**READ ME BEFORE**

## PROJECT OVERVIEW:

This project provides a real-time American Sign Language (ASL) interpreter that can:

* Detect hand signs from webcam input
* Classify ASL letters (A-Z)
* Build sentences from recognized letters by clicking “c”
* Save training data for model improvement

## REQUIREMENTS:

**IF YOU ARE READING THIS BEFORE GETTING AN ERROR IN THE CODE THEN GO ON, CUTIE.**

**AND IF YOU OPENED IT BECAUSE THE CODE ISN’T WORKING, BRUH WHO DO YOU THINK YOU ARE? YOU SHOULD HAVE READ ME BEFORE. NOW READ PROPERLY.**

### HARDWARE REQUIREMENTS

* Webcam (built-in or external)
* Minimum 4GB RAM (8GB recommended)
* Modern CPU (Intel i5 or equivalent)

### SOFTWARE REQUIREMENTS

* This code will best work with **Python 3.11**, because TensorFlow is not compatible with Python 3.13.
* Important packages to be installed are OpenCV-python==4.5.5.64, cvzone==1.5.0, NumPy==1.21.5, TensorFlow==2.8.0.
* Running this code on local machine will be better I guess, use VS Code.

## PROCESS:

1. Install Python dependencies, you can run pip install -r requirements.txt
2. Collect data, run python DataCollection.py, then press 's' to save hand gesture images. Images should be saved in respective letter folders in the same repository.
3. Train a keras model using Google Colab, Kaggle, Local (GPU), AWS/GCP, Paperspace etc.
4. Run the ASL interpreter (python Final.py), press 'c' to capture the current letter, spacebar adds space, backspace deletes last character, and 'q' or ESC to quit.

### NOTE:

If you want already trained model and dataset, contact [**linkedin.com/in/hadia-a-2a5935350**](https://www.linkedin.com/in/hadia-a-2a5935350)