Chapter10: Voice broadcast and speech recognition

1.The first is voice recognition. Through Baidu voice, the Raspberry Pi can identify the audio.

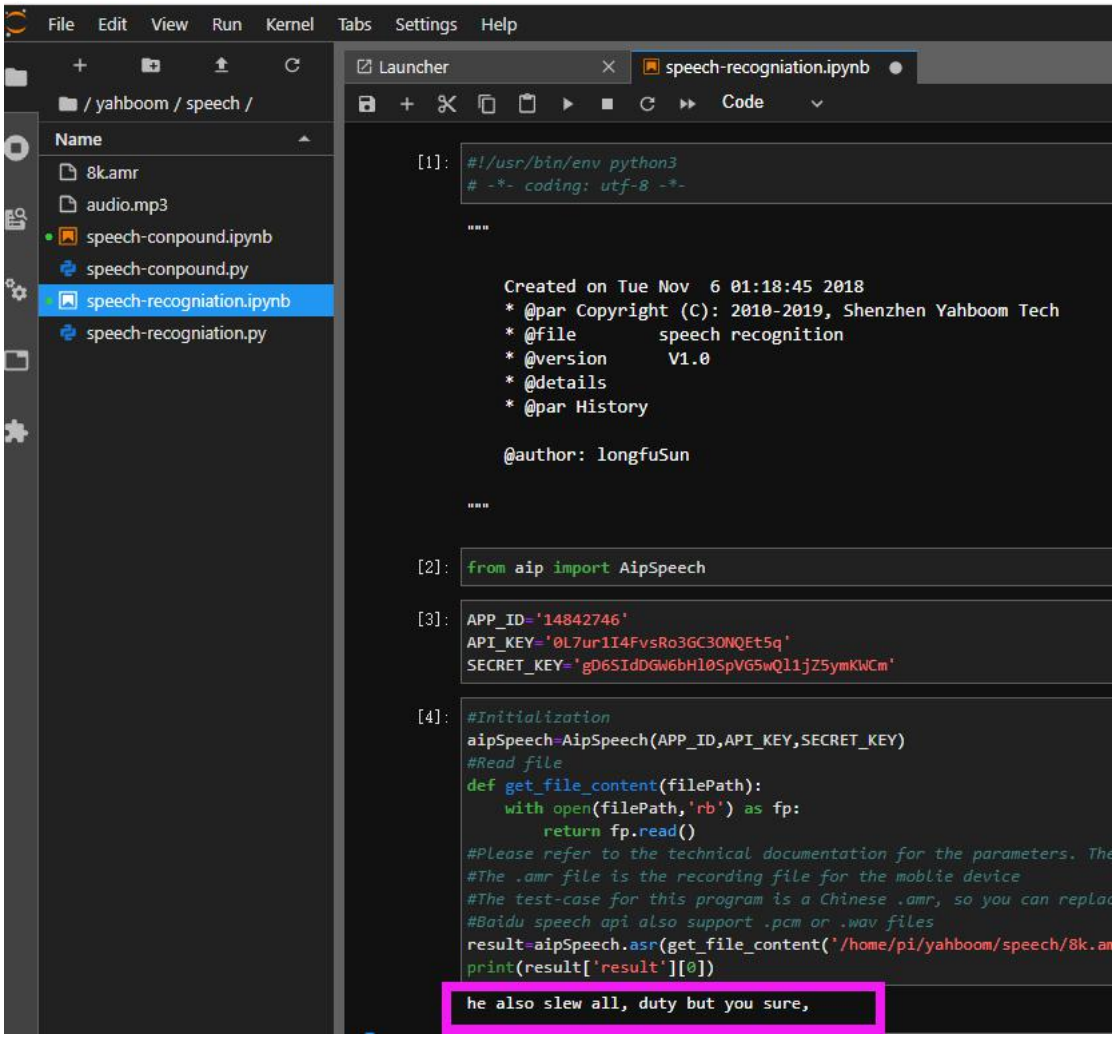
Here is a sample for testing: input URL:http://bos.nj.bpc.baidu/v1/audio/8k.amr in the browser of Raspberry Pi. It will download a sample, we need to copy the sample to the specified location, for example: /home/pi/yahboom/speech/8k.amr

The project source code is located at:
/home/pi/yahboom/speech/speech-recogniation, The code of the program is as follows:

```
#!/usr/bin/env python2
# -*- coding: utf-8 -*-
"""
    Created on Tue Nov  6 01:18:45 2018
    * @par Copyright (C): 2010-2019, Shenzhen Yahboom Tech
    * @file        speech recognition
    * @version      V1.0
    * @details
    * @par History

    @author: longfuSun
"""
from aip import AipSpeech
#You need to fill in your AppID and Appkey
APP_ID='14842746'
API_KEY='0L7ur1I4FvsRo3GC3ONQEt5q'
SECRET_KEY='gD6SIdDGW6bHl0SpVG5wQl1jZ5ymKWCm'
#Initialization
aipSpeech=AipSpeech(APP_ID,API_KEY,SECRET_KEY)
#Read file
def get_file_content(filePath):
    with open(filePath,'rb') as fp:
        return fp.read()
#Please refer to the technical documentation for the parameters. The format is amr and
#The .amr file is the recording file for the moblie device
#The test-case for this program is a Chinese .amr, so you can replace this target file
#Baidu speech api also support .pcm or .wav files
result=aipSpeech.asr(get_file_content('/home/pi/yahboom/speech/8k.amr'),'amr',8000,{
        'lan':'en',
        })
print(result['result'][0])
```

The result is as shown below.



PS: The program may run incorrectly because the Raspberry Pi does not support Chinese output by default. Please check the information to start the Chinese character environment.

2.The second is speech synthesis. The project source code is located at:
/home/pi/yahboom/speech/speech-compound
The code of the program is as follows:

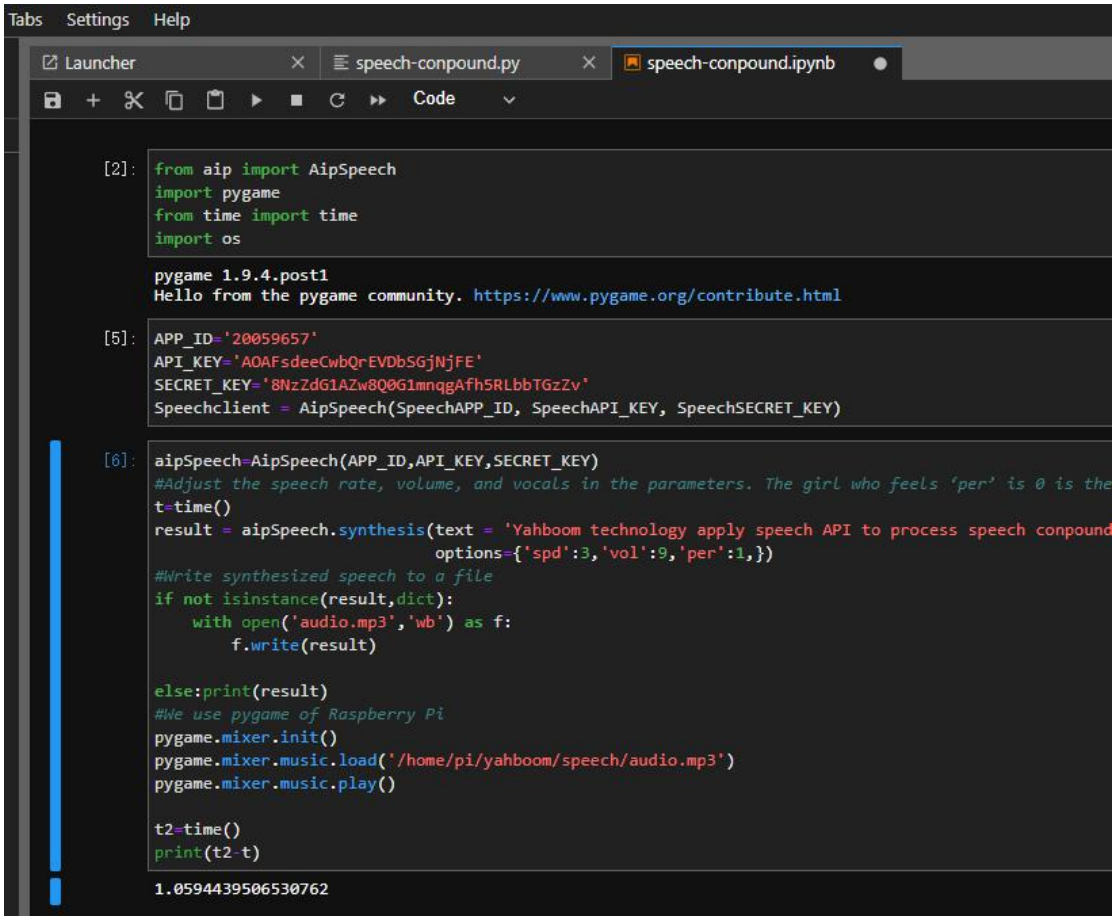
```python
#!/usr/bin/env python3
# -*- coding: utf-8 -*-
"""
    Created on Tue Nov  6 01:18:45 2018
    * @par Copyright (C): 2010-2019, Shenzhen Yahboom Tech
    * @file        speech conpound
    * @version      V1.0
    * @details
    * @par History

    @author: longfuSun
"""
from aip import AipSpeech
import pygame
import time
from time import perf_counter
import os
#You need to iput your Appid and Appkey
APP_ID='20059657'
API_KEY='AOAFsdeeCwbQrEVDbSGjNjFE'
SECRET_KEY='8NzZdG1AZw8Q0G1mnqgAfh5RLbbTGzZv'

aipSpeech=AipSpeech(APP_ID,API_KEY,SECRET_KEY)
#Adjust the speech rate, volume, and vocals in the parameters. The girl who feels 'per' is 0 is the mo
t=perf_counter()
result = aipSpeech.synthesis(text = 'Yahboom technology apply speech API to process speech conpound',
                             options={'spd':3,'vol':9,'per':1,})
#Write synthesized speech to a file
if not isinstance(result,dict):
    with open('audio.mp3','wb') as f:
        f.write(result)

else:print(result)
#We use pygame of Raspberry Pi
pygame.mixer.init()
pygame.mixer.music.load('/home/pi/yahboom/speech/audio.mp3')
pygame.mixer.music.play()
time.sleep(10)
t2=perf_counter()
print(t2-t)
```

After running the program, we can hear the speaker playing "Yahboom technology apply speech API to process speech conpound".


Tabs
Settings
Help
Launcher
speech-conpound.py
speech-conpound.ipynb
Code
[2]:
from aip import AipSpeech
import pygame
from time import time
import os
pygame 1.9.4.post1
Hello from the pygame community. https://www.pygame.org/contribute.html
[5]:
APP_ID='20059657'
API_KEY='AOAFsdeeCwbQrEVDbSGjNjFE'
SECRET_KEY='8NzZdG1AZw8Q0G1mnqgAfh5RLbbTGzZv'
Speechclient = AipSpeech(SpeechAPP_ID, SpeechAPI_KEY, SpeechSECRET_KEY)
[6]:
aipSpeech=AipSpeech(APP_ID,API_KEY,SECRET_KEY)
#Adjust the speech rate, volume, and vocals in the parameters. The girl who feels 'per' is 0 is the
t=time()
result = aipSpeech.synthesis(text = 'Yahboom technology apply speech API to process speech conpound
options={'spd':3,'vol':9,'per':1,})
#Write synthesized speech to a file
if not isinstance(result,dict):
with open('audio.mp3','wb') as f:
f.write(result)
else:print(result)
#We use pygame of Raspberry Pi
pygame.mixer.init()
pygame.mixer.music.load('/home/pi/yahboom/speech/audio.mp3')
pygame.mixer.music.play()
t2=time()
print(t2-t)
1.0594439506530762