

COMP 195  
System Design Document

Project Title: Turbo Translator

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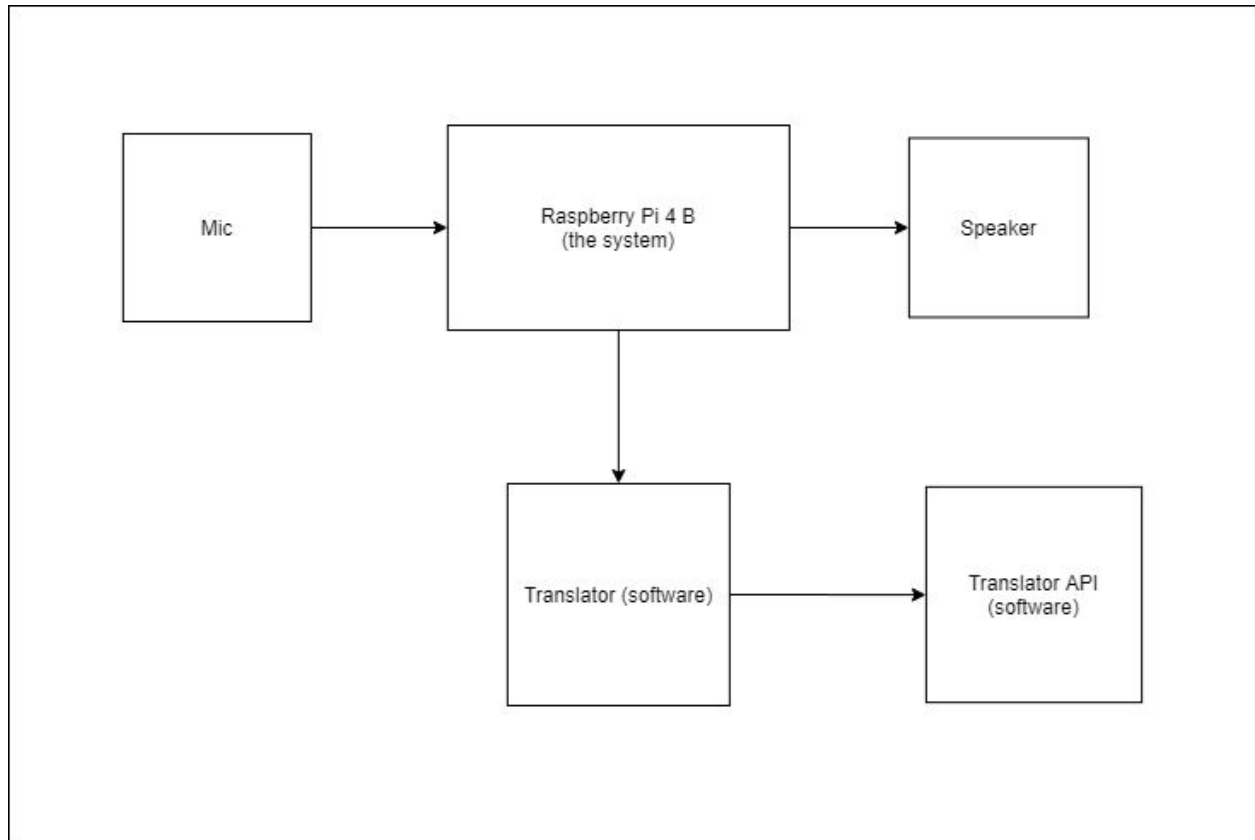
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Wiki Page:

<https://github.com/comp195/Spring2020Project-translator-team/wiki>

Last revision: 2/9/2020

# System Architecture



# Hardware, Software, System Requirements

## Hardware:

- 2 Headsets
- Raspberry Pi starter kit
- 1-4GB of RAM in test systems
- 32GB MicroSD card
- Battery pack
- Power supply

## Software:

- Google Translate API (offline or online)
- Our software to interact with the API (Turbo Translate)
- Python

## System:

- Raspian OS (Linux based)

# External Interfaces

Google Translate Documentation:

<https://cloud.google.com/translate/docs>

Universal Translator Source Code:

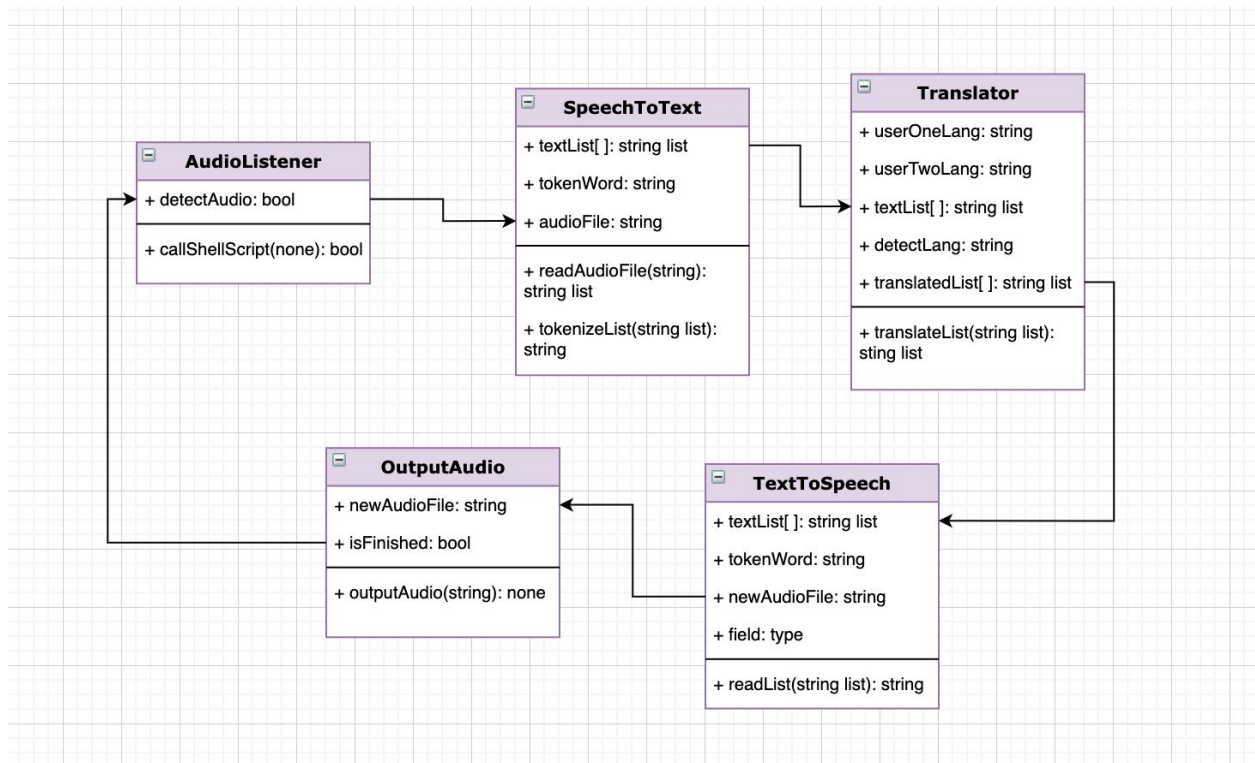
<https://github.com/dconroy/PiTranslate>

Universal Translator Documentation:

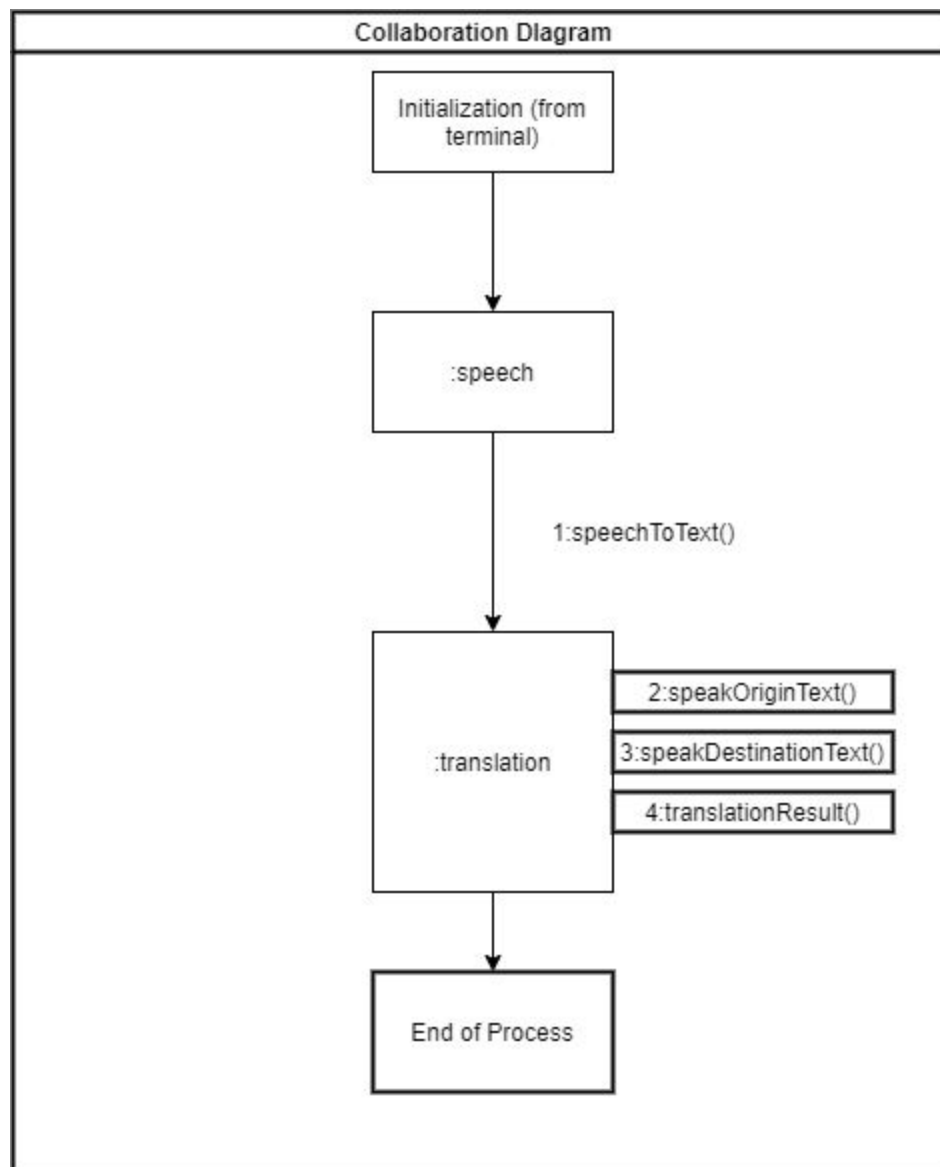
<https://www.raspberrypi.org/blog/build-a-universal-translator/>

# Software Design

UML Diagram:



## Interaction Diagram:



## Design Considerations

Our program relies heavily on the use of API calls from various sources (Google and Microsoft). Our classes are built around their functionality and use. Functions are usually single calls to the APIs and either output or return the result. We hope to find a method to do this entirely offline, so as to decrease as much delay as possible between the speech and the listener.

## User Interface (UI)

At the moment we are not planning for any web interface, other than having our scripts available on gitHub for cloning. We are planning on having an executable available on gitHub to use as a “desktop application” on the Linux environment. In quotes because it will trigger the command prompt as the interface to work on. A sample session is provided bellow:

```
pi@raspberrypi ~ $ ./stt.sh
Recording your Speech (Ctrl+C to Transcribe)
^CConverting Speech to Text...
You Said:
today is Tuesday the 29th October
Origin: en
Destination: es
Text: today is Tuesday the 29th October
http://translate.google.com/translate_tts?tl=es&q=Hoy es el martes 29 de octubre
pi@raspberrypi ~ $
```

# Glossary and References

## Sources:

<https://www.raspberrypi.org/blog/build-a-universal-translator/>

<https://cloud.google.com/translate/docs>

<https://github.com/dconroy/PiTranslate>

## Glossary:

API: Application Programming Interface

Raspberry Pi: Small form factor, all in one, functional computer system. About the size of the palm of your hand.

Mic: Microphone