

S.M.A.R.T. Project: Streaming Multi-speaker Automatic Real-time Transcription

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Introduction

Focus: Achieve the automatic caption for streaming services.

- Use multi-speaker detection, speechto-text transcription to generate automatic transcripts.
- Use Natural-language API to achieve accurate multi-language transcription.
- Use windows console application to let user directly use our product to get transcript of user specified audio file.

Current Stage: Developed a program to be used for implementing speech-to-text and multi-speaker recognition for attach speaker tag identified to speech caption. Designed and implemented UI for app.

Future developments

Detach API:

 Design and train our own model for multi-speaker recognition and speechto-text transcription.

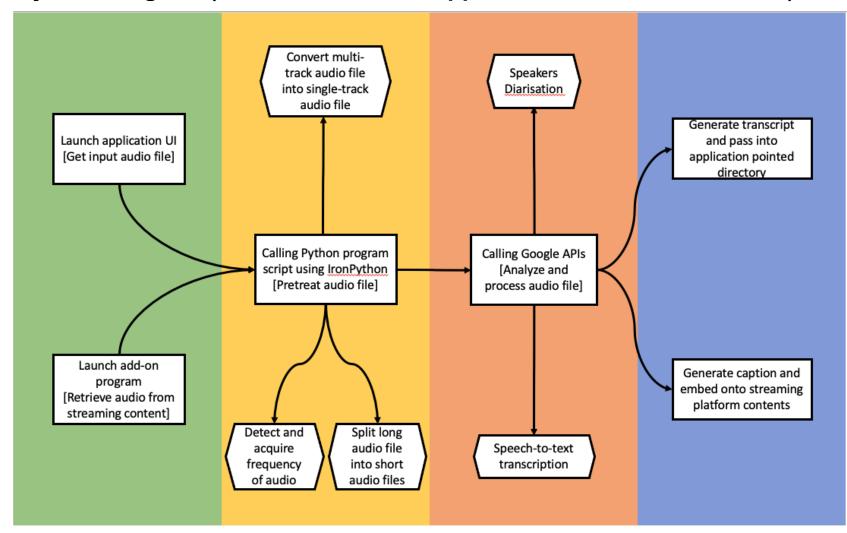
With Google APIs:

- Design and implement timer shaft to embed caption output into audio file.
- Design and implement translation use Google natural language API.
- Polish application and add-on extension version for our program.

System Components

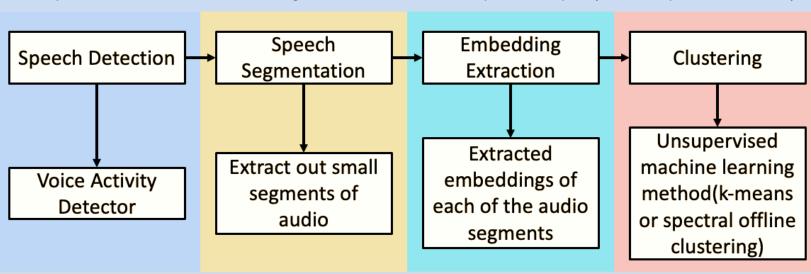
- C#
- Python
- IronPython
- Google Cloud Services
- Google Speech APIs
- Google Natural Language API
- Visual Studio

System diagram (Windows Console Application and Embed Add-on)



Method diagram

*Description of how our current using method works from input to output (arrows specified orders)



Results

Combination of Resemblyzer and Spectral Cluster Library

Reasons:

- Current using model training database not large and spread enough to get higher accuracy and better modulation for handling and analyzing audio.
- The characteristic vocal prints tracing by trained model are not enough for fully distinct different voices from speakers, need more data sets to get better pattern tracing model.
- Each team member trained model using different dataset to get better result, will compare and select after finishing initial training.
 [So far Wang's model has processed 312 data sets from 1500 sets]
- *Decided to use google speech APIs for better recognizing speakers in conversations and getting more accurate results.

Windows Console Application UI

