SIGN LANGUAGE RECOGNITION

Python Project

KARANDEEP SINGH   (2004608)
MANAV LOONA   (2004620)
MANJOT SINGH BHATIA   (2004622)

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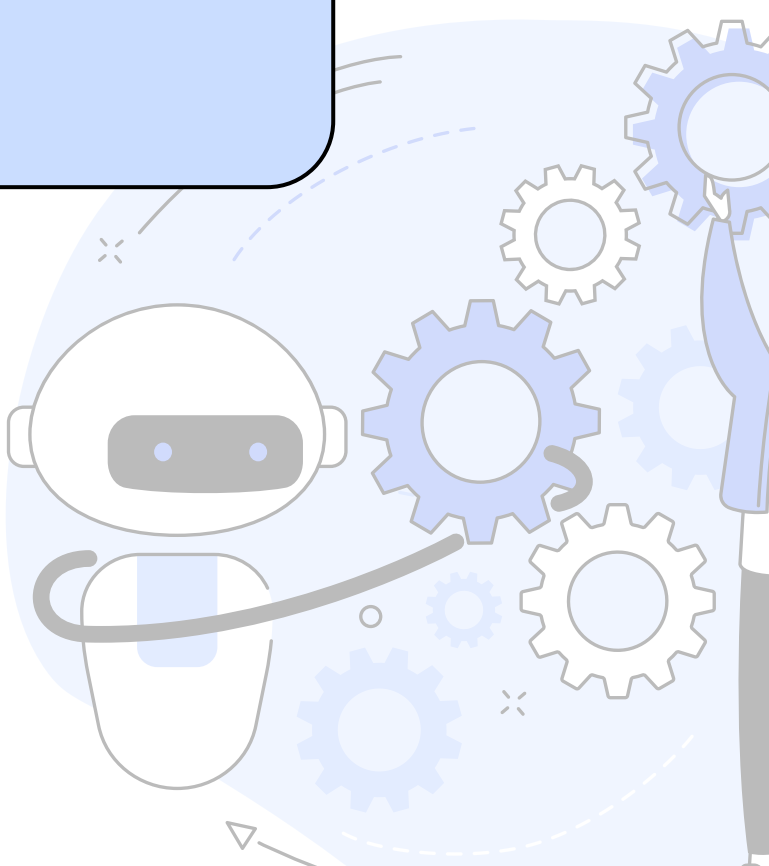
INTRODUCTION

Sign Language Recognition is a minor project focused on developing software or hardware solutions that can recognize and interpret sign language gestures and movements made by individuals with hearing or speech impairments.

The goal of sign language recognition is to bridge this communication gap by developing technology that can accurately interpret sign language gestures and translate them into spoken or written language.
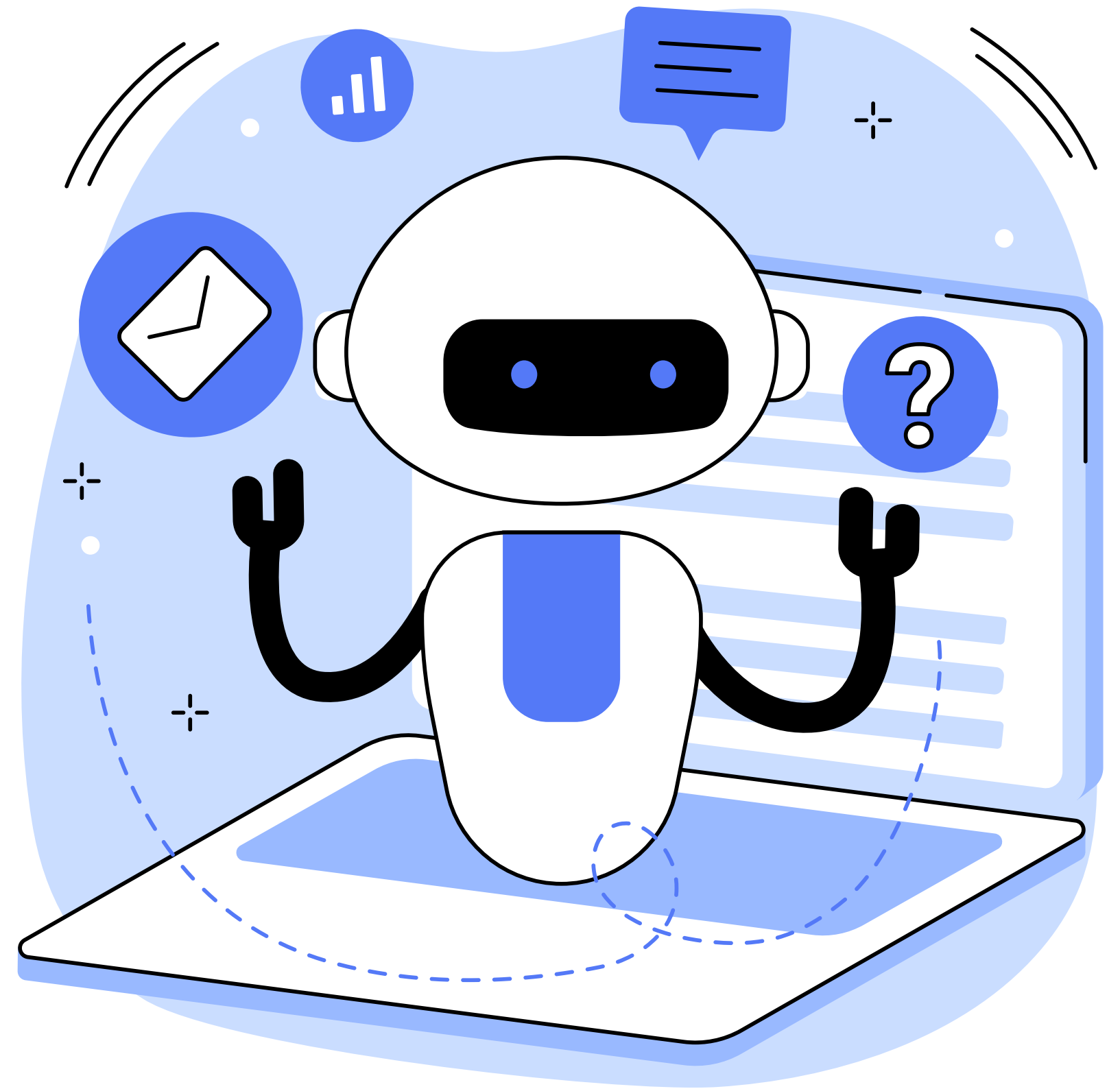
OBJECTIVES

- To recognize hand gestures which include 26 English alphabets (A-Z) and 10 digits (0-9) using Convolutional Neural Network.

- To convert sign language into words by an algorithm or a model.

- To show on optical viewfinder of camera module what a particular position of hand means with respect to sign language.

SYSTEM REQUIREMENT'S

SOFTWARE

Programming Languages : Python

Development Environments : Visual Studio Code

Libraries and Frameworks : TensorFlow, Keras and OpenCV
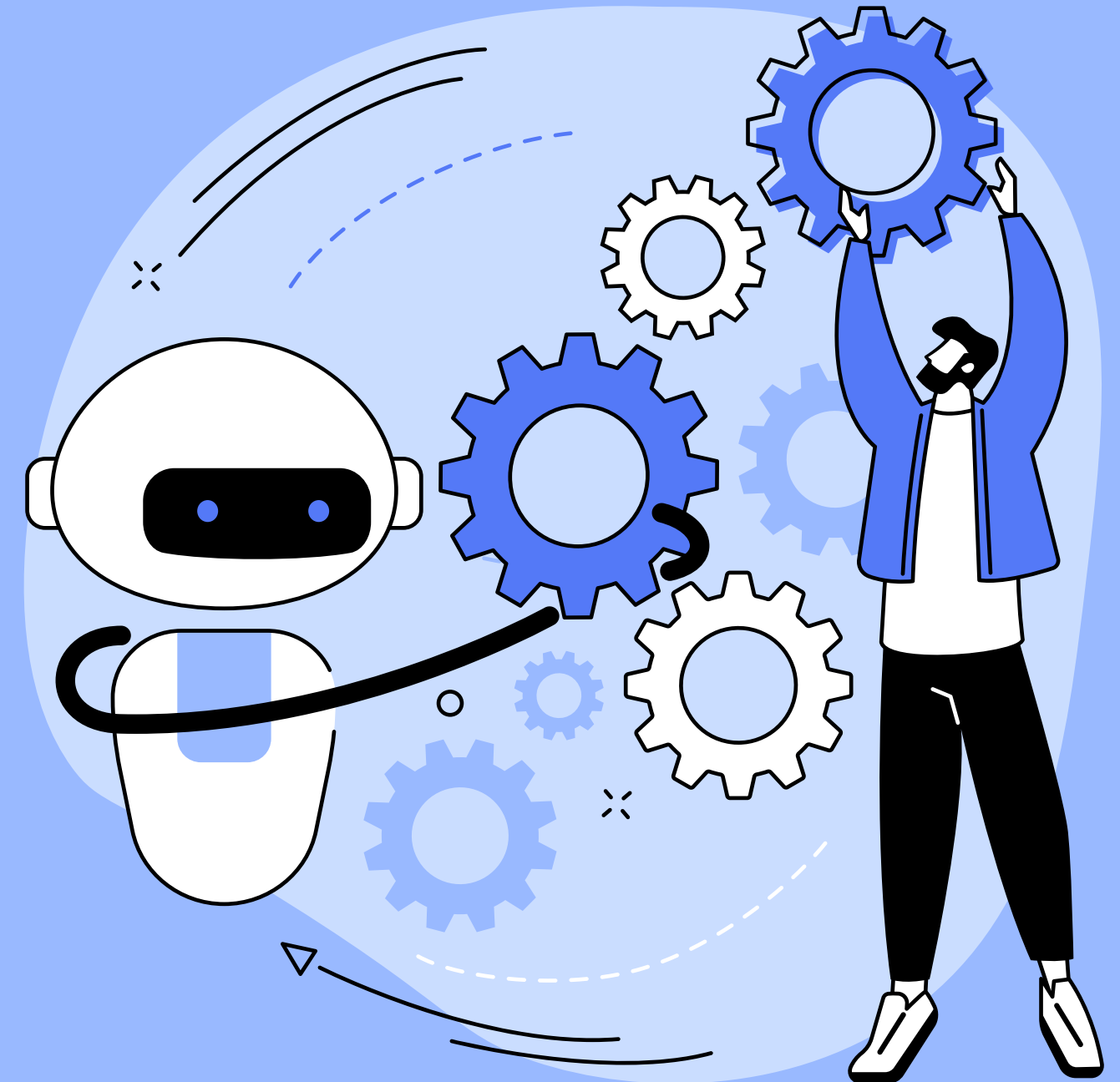
Datasets : ASL Alphabet Dataset

HARDWARE

Web Camera

Processing Power

Memory

METHODOLOGY

1

Data Collection

Data collection is crucial for your project, enabling accurate machine learning recognition of diverse hand gestures in varying lighting conditions, enhancing algorithm performance.

2

Data Pre-Processing

Data preprocessing is vital in our hand gesture recognition project to enhance model accuracy and performance. Gaussian blur reduces image details for better feature identification, while adaptive thresholding extracts key gesture features for improved recognition.
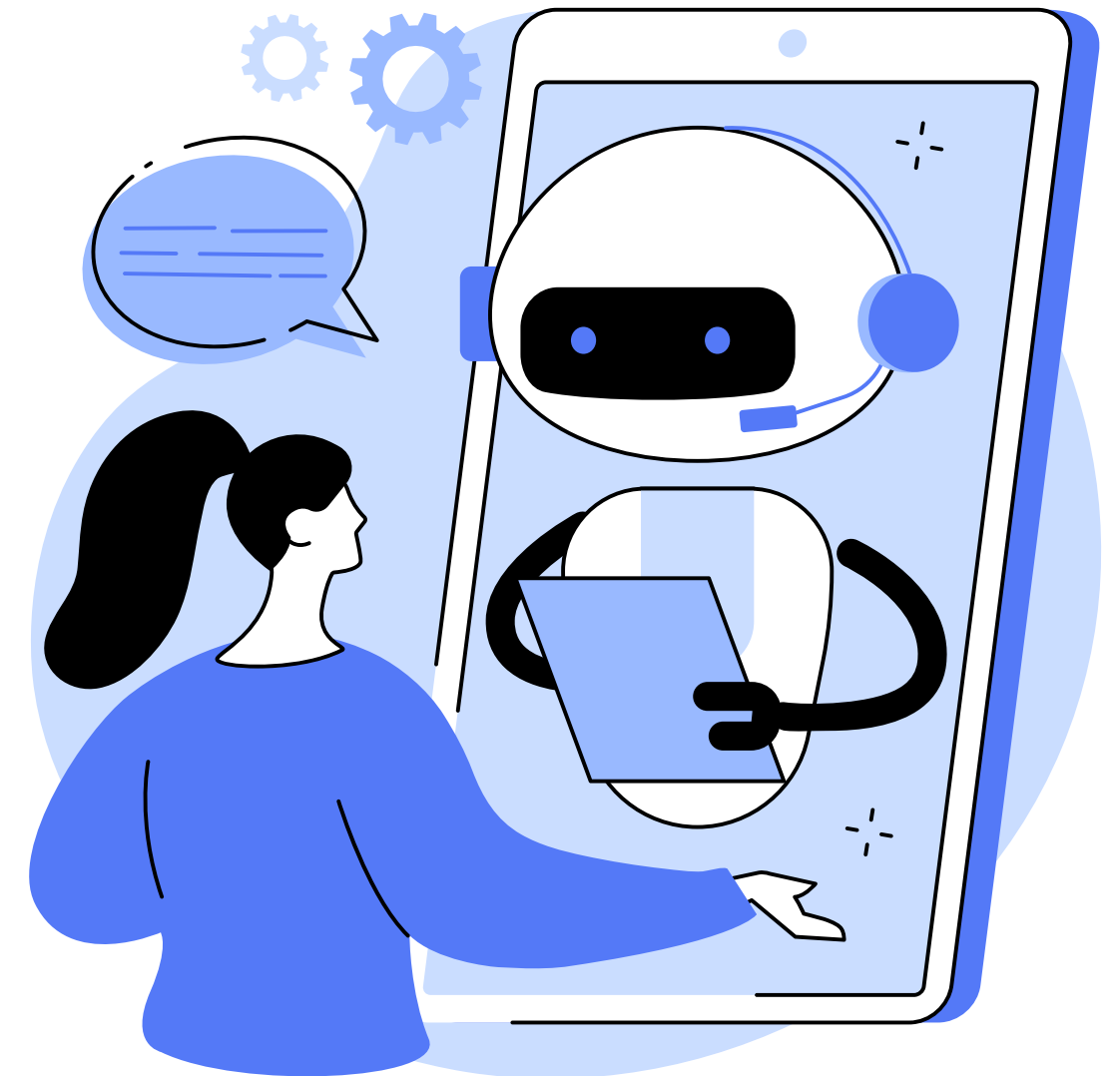
3

Training and Validation

In this step we trained the model using sequential convolutional neural network and validate it accordingly.
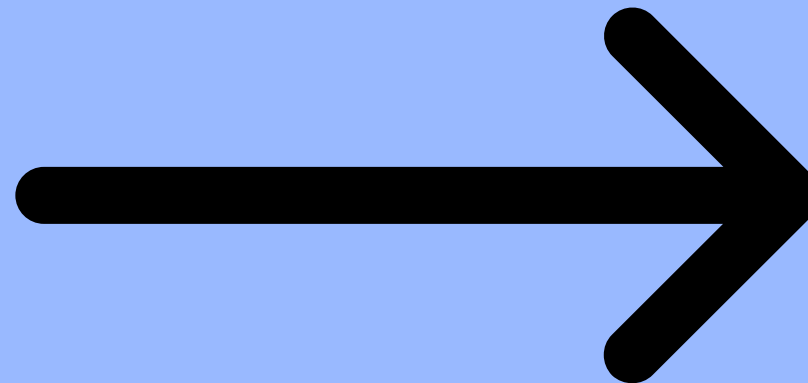
DETAILED DESIGN

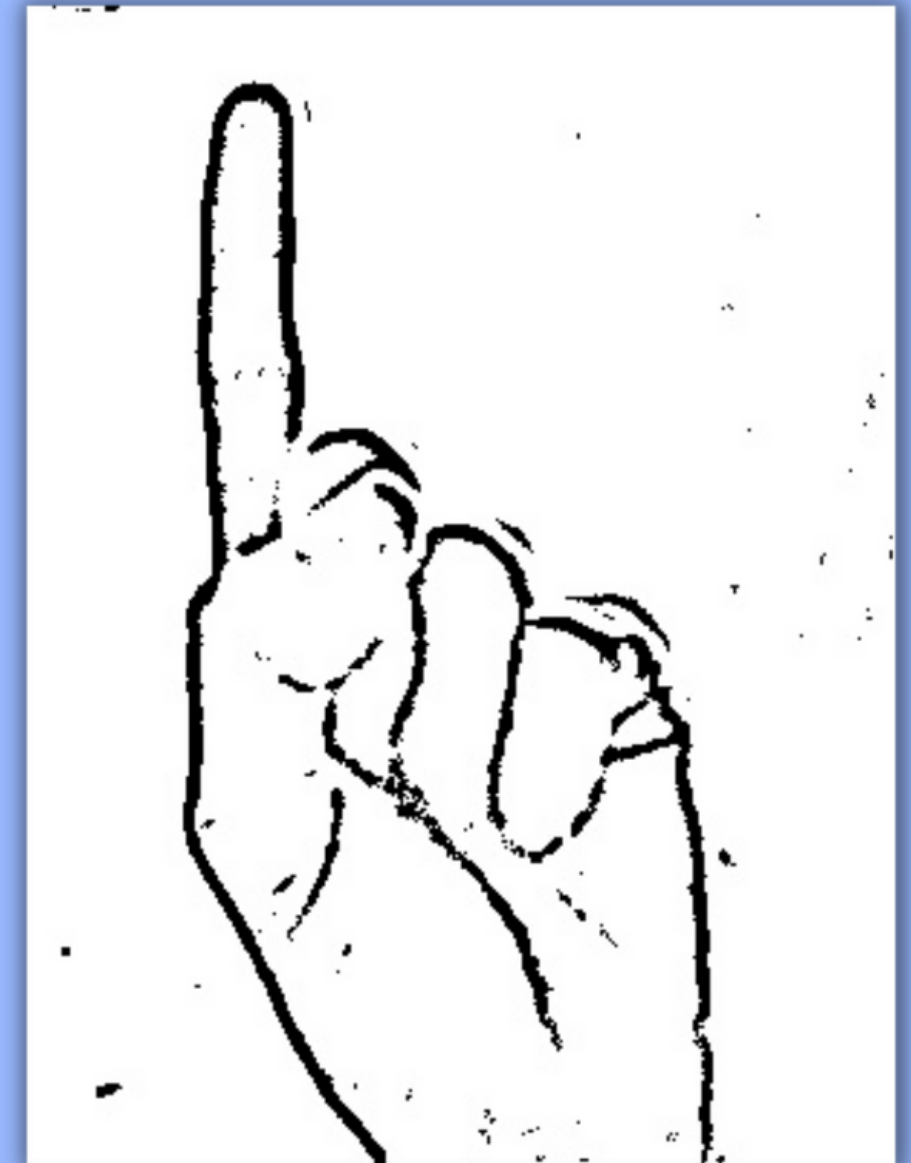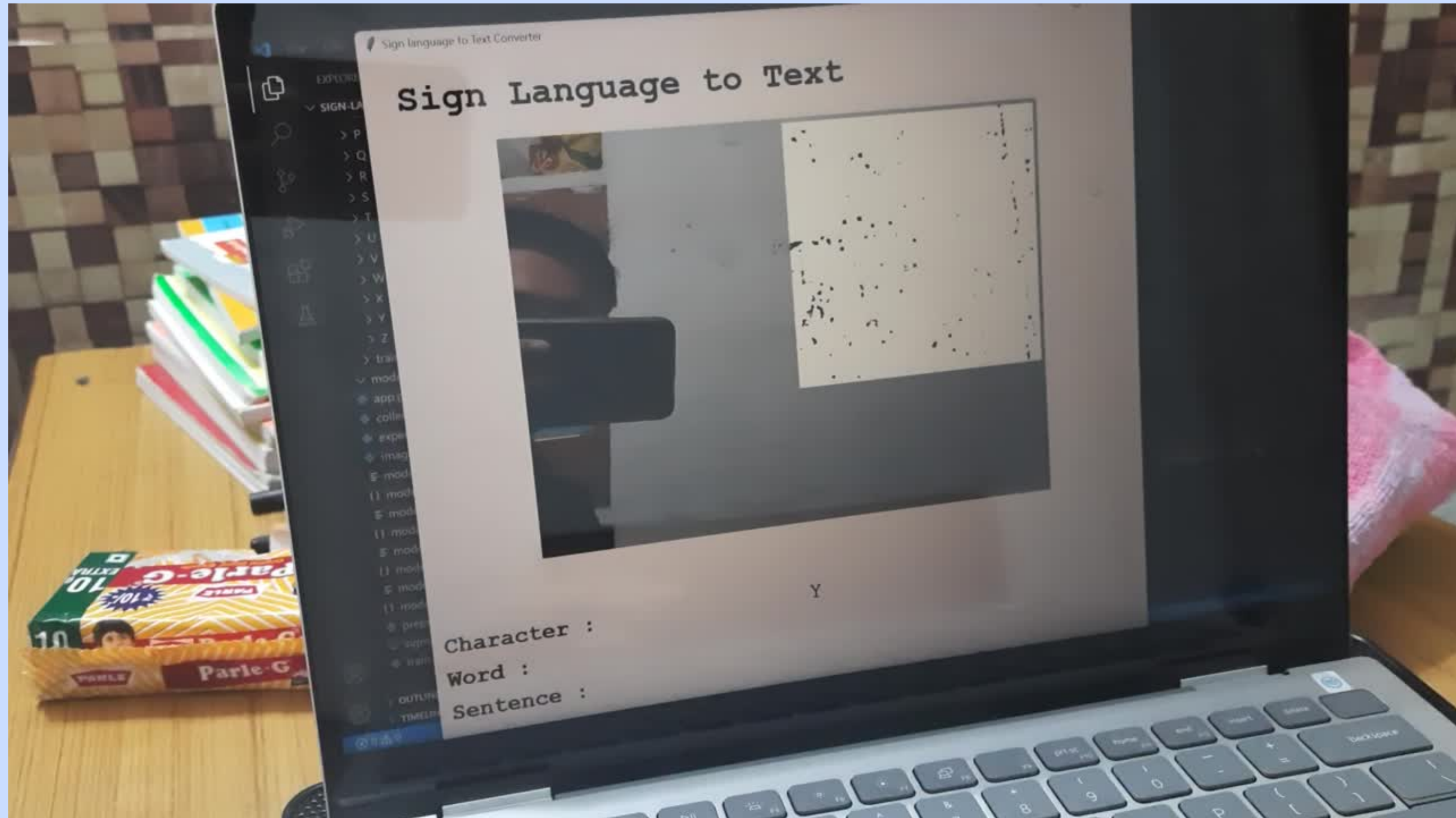|	
1	Data Collection
2	Image Processing
3	Image Extraction
4	Feature Extraction
5	Sign Recognition
6	ANN (CNN Model)
7	SIgn to Text Conversion

OUTPUT SCREEN

Data Collection

Data Pre- Processing

OUTPUT SCREEN

THANK YOU