.

in week 1,we try to design the simple flowchart of this system

in week 2, we try to design the code of the program

in week 3, we try to test and debug the program,do prepare the ppt of the present

Work distribution among members

CHAN Tickey Shek Nam(Team leader)

Responsible for programming and PowerPoint.

CHENG HO MAN

Use the network to search the voice input system program code relevant information and do the Po werPoint.Also, the demonstration video will For post-production, add subtitles.

XU HAO LE

Collect information about the background, meaning, and application of the speech system, and assi st in completing the PowerPoint and report.

Suggest any limitations of your design

At present, our design can only query the data, and the function is very single. Spoken lan guage is effective for human-to-human interaction, but it is usually severely restricted whe n applied to human-computer interaction. It may not be 100% accurate to identify, and err ors will occur. The speed of verbal expression of information is slow and short-lived, so it is difficult to review or edit, and it can seriously interfere with other cognitive tasks.

Suggest any improvement that can be done in future

I think the voice assistant can be made smarter and more diversified in the future. It can ch eck the date and check the weather, play music, and even remotely control smart furniture.

Discuss ethical issue

1. Security and privacy issues

The voice system has a certain AI function to continuously learn and improve the system's capabilities, so it will collect user-related information, which will involve security, privac y, and moral issues.

2. User privacy

During the customer's call, sensitive information (such as an address, credit card number, s ocial security number, etc.) will be shared. To ensure that only those who are properly auth orized can access this data, it needs to be encrypted and that there is an automatic mechani sm that can identify and strip any personally identifiable information (PII).

3. Storage

The storage time needs to be set. After the set time, it will be automatically and permanent ly deleted and will not be backed up to protect user data from being stolen

THE END