SIGN LANGUAGE TRANSLATOR

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ABSTRACT

Sign language is a language through which communication is possible without the means of acoustic sounds. Instead, sign language relies on sign patterns, i.e., body language, orientation and movements of the arm to facilitate understanding between people.

There are perhaps around two hundred sign languages in use around the world today. It has been estimated that there are between 0.9 and 1.4 million speaking impaired in India and perhaps "one of every five people who are dumb in the world, lives in India", making it the country with the largest number of dumb, and perhaps also the largest number of sign language users.

Keeping this in mind, we aim to build a sign language translator that uses a glove fitted with sensors that can interpret the 26 English letters in American Sign Language (ASL). The glove uses flex sensors, contact sensors and accelerometers to gather data on each finger's position and the hand's motion to differentiate the letters. The output of sensors and accelerometer are given to the detection unit placed on the hand.

The detection unit consists of ADC (analog to digital converter) to digitize the sensed output which is then given to the AVR based microcontroller. The translation is transmitted to the base station using a radio transmitter connected to the microcontroller.

The receiver at the base station receives the data and transfers it to the base station microcontroller interfaced with LCD and speakers to display as well as pronounce the letter respectively. The use of radio transceiver makes the glove portable and handy. The signed alphabet is then displayed on LCD as well as pronounced through the speakers.