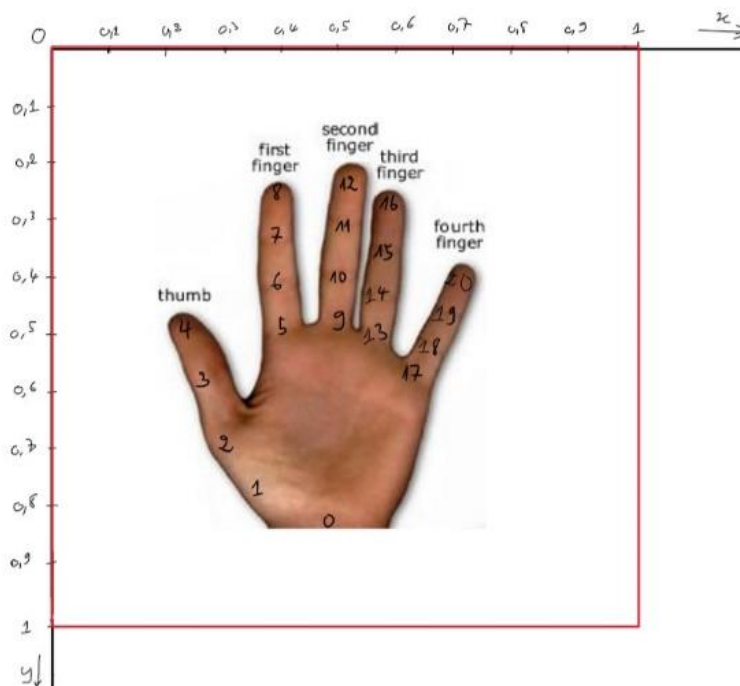# Custom Gesture Control Application

➢ **This application performs actions ,on desktop/laptop, choosen by user.**
➢ **Actions are infact key presses which are triggered programatically when a certain gesture is detected.**
➢ **User has to select a gesture and associate a key press with it.**

How it works?

1. User selects Handedness(Left/Right hand) ,Delay ,Gesture and enters key to be pressed for selected Gesture on the application Interface.
2. After pressing Start button ,application starts camera and starts analysing the camera feed.
3. The camera feed is analyzed frame by frame (with delay specified by user) using Google mediapipe Hands library.
4. The mediapipe hands model returns Handedness and normalized co-ordinates of 21 landmarks on hand, if a hand is detected.

5. These 21 co-ordinates of landmarks are then processed and states of each finger is determined (Open/Closed).
6. Using these States of fingers a Gesture is recognised.(eg Victory symbol will have states closed,open,open,closed,closed for thumb to 4th finger respectively).

7. For dynamic gestures ,landmark 0 is tracked in all frames to detect the direction in which hand is sliding.
8. After recognizing a gesture, a key is pressed which is entered by user for that particular gesture.
9. This key press triggers the needed action.
10. Step 3-9 are performed continously until user presses Stop button.
11. Stop button closes Camera.