“Mental health assistant”

1. background and demand of creation：

My mother is a psychological teacher. She often tells me that because of the high pressure on study and the high expectation of family, the mental health of students has become one of the hot issues of concern in the society today. The increase of demand has caused a certain burden on the psychological teachers and did not have enough time and energy to accompany each student. To improve this situation, we think about using pepper to help students（ Figure 1)

Figure 1

2. general design:：

The main functions are: Hello, goodbye, thank you, chat and talk, interactive games（ Figure 2)

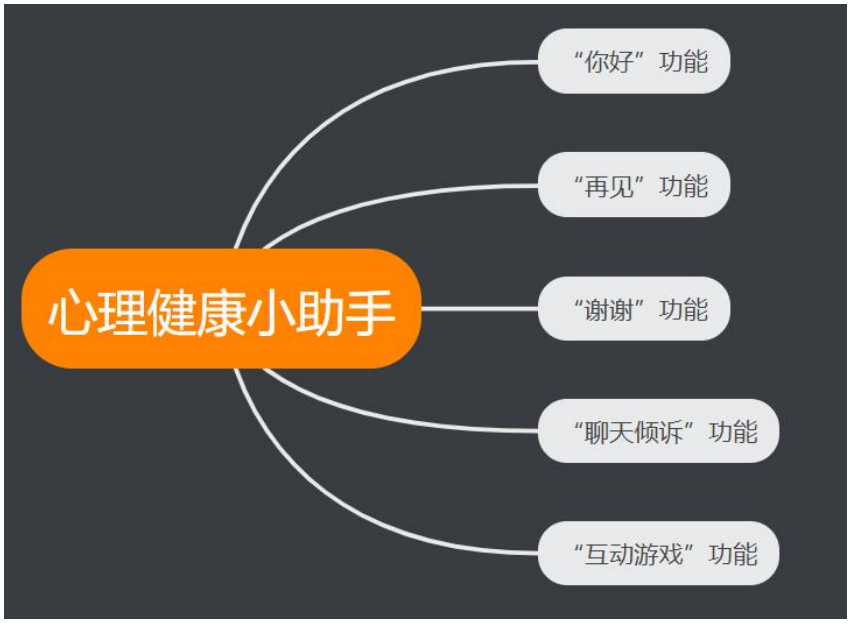

Figure 2

3. detailed design：

3.1chat and talk

Mainly use Baidu AI voice recognition (voice to text) and Turing robot AI question and answer system. Figure 3 is the implementation idea, figure 4 is the main implementation flow, and figure 5 is the main code.

(refer to Baidu AI official document：https://ai.baidu.com/ai-doc/SPEECH/Vk38lxily)

(refer to Turing robot official document：http://www.turingapi.com/)

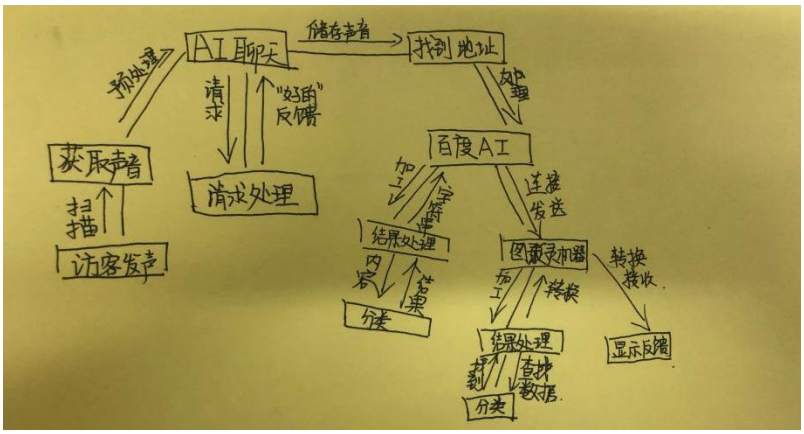

图 3

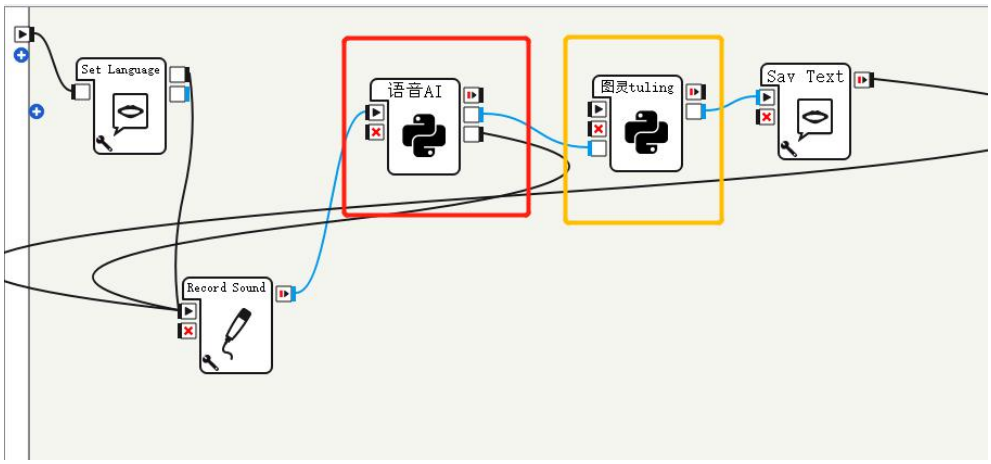

图 4

```
        req = json.dumps(req).encode('utf8')
        # print(req)
        http_post = urllib2.Request(api_url, data=req,
headers={'content-type': 'application/json'})
        response = urllib2.urlopen(http_post)
        response_str = response.read().decode('utf8')
        # print(response_str)
        response_dic = json.loads(response_str)
        # print(response_dic)
        intent_code = response_dic['intent']['code']
        results_text = response_dic['results'][0]['values']['tex
        return results_text
        #print('机器人1号：', results_text)
        # print('code：' + str(intent_code))
    except KeyError:
        err_text = '出错啦~~，下次别问这样的问题了'
        return err_text
        #print('出错啦~~，下次别问这样的问题了')
```

```
# 普通版
DEV_PID = 1537  # 1537 表示识别普通话，使用输入法模型。1536表示识别普通话，
使用搜索模型。根据文档填写PID，选择语言及识别模型
ASR_URL = 'http://vop.baidu.com/server_api'
SCOPE = 'audio_voice_assistant_get'
TOKEN_URL = 'http://openapi.baidu.com/oauth/2.0/token'
params = {'grant_type': 'client_credentials',
          'client_id': API_KEY,
          'client_secret': SECRET_KEY}
post_data = urlencode(params)
if (IS_PY3):
    post_data = post_data.encode('utf-8')
req = Request(TOKEN_URL, post_data)
try:
    f = urlopen(req)
    result_str = f.read()
except URLError as err:
    print('token http response http code : ' + str(err.code))
    result_str = err.read()
if (IS_PY3):
    result_str = result_str.decode()

print(result_str)
```

图 5

3.2 interactive games

Figure 6 is the realization idea, and Figure 7 is the main implementation flow.

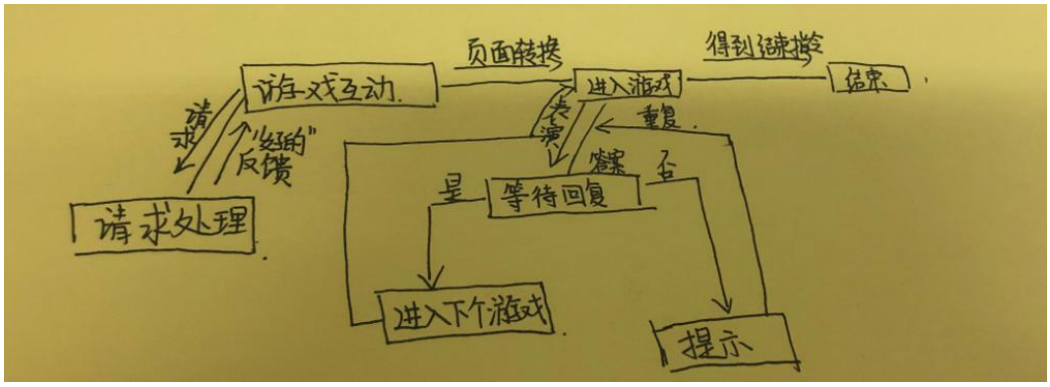

Figure 6

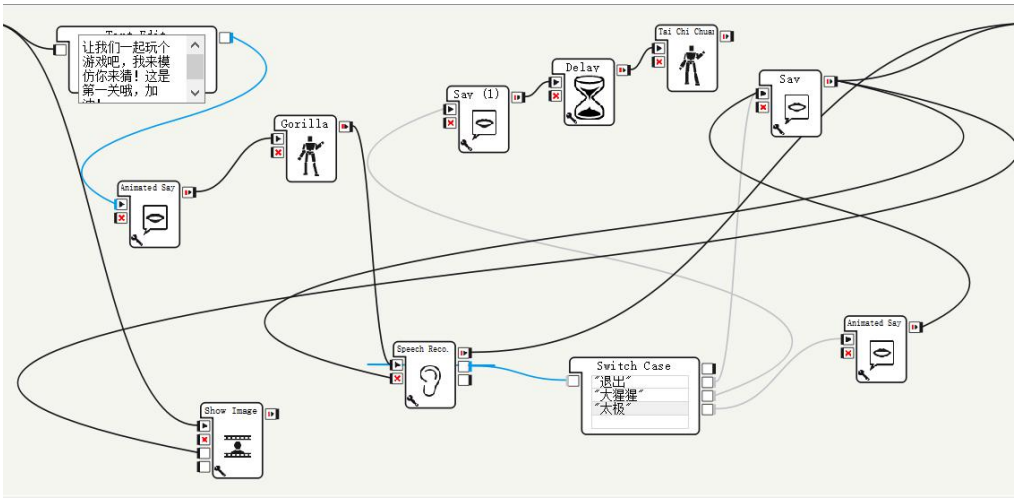

Figure 7

3.3"Hello, goodbye, thank you" function

Figure 8 shows the "hello" function, and the robot makes goodbye while talking.

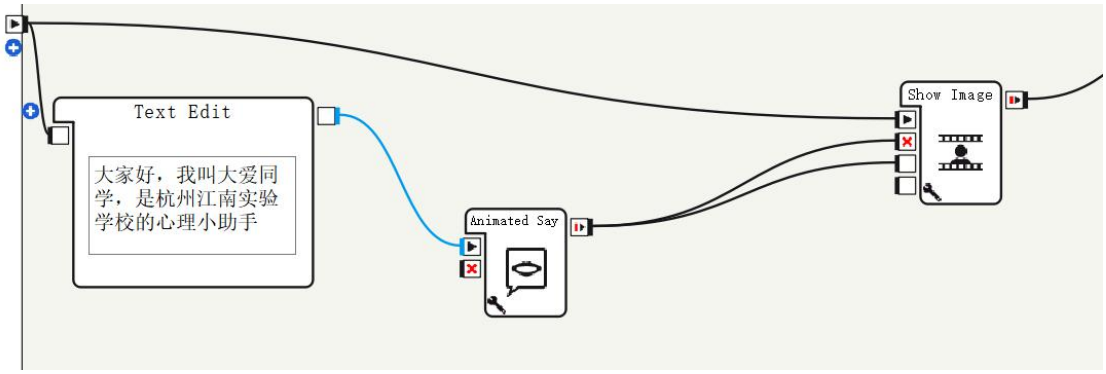

Figure 8

4. project programming (main difficulties):

Chat and talk: get audio - get audio data address URL Baidu AI string feedback.

After obtaining the data returned by Baidu AI, we found that there was Chinese code disorder. We learned some coding knowledge under the guidance of our teacher. Then, through consulting the data, we tried to adapt the program constantly to solve this problem. This test our practical ability to analyze the matter and find the problem quickly, and the spirit of persistent and continuous exploration.

```
    #print(result_str)
    return result_str
# self.onStopped() #activate the output of the box


def onInput_onStart(self):
    pass
def onInput_input_text(self, p):
    try:
        self.logger.info(p)
        #乱码转为中文
        text = self.fetch_token(p).encode('utf-8').decode('unicode_escape')
        #self.logger.info(text)
        text = eval(text)
        self.logger.info(text)
        # sentence = text['result']
        #self.logger.info(sentence)
        #\u59d3\u540d
        sentence=text['姓名']['words']

        self.output_text(sentence)
    except:
        self.logger.info("error")
        self.error()

def onInput_onStop(self):
    self.onUnload()  # it is recommended to reuse the clean-up as the box is stopped
    self.onStopped()  # activate the output of the box
```

5. future outlook

To increase the game types and psychological testing function of "love students", and better serve the students. Psychological teachers can use "love students" to explore solutions to problems, thus promoting the development of mental health work.

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