# American Sign Language (ASL) to Text/Voice

*…..An Innovative method of communication for disabled people*

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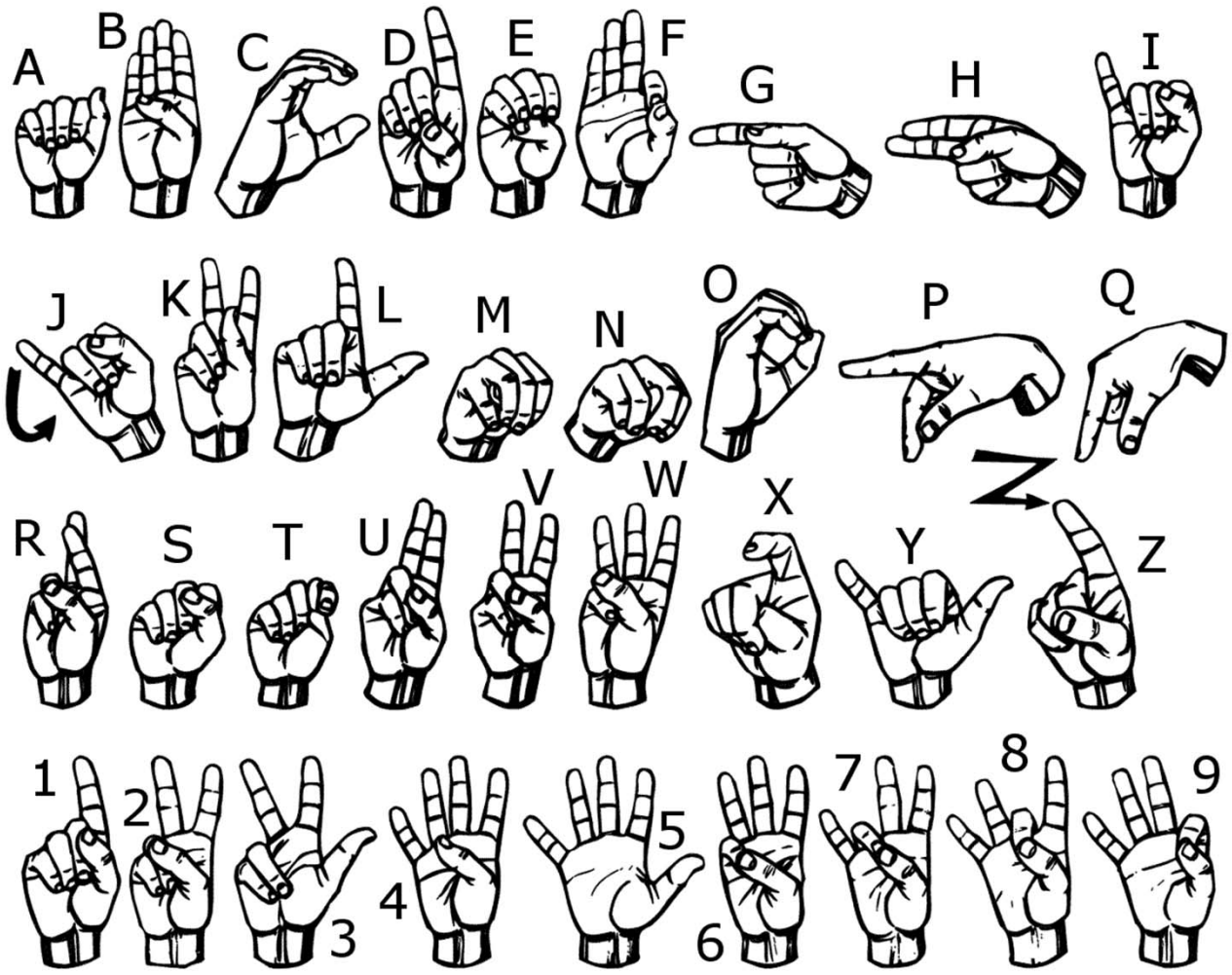
# Background

- ASL is still not efficient way of communication among deaf community as not every deaf/dumb knows ASL
- Communication between Hearing person and Deaf person is still not easier as it requires involvement of third party.
- Thus they are pressured to adopt written English as second language.

# Objective

- To build a prototype which could convert ASL to text or voice.
- A device which could bridge the gap between hearing community and deaf community without use of third party while using their first language.

# Alphabets and Numbers in ASL



# Origin of the Idea

*An idea can change the world*

- Seeing deaf person struggling to communicate in public areas such as restaurant, subways, theatres
- Ad hoc method used by deaf person such as writing, third party translator, home sign are tedious and can be frustrating.

# Technical Approach
# ASL to Text/Voice

## Setup

A device with camera and LCD display or speak which shows text or convert into speech.

## Interface

Camera captures the video of user's gesture and then convert into text which is displayed on the LCD screen or convert into voice.

## Algorithm

Image Processing : Capture the images as an input into convert into simpler and smaller vector.

Machine Learning: Thus those vectors are input to the machine learning algorithms which map those vectors and predict what class they vector belongs to and thus displays the output as text in LCD display.

Morse Code : After the images are captured and break down into simpler Morse code which is then turned into speech.

# Alternative Technical Approach

## Inverted method

Use Text/Audio to generate ASL

## Algorithm

Data Compression and Source Coding :

Using this algorithm, speech/text are compressed to encode information using fewer bits. Thus those bits are read as input using machine learning algorithm.