

Hand Gesture Recognition System - User Manual

1. Overview

This system uses a webcam and hand gestures to recognize letters of the alphabet (A-Z), as well as space and backspace commands. The recognized text is displayed on the screen in real time. This is especially useful for hands-free input and educational applications.

2. System Requirements

- Python 3.7 or higher
- OpenCV
- MediaPipe
- Scikit-learn
- Trained RandomForest model (randomforest_hands.plk)
- Webcam or USB camera

3. Setup Instructions

1. Clone the project or download the code.
2. Install dependencies using:

```
pip install opencv-python mediapipe scikit-learn pandas
```
3. Ensure the trained model file `randomforest_hands.plk` is in the project directory.
4. Run the script using:

```
python hand_gesture_predictor.py
```

4. Gesture Reference Guide

Below are the hand gestures corresponding to each alphabet and special command:

Gesture: A



Gesture: B



Gesture: C



Gesture: D



Gesture: E



Gesture: F



Gesture: G



Gesture: H



Gesture: I



Gesture: J



Gesture: K



Gesture: L



Gesture: M



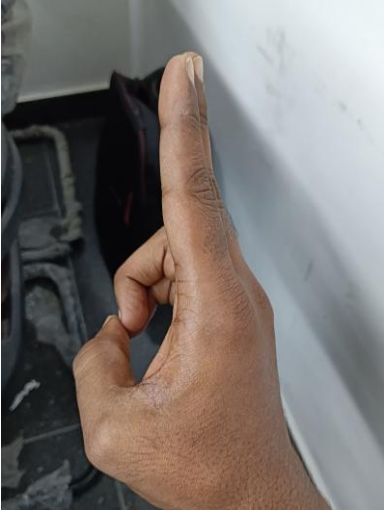
Gesture: N



Gesture: O



Gesture: P



Gesture: Q



Gesture: R



Gesture: S



Gesture: T



Gesture: U



Gesture: V



Gesture: W



Gesture: X



Gesture: Y



Gesture: Z



Gesture: Space



Gesture: Backspace



5. Tips for Better Accuracy

- Keep your hand centered in front of the camera.
- Avoid background clutter.
- Use consistent lighting.
- Hold each gesture for 2-3 seconds for proper recognition.

6. Exiting the Application

Press the ESC key while the webcam window is active to close the application.

7. Contact & Support

For any issues or suggestions, contact the developer or raise an issue on the project GitHub repository.