SIGN AI

The Design of a Smart ASL Translator

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ASL

A language for the hearing-impaired uses gestures to convey meaning.

37M

Approximately 15% of American adults (37.5 million) aged 18 and over report trouble hearing.

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Vocabulary

ASL possesses a set of 26 signs known as the American manual alphabet. These signs make use of the 19 handshapes of ASL.

Deaf awareness

Objective

To develop a smart translation device that enables deaf persons to have basic conversation with their non-deaf peers.

The Neural Network AI

The convolutional neural network (ConvNet) is used primarily for image classification. Many projects involving ASL have trained the ConvNet to recognize ASL gestures through raw visual input provided by a camera.

In our project, the Sign AI takes a different approach.

First, EMG data from sensors will be acquired and preprocessed locally then passed to the AI in cloud for ASL word identification. The ConvNet identifies patterns in the EMG data to differentiate various ASL gestures.

Features

- Portable device.
- Real-time translation through a Deep Learning AI hosted on cloud.
- Speech-to-text/text-to-speech capabilities.
- LCD user interface.