Final Year Project

CONTROLLING COMPUTER USING HAND GESTURES

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OUTLINE

- INTRODUCTION (Basics required for understanding the topic)
- Existing systems comparison – Market Survey
- STATE OF ART - (Literature Survey) (study of similar research work till date)
- RESEARCH GAP (what are the features that are not worked upon till date that you will address in your work)
- OBJECTIVE (what is your aim while executing the project)
- Problem Statement (in one or two sentences what your project is)
- References (Only ieee, sciencedirect, Elsevier, acm , scopus indexed)

INTRODUCTION

- What are gestures?
- Hand gesture recognition was achieved with wearable sensors attached directly to the hand with gloves. These sensors detected a physical response according to hand movements or finger bending. The data collected were then processed using a computer connected to the glove with wire. This system of glove-based sensor could be made portable by using a sensor attached to a microcontroller.
- Hand gestures for human–computer interaction (HCI) started with the invention of the data glove sensor. It offered simple commands for a computer interface.
- Hand gesture recognition is one obvious way to create a useful, highly adaptive interface between machines and their uses.
- Hand gesture recognition technology would allow for the operation of complex machines using only a series of finger and hand movements, eliminating the need for physical contact between operator and machine.

Market Survey

- The gesture recognition system has emerged as a popular technology over traditional mechanical interaction technologies.
- The market is segmented on the basis of Type, Application, Technology, Product and geography.
- Assistive robotics
- Sign language detection
- Immersive gaming technology, smart tv, virtual controllers.
- Virtual mouse

Literature survey

- Pansare, J. R., et al. "Gestuelle: A system to recognize dynamic hand gestures using hidden Markov model to control windows applications." International Journal of Computer Applications 62.17 (2013).
- Premaratne, Prashan. Human computer interaction using hand gestures. Springer Science & Business Media, 2014.
- Singh, Sahib, and V. K. Banga. "A Review of Hand Gestures Techniques for PC Applications."

Research gap

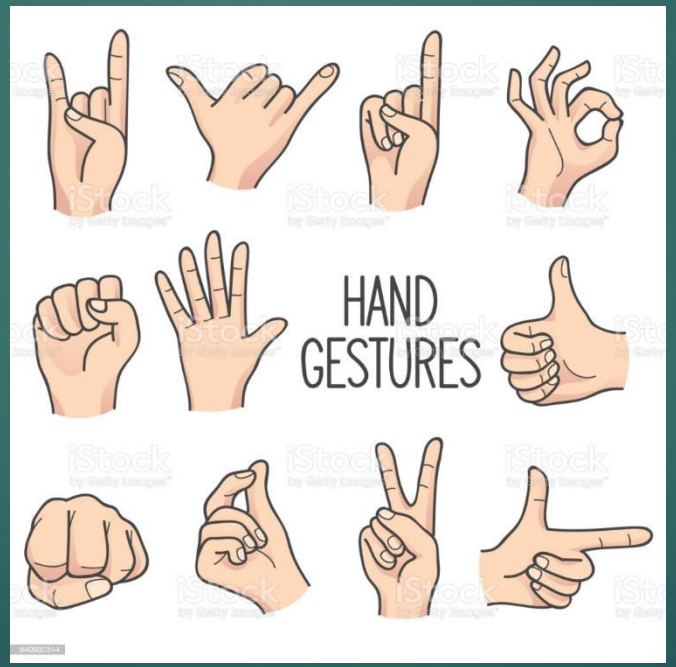
- In this project we will create our own dataset using opencv modules and python libraries.
- Here we are going to use python language and convolutional neural network using keras and tensorflow to train our module.
- Train our module to recognize the gestures and match them with datasets.
- Then perform the actions like opening the files, scrolling up and down webpages, contolling media player, controlling brightness and volume.

Objectives

- Reducing the efforts of interaction with computers using simple hand gestures.
- To recognize and interpret movements of the hand in order to interact with and control a computer system.

Problem Statement

The aim of this project is to develop an application to enable users to control other their computers by using hand gestures and a webcam.



References

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- https://ieeexplore.ieee.org/document/7176405
- https://towardsdatascience.com/artificial-neural-networks-for-gesture-recognition-for-beginners-7066b7d771b5

- https://techvidvan.com/tutorials/hand-gesture-recognition-tensorflow-opencv/

THANK YOU !