

Assignment 3

Cantonese Translation with Road Guiding

Due : Dec 28, 2012 11:55pm

This assignment consists of two parts. In the first part, you should complete the Cantonese speech recognition & synthesis part. In the second part, you will implement the map feature together with the part 1 in the same screen. It is optional that you may implement the path finding through voice input to make it more interesting. But you may choose to just implement a map into your program as well.

Part 1 (40%)

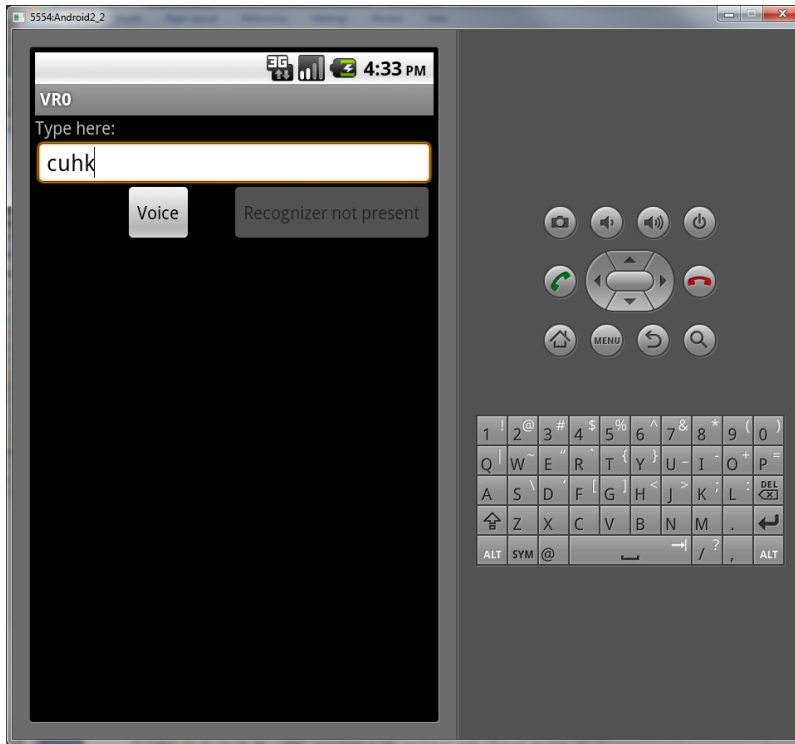
Siri is a personal assistant application for iOS. The application uses a natural language user interface to answer questions, make recommendations, and perform actions by delegating requests to a set of web services. It attracts a lot of attentions after the release of iPhone 4S as it is bundled with the phone as part of the new features. A typical complaint is that it lacks the Cantonese or Mandarin input, which makes using the phone less fun.

In this assignment, let us write an Android version (highly simplified, of course) of Siri to have some fun on programming. However as some of our students may have difficulty using physical device for speech input, the assignment specification is reduced in its capability by making the part of speech input optional. Obviously it will reduce the fun, but you will still master the way to write a speech program, and some basic aspect in writing Android app in this assignment.

First of all, in this part, we need to do two complicated tasks : Cantonese speech recognition, and Cantonese speech synthesizing. They are very difficult academic problems before, but now being mostly solved, and with commercial engines available. Basically what you need to do in this assignment is building up the linkage between these two tasks through the Intent feature in Android.

Program Requirement

1. The program should display a screen similar to that of below. In it, the speak button, when detecting no speech recognizer present, should display "Recognizer not present" button. And the app will only speak the text typed into the text box . Otherwise, a button with text "Speak" should appear to wait for user pressing.



2. If the user tap on the “speak” button, the recognizer should be activated to let the user speak. Three of the recognized values should be returned and displayed in the list view at the bottom of the screen. The speech synthesizer should now speak out the three recognized alternatives.
3. If the system is an emulated one, then the program should speak any text with the text box when the button “voice” is being pressed.

The program is really very simple as it just aim at let you have a taste of Android programming. For those students who are interested to extend the features, you are welcomed to enhance the program.

You should first try the Hello world tutorial in order to have more understanding on the Android environment first.

Appendix

Background of this App

Cantonese Speech recognition

Google launch the Cantonese speech input web search feature on Dec 2010. The feature accept Cantonese recognition, and now is available for Android, iphone and desktop PC with Chrome installed.

Starting from Android 2.3.3, the voice recognition feature is being installed automatically on the device if it is a smartphone. However if your device is a tablet without microphone, or an Android device of version earlier , you

need to install Google Voice search app for our assignment. The app is free and available through Google Play on Android.

<http://www.google.com/mobile/voice-search/>

Once installed, go to the Setting page and choose “Voice input and output” option, within it, tap “Voice recognition setting”. Here pick Chinese, Yue (Hong Kong, traditional)” as the Language option to make it work for Cantonese. For those who are working it only on the simulator,

Cantonese Speech Synthesizing

It is another advance research area. You can also install Cantonese speech synthesizer, but it is only free for 14 days .

Go to the link below to installed the Cantonese speech data, and also the svov text to speech engine.

http://www.androidzoom.com/android_applications/communication/svox-cantonese-hei-wan-trial_bmuyi.html?nav=related

Text-to-speech engine

http://www.androidzoom.com/android_applications/libraries_and_demo/classic-text-to-speech-engine_gwsa.html?nav=mfta

Android Speech Recognition & Synthesis

Android provides framework support for both speech synthesizing and recognition. It is also a good exercise for you to learn the Intent programming on Android platform.

The link below has a detail description on how to use the speech recognition engine.

<http://android-developers.blogspot.hk/search/label/Speech%20Input>

And examine the page below for speech synthesizer usage.

<http://android-developers.blogspot.hk/2009/09/introduction-to-text-to-speech-in.html>

Submission

You should packed development folder i.e. folder containing both the apk and all Java assets as well as resources, and zip the folder into the zip or rar file named “**3310_asg2_Part1_Android**”, and submitted it into our assignment collection slot in Blackboard before the deadline, Dec 28 , 2012 11:55pm.

Late submissions will risk a mark deduction from 5% to 30% if they are being done within 24 hours after the deadline. Submission later than Dec 28 11:55pm won’t be considered.

Part 2 (60%)

At this point, you should have more understanding on Android programming as well as the intent usage. Now let us proceed to add location features to your app.

Google Maps API provides enormous support to developers so that they can embed a map view in their app easily, but at that same time showing great map features to the user. Adding map view to your own program is in fact quite easy. But to do this, you need to go through several steps first.

1. Register for your use of Map API in Google and obtain the key. You should follow the procedure listed here:
<https://developers.google.com/maps/documentation/android/mapkey>
2. Adding the library use of Map, as well as permissions needed, which is both Internet, and location information in this assignment. You may consult the following urls to add the map view to your program in Part 1.
<https://developers.google.com/maps/documentation/android/hello-mapview>

Requirements

Before you proceed to do this part, you should first make a copy of your results in Part 1 first. It is recommended you open a new project to try the Mapview tutorial to understand the properties of mapView. Once you have the confident in working on the mapView, you may proceed to do the following.

1. You need to embed a mapView into your completed project in Part 1. The mapView can be placed under those buttons and fully use the rest of the screen.
2. Your program should now still be able to do the voice recognition (or the speech synthesis if you use it on simulator) on user click button.
3. Your mapView should display your current position as an overlay centered on the map. You may use whatever icon/images to designate current position. You may use the DDMS of Eclipse to input current position if you do your program on the simulator.
4. By reading the input in the textbox or the voice input, your program should display the position of the textbox/voice input in the same map view. If the address doesn't resolve to a valid position, only the current position is showed. You may set the zoom level to 13 in case the textbox/voice input position is invalid.

Submission

You should packed all your program and related files e.g. icon file, settings etc. into a folder named **3310_asg2b**, and zip the folder into the same named zip or rar file, and submitted it into our assignment collection slot in Blackboard system before the deadline, Dec 28, 2012 11:55pm.

Late submissions will risk a mark deduction from 5% to 30% if they are being done within 24 hours after the deadline. Submission later than Dec 30 11:55pm won't be considered.