

5G智能物联网

语音对话机器人案例

广和通大学计划项目组

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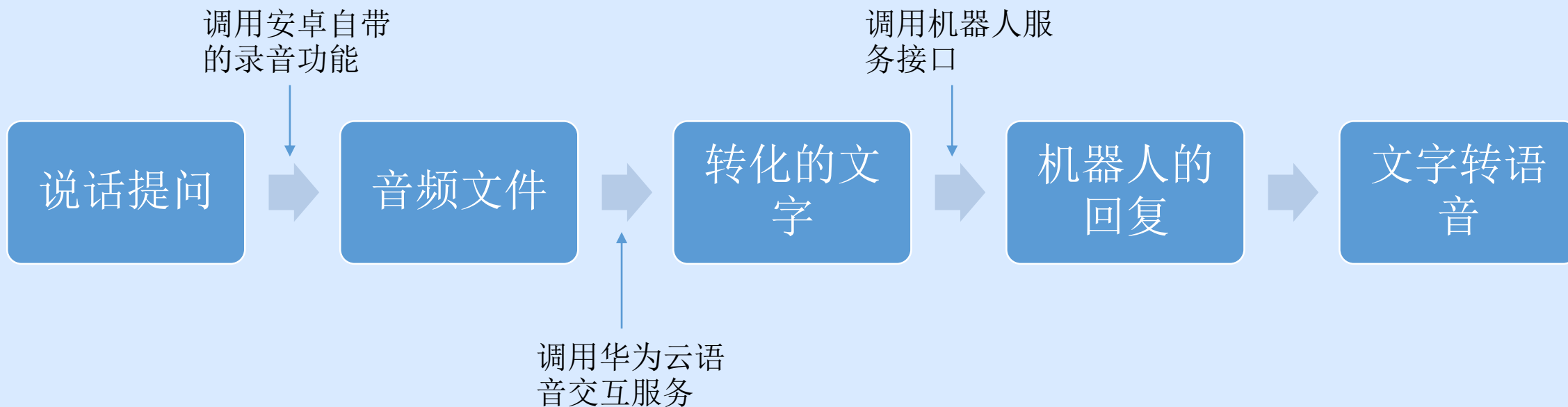
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1

语音对话机器人的构建流程

语音对话机器人的构建流程



2

语音生成音频文件

语音生成音频文件

调用安卓系统的录音功能

```
1  import android
2  import time
3  import shutil
4
5  droid=android.Android()
6  droid.recorderStartMicrophone('/sdcard/Music/111.mp3')
7  print("请说话")
8  time.sleep(3)
9  print("已结束")
10 droid.recorderStop()
11
12 # 移动文件
13 shutil.move(r'/sdcard/Music/111.mp3', r'/home/voice/222.mp3')
```

3

音频文件转文字

音频文件转文字

调用华为云控制台-语音交互服务-一句话识别功能（收费项目）

<https://console.huaweicloud.com/sis/?agencyId=0d3e3d58ad8090211fafc01918c72eec®ion=cn-north-4&locale=zh-cn#/sis/overview>



音频文件转文字

华为云上有提供python的代码教程

<https://codelabs.developer.huaweicloud.com/codelabs/samples/911195a9b3ec426398743d98d716bcdc>

The screenshot shows a web browser displaying a Codelabs page for '一句话识别'. The page is in Chinese and includes a navigation sidebar on the left with six items: 1. 功能介绍 (Function Introduction), 2. 版本说明 (Version Information), 3. 前提条件 (Prerequisites), 4. 示例代码 (Example Code), 5. 参考 (References), and 6. 修订记录 (Revision History). The main content area is divided into three sections: '一句话识别' (One-Sentence Recognition) with author 'Codelabs助理' and upload time '2021/07/31 10:04:41'; '功能介绍' (Function Introduction) describing the use of Huawei Cloud's voice interaction SDK for binary audio data to convert audio to text within 1 minute, supporting Chinese, dialects, and specific regional dialects like Sichuanese, Cantonese, and Shanghai dialect; '版本说明' (Version Information) stating the SDK version is 1.6.1; and '前提条件' (Prerequisites) with one condition: '1、在保证华为云账号余额充足或已购买套餐包的情况下，语音交互服务无需申请即可使用。' (1. Under the condition of sufficient account balance or a purchased package, the voice interaction service can be used without application.) On the right side of the main content, there are two buttons: '运行调试' (Run and Debug) and '浏览代码' (View Code). The browser's address bar shows the URL: 'codelabs.developer.huaweicloud.com/codelabs/samples/911195a9b3ec426398743d98d716bcdc'. The browser's taskbar at the top shows various open applications like 'oa', 'PLM下资料', 'JIRA问题', and 'Windchill - 主页'.

4

调用机器人服务实现对话

调用机器人服务实现对话

使用天行数据-天行机器人服务

<https://www.tianapi.com/apiview/47>

The screenshot displays the TianAPI website interface. At the top, there is a navigation bar with the TianAPI logo and links for '首页' (Home), '接口' (APIs), '会员' (Members), and '关于' (About). A search bar labeled '搜索API' is also present. The main content area features a card for the '天行机器人' (Tianxing Robot) API, which includes a robot icon, the title '天行机器人', and a description '一个有趣的知识库机器人'. Below the description, there are membership options: '会员免费' (Member Free) and '正常服务' (Normal Service). A text box indicates that the API offers 100 free calls per day for ordinary members, 10,000 for advanced members, and 500,000 for gold members. At the bottom of this card, three buttons are visible: '已申请' (Already Applied), '收藏' (Favorite), and '在线测试' (Online Test). The '已申请' button is highlighted with a red border. To the right of the main card, there is a '相关接口 RELATED' section with a '更多' (More) link, listing other APIs like '二维码编码' (QR Code Encoding) and '天行机器人' (Tianxing Robot). A vertical sidebar on the right side of the page contains icons for '工单' (Tickets) and '客服' (Customer Service).

调用机器人服务实现对话

天行数据提供了调用机器人服务的Python代码教程

参考代码

此处代码仅演示关键请求片段，实际使用请根据具体环境修改
如需深入学习参考，可[点击此处](#)查看部分第三方完整开源项目

PHP Python Java jQuery Node Go WxApp Vue Ruby >

```
# -*- coding: utf-8 -*-
import http.client, urllib, json
conn = http.client.HTTPSConnection(' apis.tianapi.com') #接口域名
params = urllib.parse.urlencode({'key': '你的APIKEY', 'question': 'robot'})
headers = {'Content-type': 'application/x-www-form-urlencoded'}
conn.request('POST', '/robot/index', params, headers)
tianapi = conn.getresponse()
result = tianapi.read()
data = result.decode('utf-8')
dict_data = json.loads(data)
print(dict_data)
```

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天行数据平台上线多个开发小工具

客服

5

文字转语音

文字转语音

这里提供两种文字转语音的方法，供大家参考

方法一：gTTS (Google Text-to-Speech):

这是由Google提供的一个简单易用的库，可通过网络API将文本转换为语音。使用gTTS库需要联网。

安装方式：
pip install gTTS
pip install pygame

使用方法：

```
from gtts import gTTS
import pygame
tts = gTTS(answer, Lang='zh')
tts.save('output.mp3')
pygame.mixer.init()
pygame.mixer.music.load("output.mp3")
pygame.mixer.music.play()
#等待音频播放完成
while pygame.mixer.music.get_busy():
    continue
pygame.mixer.music.stop()
```

文字转语音

这里提供两种文字转语音的方法，供大家参考

方法二：pyttsx3

这是一个跨平台的文本到语音库，支持多个TTS引擎。它可以在Windows，Linux和Mac上使用，并且不需要联网。

安装方式：pip install pyttsx3

使用方法：

```
import pyttsx3
"""语言播放"""
engine = pyttsx3.init()
engine.setProperty('voice', 'zh')
engine.setProperty('rate', 150) # 设置语速为 150
engine.setProperty('volume', 0.5) # 设置音量为 0.7
engine.say(answer)
engine.runAndWait()
```

6

语音对话机器人完整代码

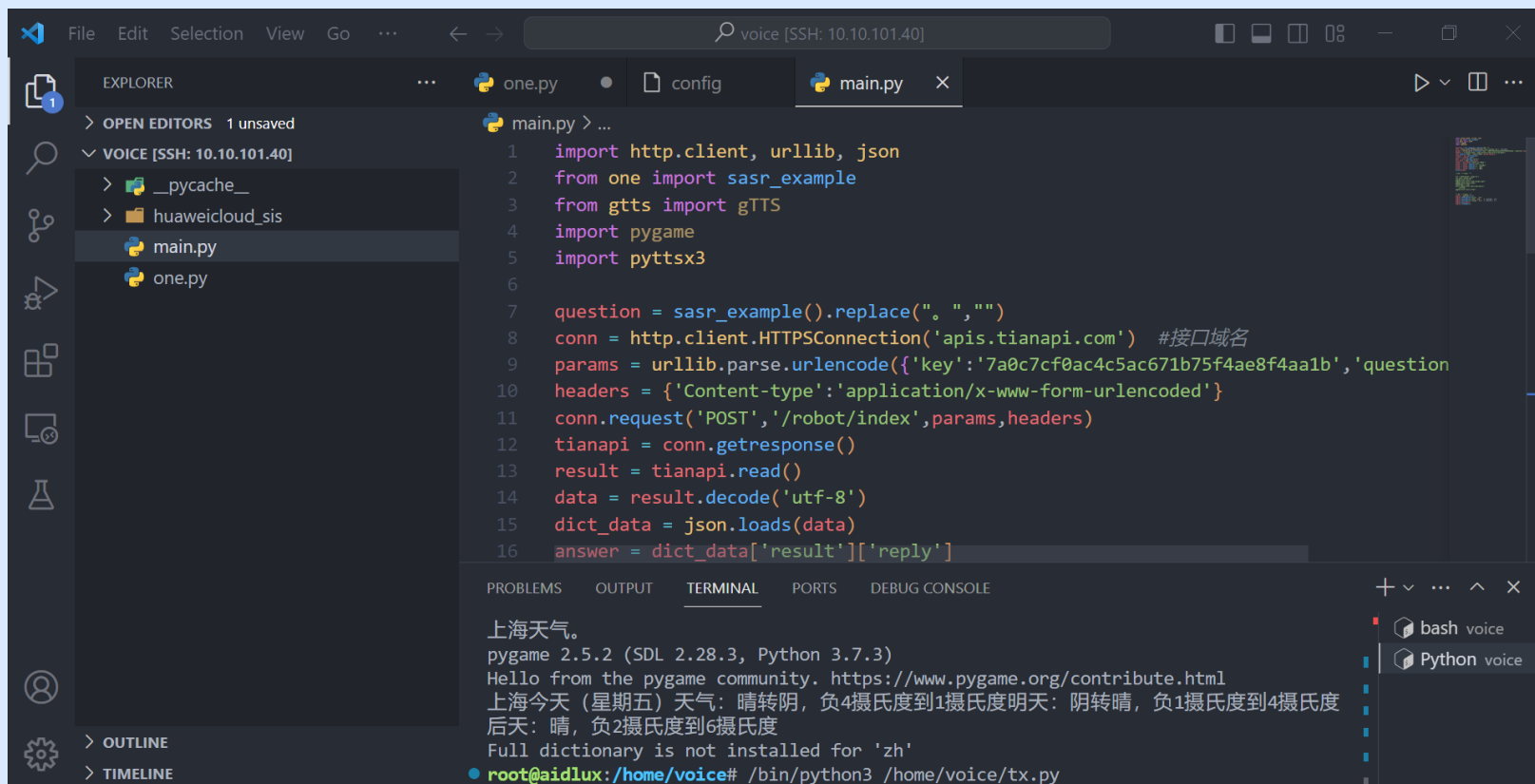
语音对话机器人完整代码

完整代码分为两个文件

one.py实现了录音转语音文件，语音文件识别成文字
main.py实现了机器人文字对话服务，最后文字转语音
运行main.py可开始测试工程

工程代码链接：

<https://pan.baidu.com/s/18PzDYgvTZSpzCzxSJ7bl-A?pwd=ffaf>



```
main.py > ...
1 import http.client, urllib, json
2 from one import sasr_example
3 from gtts import gTTS
4 import pygame
5 import pyttsx3
6
7 question = sasr_example().replace(".", "")
8 conn = http.client.HTTPSConnection('apis.tianapi.com') #接口域名
9 params = urllib.parse.urlencode({'key': '7a0c7cf0ac4c5ac671b75f4ae8f4aa1b', 'question
10 headers = {'Content-type': 'application/x-www-form-urlencoded'})
11 conn.request('POST', '/robot/index', params, headers)
12 tianapi = conn.getresponse()
13 result = tianapi.read()
14 data = result.decode('utf-8')
15 dict_data = json.loads(data)
16 answer = dict_data['result']['reply']
```

```
PROBLEMS OUTPUT TERMINAL PORTS DEBUG CONSOLE
上海天气。
pygame 2.5.2 (SDL 2.28.3, Python 3.7.3)
Hello from the pygame community. https://www.pygame.org/contribute.html
上海今天 (星期五) 天气: 晴转阴, 负4摄氏度到1摄氏度明天: 阴转晴, 负1摄氏度到4摄氏度
后天: 晴, 负2摄氏度到6摄氏度
Full dictionary is not installed for 'zh'
root@aidlux: /home/voice# /bin/python3 /home/voice/tx.py
```

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