Media Control Using Hand Gesture Moments

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Abstract - *A handwriting recognition system provides a natural, creative and modern way of communicating without talking. It has a wide range of computer use and sign language. The purpose of this exercise is to discuss how to detect hand gestures based on the acquisition of certain shape-based features. The set consists of a single camera that captures user-generated touches and takes this as a system installation. The main goal of touch recognition is to create a system that can detect a specific human touch and use it to transfer device control information and use real-time touch recognition the user can control a computer by making certain touches in front of the video camera. connected to a computer. In this project we will develop a touch-up volume control system with the help of the OpenCV module. Here the system can operate using hand gears without the use of a keyboard and mouse.*

Keywords: Symbol Recognition; Human Computer Interaction;

1. INTRODUCTION

Everyone depends on their computer skills. Large keyboard and mouse inserts. But there are a variety of health problems that affect many people, resulting in continuous and ongoing computer work. Direct use of the hands as an input machine is an attractive way to interact with the human computer As hand gestures are a natural way of communicating so it does not adversely affect the driver's health as it is widely used by the keyboard and mouse. The user interface has a good grasp of human hand gestures. Through action, Feelings and thoughts can also be expressed. Users often use touch gestures to express their feelings and notices of their thoughts. The touch of a hand and the position of the hand are related to the recognition of the touch of a human hand. In this page we will introduce an application that uses flexible hand gestures such as installing Windows Media Player control. We have considered one hand touch and your directional movement defines the touch of the app. In this application the image acquisition is done using a webcam. Other functions in windows media players are frequently used and thus use windows controls media player for those functions using the pre-defined touch. Figure 1 shows the defined touch in the window player control function.

1.1 Literature Survey

[1] The system is proposed in such a way that through hand movements daily information is downloaded online. Key component analysis is used to identify the hand. YcbCr color spaces are used to detect skin color and the CAMSHIFT algorithm is used to detect and track hand gestures. The shape and position of the hand is determined by the discovery of the skin. Continues to find the skin area until the tracking condition is sufficient? The CAMSHIFT algorithm is used when the trigger tracking status is sufficient. Separation and normalization are done through PCA. The test proves that 93.1% of the accuracy level is achieved by hand perception. To process one draft the total time taken was between 0.1 to 0.3 seconds.

[2] The system is proposed to detect English numbers from 0-9 with the use of flexible hand gestures. The system has two steps .The first step is pre-processing and the next step is the partitioning step. Since touch is of two types Touch gestures and touch links. A key touch is used to detect the link touch of a continuous touch. The method between the two points of continuous touch is given separately. The Discrete Hidden Markov Model is used for classification. This DHMM is trained by the Baum-Welch algorithm. The average HMM recognition rates range from 93.84% to 97.34%.

[3] Inexpensive depth camera - The Kinect sensor is used to create a hand-sensitive touch recognition of the solid part, in this paper. Since the kinect sensors have a low resolution it is difficult to identify the hand, but they can easily capture large objects. In order to deal with the sensory hand-held sensors, the authors proposed a novel grade matrix known as the Finger Earth Movers range. Only the fingers are associated with FEMD but not the whole hand. Noisy hand conditions are treated better, as 0FEMD can distinguish hand gestures with minimal difference. The system works effectively and efficiently in uncontrolled environments. 93.2% accuracy is achieved by a test result.

[4] The target paper aims to integrate the various existing methods of the Deaf Communication Translator System. Two broad categories of communication methods used by deaf people - these are - the Wearing Communication Device and the Internet Learning Program. Below the Wear Lock connection system, there is a Glove based system, keypad mode and Handicom Touch-screen. All three of the above methods use different sensors, an accelerometer, a small controller, a text-to-speech module, a keypad and a touch screen. The need for an external tool to translate the message between deaf and non-deaf people can be overcome by a second approach, namely an online learning program. The Online Learning System has different approaches. Five

different modes are the SLIM module, TESSA, Wi-See Technology, SWI_PELE System and Web-Sign Technology.

[5] The proposed ISLR system is considered a pattern recognition system with two main modules: feature extraction and separation. Collaborative use of Discrete Wavelet Transform (DWT) based on the output feature and the neighboring segment is used for sign language detection. Test results show that the proposed hand-to-hand detection system achieves a maximum accuracy of 99.23% while using a cosine range separator.

1.2 Methodology

Touch recognition helps computers understand the body language of a person. This helps to create a more powerful link between people and machines, rather than just basic user text base or graphical user interfaces (GUIs). In this project of visual acuity, the movement of the human body is studied by a computer camera. The computer then uses this data as input to handle applications. The aim of this project is to develop a visual connector that will capture the touch of a human hand vigorously and that will control the volume level. In this case, in-depth learning strategies such as the Yolo model, the Inception Net + LSTM model, 3-D CNN + LSTM and Time Distributed CNN + LSTM were studied to compare the results of the acquisition. The results of the Yolo model surpass the other three models. Kaggle-trained models and 20% of the videos are available on a 20 billion jester data set. After the hand is detected on the captured frames, the next step is to control the volume of the system depending on where you are moving the hand movement. The direction of the hand movement is determined by producing and placing the binding box on the acquired hand.

Fig 1: Block diagram of proposed system

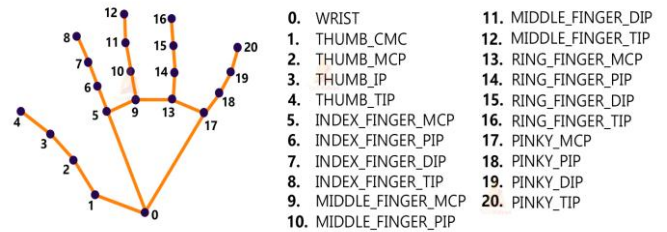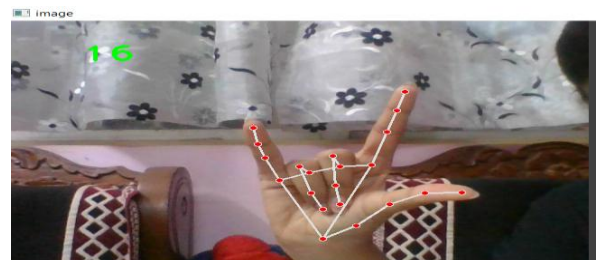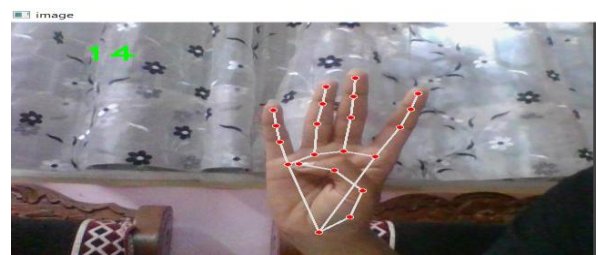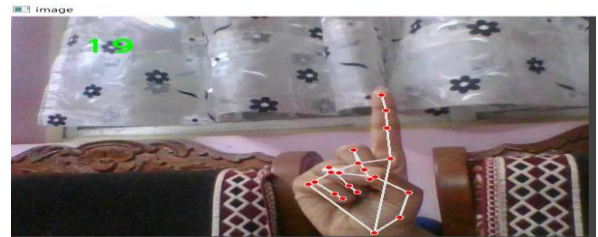## 2. IMPLEMENTATION

2.1 Hand Gesture

Fig 2 These key points will be fed into a pre-trained gesture recognizer network to recognize the hand pose.

(a)

(b)

(c)

(d)

(e)
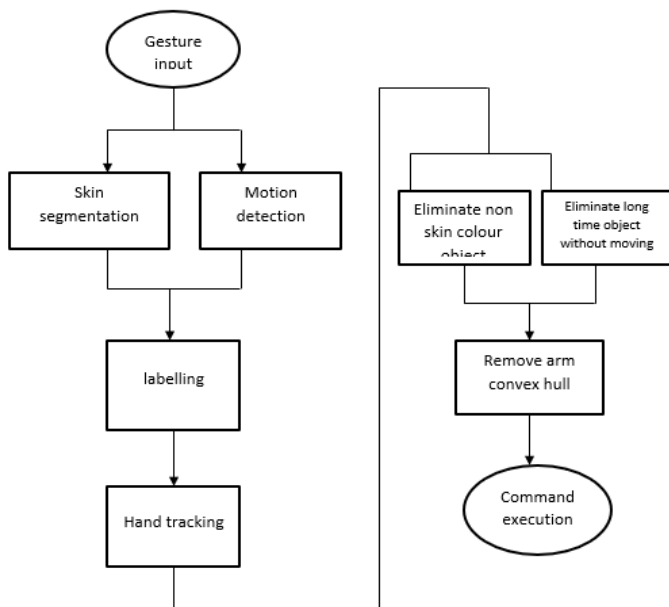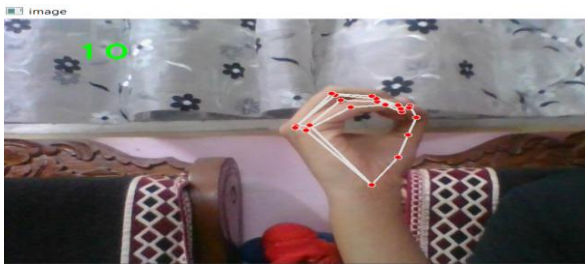

(f)

Fig 3: (a)Increase Volume (b)Pause (c) Rewind (d)Decrease Volume (e)Forward (f)Play

2.2 Neural Networks

Neural Networks are also known as neural networks. It is a subset of machine learning and the heart of deep learning algorithms. The concept of Neural networks is stimulated by the human brain. It mimics the way biological neurons send signals to each other. Neural networks are made up of node layers, consisting of input layer, one or more hidden layers, and the output layer.

2.3 Recognition rate of different gestures.

Gesture	Recognition Rate (%)
Play - Pause	90%
Volume - Increase	95%
Forword - Backword	95%

Table I: Recognition rate of different gestures

3. CONCLUSIONS

The project has introduced a system that allows the user to make hand gestures to facilitate software control. A vision-based hand-held system that does not require special markers or gloves and can be operated in real time on a PC PC with low-cost cameras. Specifically, the system can track the position of the calculation of the calculation areas and the index finger of each hand. The inspiration for this Hand Touch was a desktop-based volume control system where the user could control the volume and rotation of the cursor

in real time using natural hand movements. Alternatively, we suggest using hand-held mouse cursor movements, and suggest suggestions on how, in the empty hand, to set a point for mouse cursor movement control. For the sake of reliability, in addition, we propose a simple model of probability to effectively block the advanced system in response to invalid touch.

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