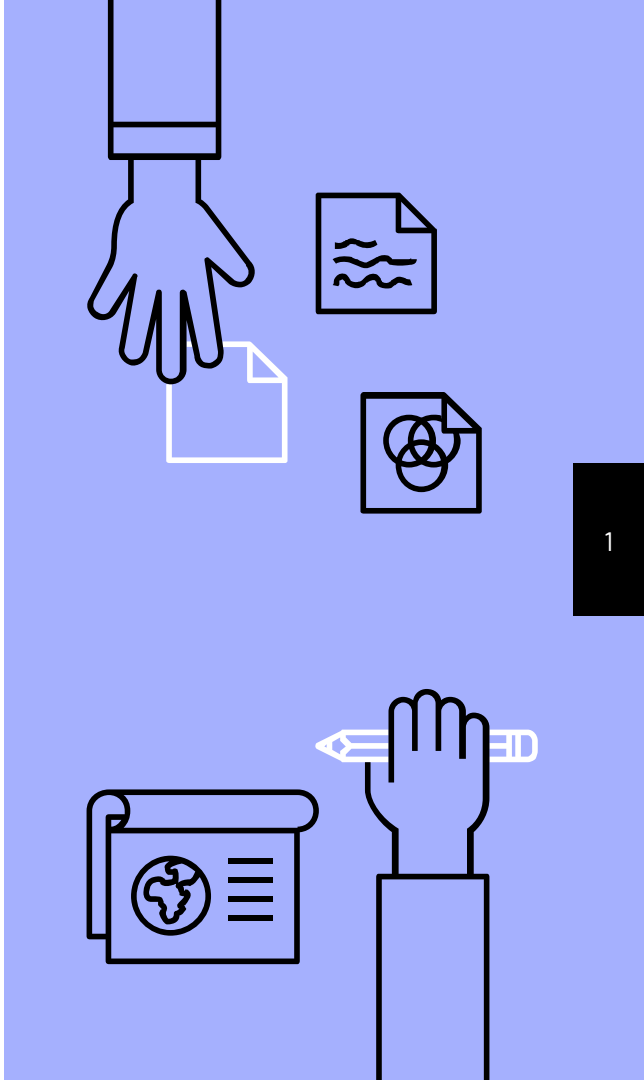
Organization Name :
VMware Software India Pvt

Problem Statement :
Talking Fingers

Team Name : **Pepehands**

Team Leader Name :
Harshit Rai

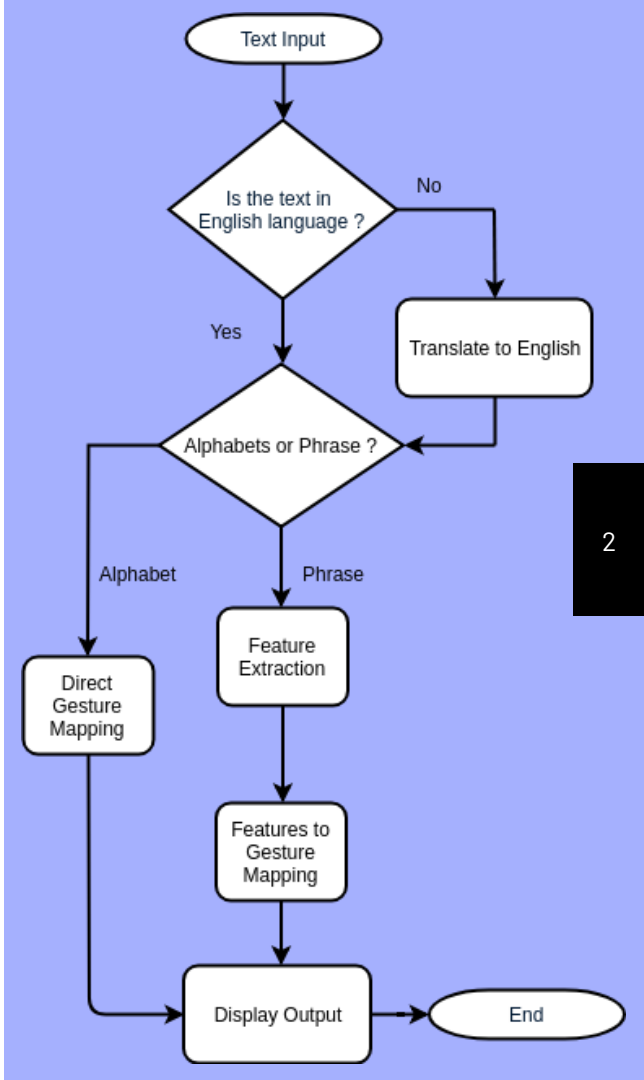
AICTE Code : **1-3508354456**



IDEA DESCRIPTION

1. The two major features of the ***Talking Finger*** mobile application are :
   a. **Real-time Text to Sign Language Translation**
   b. **Real-time Sign Language to Text Translation**

2. **Text to Sign Language Translation**
   a. The application **accepts the input text** supplied by the user.
   b. This text is then **translated into English** language to achieve high precision and translation accuracy.
   c. If the entered text is an **alphabet**, it is mapped directly to the corresponding gesture.
   d. If the text is a **phrase**, the most important features of the text are extracted using Natural Language Processing.
   e. These extracted features are then **mapped** to the nearest gestures.
   f. The mapped gestures are then **displayed** to the user.



3. **Sign Language to Text Translation**

   a. The gestures are **captured** using the mobile camera.

   b. These gestures are **identified and classified** using the Object Detection technique and Deep Neural Network.

   c. The identified gestures are then **mapped** to their corresponding labels.

   d. The above three steps are repeated iteratively to form **meaningful phrases** which will be finally **displayed** to the user.

TECHNOLOGY STACK

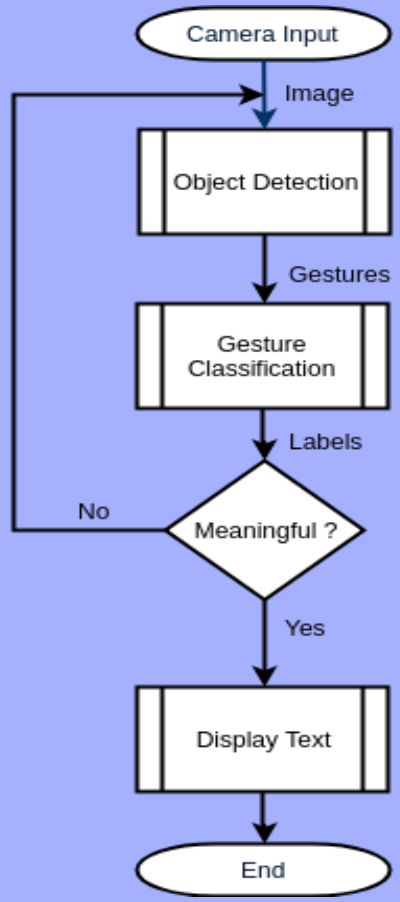
Python : For developing the neural network based model for sign-language prediction.

Tensorflow : For training the neural network.

Java : For developing the Android application.

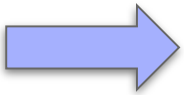
Google CloudPlatform : For hosting the backend of the application to provide regular updates and optional services and features.

Google Translate : For achieving multilingual translation.



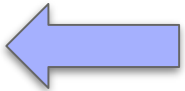
Sign Language to Text Translation

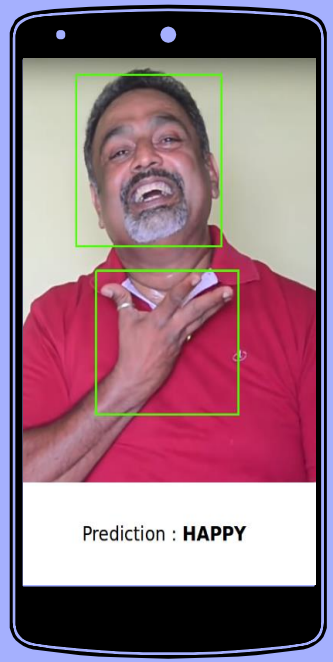
Using the Object Detection Technique and Deep Neural Network.



Text to Sign Language Translation

Using Natural Language Processing and offline Google Translator.





USE CASES

The “Talking Finger” Mobile Application can be used :

1. By educational institutes to train individuals with speech & hearing impairment.

2. By employees (facing speech & hearing impairment) working in malls, restaurants, etc.

3. For improving the quality of conversation (with speech & hearing impaired individuals) in general.

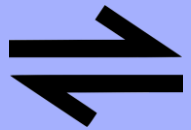
4. For eliminating the problem of unavailability of interpreters.

SHOW STOPPERS

1. Real-time processing of user data

2. Works offline post-installation

3. Bidirectional Translation (Sign Language to text as well as Text to Sign Language)



4. Powered by the ‘State of the Art’ technologies