



# G.H. RAISONI COLLEGE OF ENGINEERING AND MANAGEMENT, WAGHOLI, PUNE.

Department of AI & AIML



## *Hand tracking system*

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# Introduction

Hand tracking is the process in which a computer uses computer vision to detect a hand from an input image and keeps focus on the hand's movement and orientation. Hand tracking allows us to develop numerous programs that use hand movement and orientation as their input.

In this Hand Tracking System We have developed the Hand tracking Module using Python. We used Mediapipe framework from google which is a open source cross-platform, customizable ML solutions for live and streaming media.

# Justification For Selecting The Title

The most critical of all in today's life is communication- reading and writing. Gesture recognition is the mathematical interpretation by a computing device. Gesture recognition based on computer vision has gradually become a hot research direction in the field of human- computer interaction. For those who are deaf and dumb Sign language is an efficient, common and alternative way for communicating, where we can understand them by using the hand gestures. In the recent generation, hand gesture recognition system is improving in such a way that the interaction between the human and machine is advancing by using the electronic gadgets such as mobile phones, computers etc.

The technique used in this system is that the input to the system will be given from the hand. They detect the image of the hand and pre-process it. Later on, they are going to crop the image how much they require for the analysis.



# Problem Statement

To develop this hand tracking system, we used two main softwares.

- 1) Open CV
- 2) media pipe

First we used Open CV to take input from webcam and then used mediapipe framework from google to process the image and used this pretrained model for detecting hands



Literature Survey

Sr. No.	Paper Title and its Author	Details of Publication	Findings
1			
2			
3			
4			
5			
6			

Engineering

Management

Law

Schools

Other Courses

RAISONI

# Block Diagram





# Expected Result

The technique used in this system is that the input to the system will be given from the hand.

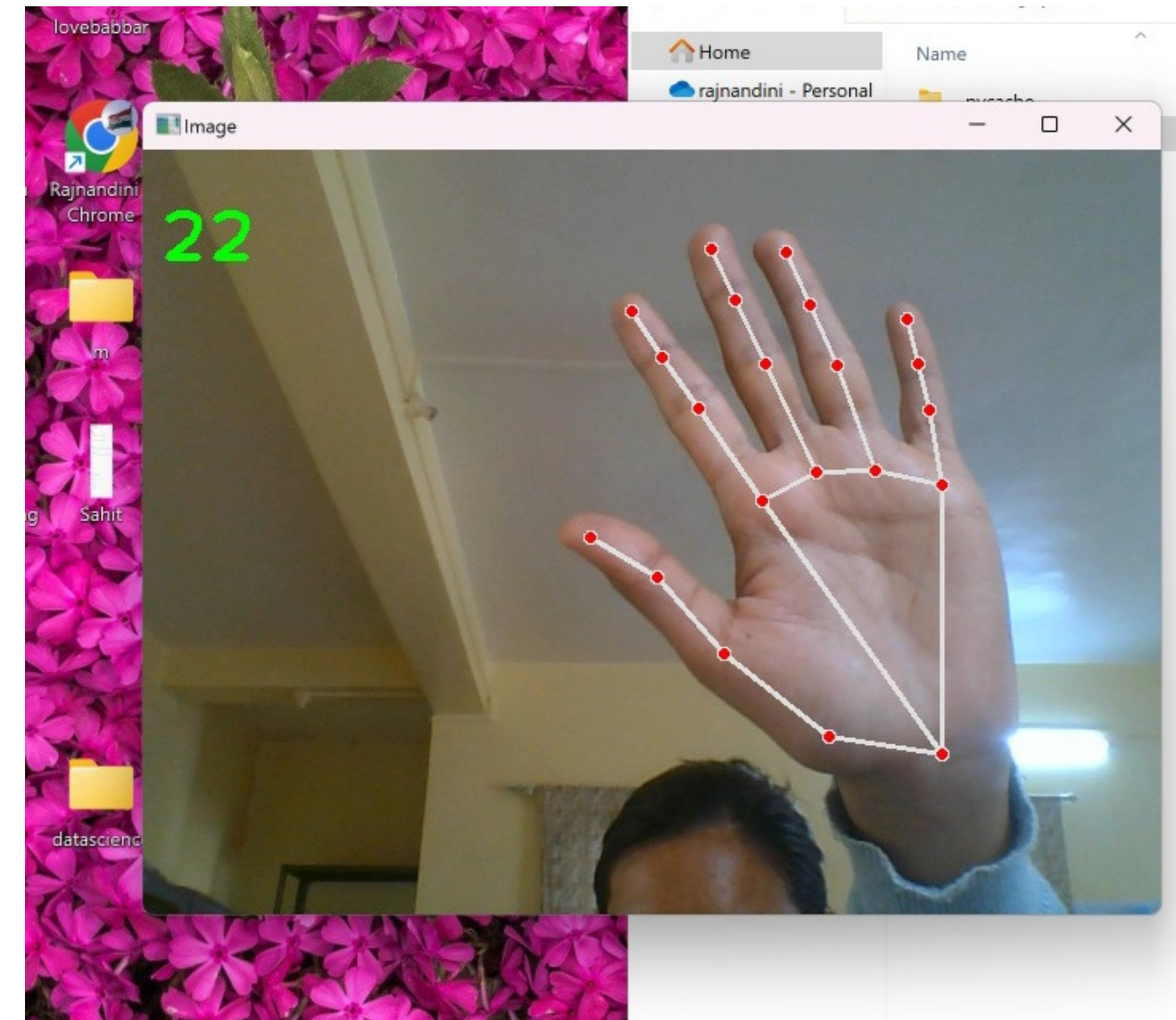
They detect the image of the hand and pre-process it. Later on, they are going to crop the image how much they require for the analysis.

Setup the IDE to run python Install all required packages Code for taking webcam as input

Convert the normal video stream from BGR to RGB Process the

input video to Mediapipe

Draw dots on detected landmarks and join all the dots Output the video





# Work – Plan

Months Activities	August'23	Sept'23	Oct'23	Nov'23
Literature Reviews	√			
Requirement Analysis	√			
Designing	√			
Experimental Analysis	√	√	√	
Module wise Implementation		√	√	
Testing and Debugging			√	√
Preparation of Project Report				√

# References

- 1). <https://www.analyticsvidhya.com/blog/2021/07/building-a-hand-tracking-system-using-opencv/>
- 2). Hands - mediapipe (google.github.io) Introduction to MediaPipe |
- 3). LearnOpenCV opencv-python · PyPI

***Thank you***

**!**

