

# **Computing for Human Services**

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**Shihab Ahmed Hameed**

*Electrical and Computer Engineering-IIUM University*

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## Chapter 34

### Speech to Text to Sign Language

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#### 34.1. Introduction

The deaf and hearing-impaired make up a sizable community with specific needs that operators and technology have only recently begun to target. In the US, the number of deaf people is estimated to be more than 8.6% out of the whole population. [1] The commercial market was and still working on developing software that could fill the gap between the deaf and non-deaf communities in the sense that it facilitates the communication amongst them through translating the spoken speech to text and sign language. Such commercial software is already available in the market; however, it is a lot of burden to the deaf people since they have to pay a sizeable amount of money to purchase it apart from the fact that they always would be constrained to the developer to pay extra money for any updates. Accordingly, the main motive for developing our software is to be an open source and freely available.

As it is depicted in figure 1, our software takes speech through microphone as an input then it translates it to text through some speech recognition engine. The speech engine we manipulated for this purpose is the Sphinx 3.5. The recognized text will be input to an ASL database looking for match. The database contains a number of pre-recorded signs video clips where there is mainly one video clip per word. If match occurred, the corresponding ASL translation will be shown through displaying the matched clip. Otherwise, the text will be finger-spelled. Finally, both recognized text and ASL translation will be displayed as a final output.

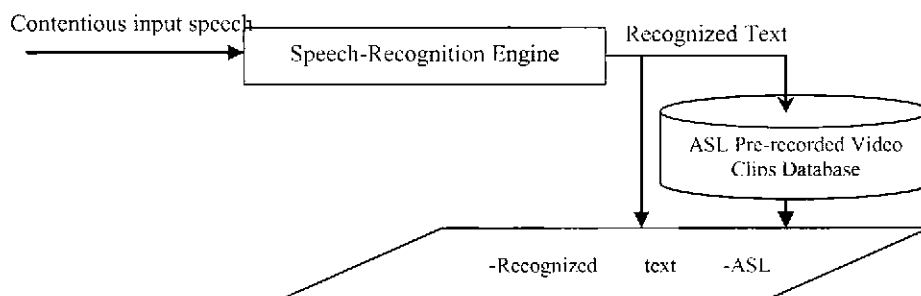


Figure 1 Main parts of *Speech to Text to ASL* software.