# Sign Language Recognition

# **Project Synopsis**

Project Work Phase 1(ECS-799)

Degree

**BACHELOR OF TECHNOLOGY (CSE)**


PROJECT GUIDE:

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**COLLEGE OF COMPUTING SCIENCES AND INFORMATION TECHNOLOGY**

**TEERTHANKER MAHAVEER UNIVERSITY, MORADABA**

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# 1. Project Tittle

The title of the project is "Sign Language Detection using Action Recognition" using Python Programming Language and Deep Learning.

# 2. Domain

- Python(3.9.0): -Python is an interpreted language, high-level programming language. And supportive libraries is Used.
- Machine Learning:- Machine learning is a method od data analysis that automates analytical model building.
- TensorFlow :- TensorFlow can train and run deep neural networks for digit classification image recognition with keras which is neural network library.

# 3. Problem statement

Our team would like to develop a project that would enable deaf people to get more involved. The problem statement revolves around the idea of a camera based sign language recognition system that would be in use for the deaf for converting sign language gestures to text . All the Action which converted into the text format.

Our objective is to design a solution that is intuitive and simple. Communication for themajority of people is not difficult. It should be the same way for the deaf.

# 4. Problem Description

## 4.1 Scope of work

The scope of this Project is to build a real time hand movement classification system that collect the use defined data and can automatically detect movements and show a specific text on the screen.

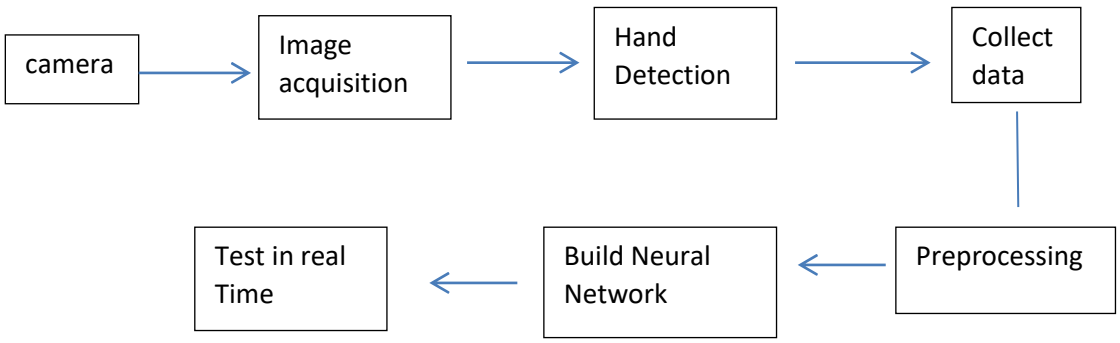
## 4.2 Modules

Sign Recognition modules :

1. Extract Key points Values
2. Setup Folders for collection && Data collection
3. Build and Train LSTM Neural Network
4. Make Predication

5. Test in Real Time

## 5. Implementation Methodology




## 6. Technology to be used

### 6.1 Software platform

**a) Front-end -:**

- Python (3.9.0)
- Visual Stdio

**b) Back-end -:**

- Machine Learning
- Deep learning

### 6.2 Hardware platform

- **Processor:** Intel dual core or above.
- **RAM:** 4 GB RAM or above.
- **Hard Disk:** 20 GB hard disk or above.
- **Editor:** idle (Available with python package)
- **Camera**

## 7. Advantages of the project

- The output of the Sign language will be displayed in the text foam in real time. This makes the system more efficient and hence communication of the hearing and speech impaired people more easy.
- Gesture-based approach is constantly evolving and add more and more Hand Gesture.
- Does not get damage through use. As no special sensor are used in this system, the System is less likely to get damaged.

## 8. Future scope and the further Enhancement of the project

We look forward to use more action in our database and improve the model so that it recognises more action features while at the same time get a high accuracy. We would also like to enhance the system by adding speech recognition so that blind people can benefits as well.

## 9.Team details

| Group# | Course Name | Student ID | Student Name | Role | Signature |
|---|---|---|---|---|---|
| | Python | TCA1809064 | Mohit Chauhan | Developer, Designer | |
| | | TCA1911008 | Piyush Verma | Designer, Tester | |
| | | TCA19011008 | Mohd. Zeeshan | Developer, Tester | |

## 10. Conclusion

Our Project aims to make communication simpler between deaf and dump people by introducing Computer in Communication Path so that Sign Language can be Automatically Captured ,Recognized ,Translated to text and displayed it on Screen.

## 11. References


- **Books**
  - Python : Programming Python
- **Websites**
  - https://www.wikipedia.com
  - https://docs.python.org
  - https://www.postgresql.org/
  - https://www.mygreatlearning.com/blog/sign-recognition/

- **Online Courses**
  - Udemy(Lecture + Notes)
  - Youtube