

# MEDIA PLAYER WITH FACE DETECTION AND HAND GESTURE

MUKESH VISHWAKARMA<sup>1</sup> , AKSHAY NAVRATNE<sup>2</sup> , SNEHA GHORPADE<sup>3</sup> , SAKET THOMBRE<sup>4</sup> ,  
TRUPTI KUMBHARE<sup>5</sup>

<sup>1,2,3,4</sup> Student (UG), Department of Computer Engineering,  
A.I.S.M.S. College of Engineering, Pune, Maharashtra, India.

<sup>5</sup>Assistant Professor, Department of Computer Engineering,  
A.I.S.M.S. College of Engineering, Pune, Maharashtra, India

\*\*\*

**Abstract** - When you are playing a video on your laptops or PC and somebody calls you, you have get away from your device or simply look away from it due to this you miss some part of video. Then you have to drag back the video to see the video from where you have left. Now to overcome this problem we can build a media player that detects human face and for the time it is detecting a face video will be played else video will pause automatically. The player starts running again as soon as it detect a face. This can be achieved using the camera or webcam on top of the computer. As long as the camera detects a face the video keeps on playing. The player pauses as soon as users face is not completely seen. Here we have also added some extra feature that track hand movement to control mouse cursor and left click operation which is used to control media player functions which include dragging a video forward/backward, increasing and decreasing volume, choosing other videos to play .

**Key Words:** Face detection, Gesture, Camera.

## 1. INTRODUCTION

In the existing world, the communication with the intelligent Devices has increased. Everyone is dependent to perform most of their tasks using computers. For efficient using of these systems, we want our computer application to communicate more are more. This communication can be among applications or with user. For that motive, human-computer interaction (HCI) has been a dynamic field of study in the last decades. A media player is computer program for playing multimedia files like videos, movies and music. Media players display standard media control icons known from physical devices such as tape recorders and CD players, such as play, pause fast forward, back forward, and stop buttons. Different media players may have different goals and feature sets but now a days there are such media player's that can be communicate with person face and hand gesture. We often use hand gesture in communication with people in real world, we can use hand gesture to interact with the digital world also.

## 2. PURPOSE

The aim of the project is to monitor and control the media player. This media player can increase the level of human computer interaction (HCI) than the current scenario.

## 3. SCOPE

This media player can help in reducing human efforts Later on, this technique can be used to control systems using HCI like multimedia player, pdf reader, power point etc.

## 4. LITERATURE SURVEY

### 4.1 Face Detection and Tracking using Open CV

**Authors: S.V. Viraktamath, Mukund Katti, Aditya Khatawka and Pavan Kulkarni**

In [1], they analyze the image and has been stored in database and it will check the size, position and the location of face. It tracks the face and gives the desired result as needed. The face detection methods are: knowledge approach and Static approach and integration based with several functionality or process. It is also used in (HCI) human computer interface and image detection.

**4.2 A Media Player which operates on Human Emotions Authors: Harshala Chaudhary, Amrapali Waghmare, Reshma Ganjewar, Dr. Abhijit Banubakode**

In [2], They have implemented a new technique known as Emotion Sensory World of Blue Eyes Technology which identifies human emotions (sad, happy or thinking) here we use image processing techniques and extract eye portion from the image captured which is then compared to the stored images of database. So, the media player is based on blue eyes technology. The technique we used for detection of human face or emotion has applications like (HCI) human computer interaction , image processing there are methods of detecting emotions like face detection, eye detection, lip

detection. This paper reviews comparative techniques for recognizing emotions through images.

### 4.3 Controlling Multimedia Applications Using Hand Gesture Recognition

Authors: Neha S. Rokade<sup>1</sup>, Harsha R. Jadhav, Sabiha A. Pathan, and Uma Annamalai.

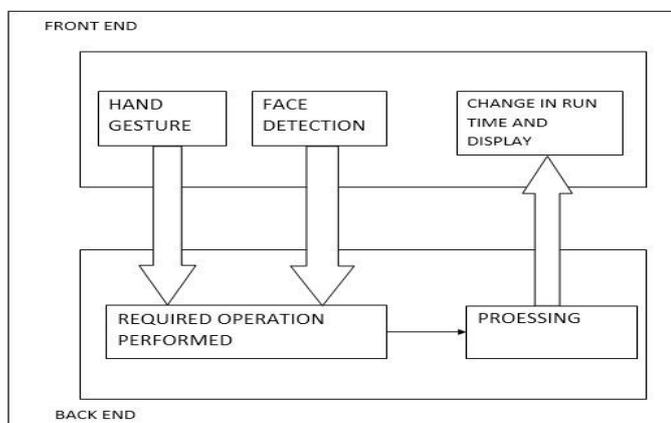
In [3] They have introduced a non-complex algorithm that will decrease the complexity of hand gestures as well. This system, a hand gesture process is to be built which will be an intermediate between human machine interaction i.e. HMI. A media player will recognize different hand gestures such as up, and down, right, and left. There are three modules in this system to identify hand gestures. It uses a backend to save various hand gesture inputs. These inputs were the subset of ASL i.e. American sign languages. Various techniques have been used to remove the noise that is present in the image.

### 4.4 Face Detection and Tracking with Web Camera

Authors: Ruslana Makovetsky and Gayane

In [4], they implement a different player than others, having the following functionalities. The media player will start playing the video if the human face is been totally visible means detected by the media player and it will stop/pause the video if human is not watching the media player (ex turns away). As a result, we were looking for a face detection and tracking algorithm, which would enable us to detect faces in frames, forwarded from a web camera.

## 5. SYSTEM ARCHITECTURE



Here as soon as we start the media player the media player will be opened with face detection mode i.e. it will start detecting human face and if a face is detected the video will keep on playing if there is no face the video will be paused. This media player has an option to run media player with either face detection mode or hand gesture mode and it can switch between them in run time. In hand gesture mode we control the mouse cursor to operate the media player.

The following architecture consist of three sections:

1. Face Detection.
2. Hand gesture.
3. Media player.

#### 1. Face Detection:

In this section the camera starts detecting a human face and till the time we are looking at the media player screen the video will be played and if we look somewhere else the video will be automatically paused. It will start playing the video as soon as it detects a face again.

#### 2. Hand gesture:

In this section the camera looks for the color bands. The user will wear 2 bands on his fingers they are green and blue colour bands. Here the blue color band controls mouse cursor and green color band performs left click operation. Thus we can control the media player.

#### 3. Media player:

The media player is the important concept which will be used to play video and it will be controlled by functionalities like hand gesture and face detection.

## 6. SYSTEM EVALUATION

### 6.1 ADVANTAGES

- User-Friendly.
- Can control other application along with media player.
- A better and improved explicit and implicit HCI.
- Controlling the computer from distant.

## 6.2 DISADVANTAGES

- System may not work in less light up work space.
- For face detection complete face must be visible.

## 6.3 APPLICATIONS

- User don't have to be worry missing any part of video that has been played by media player.
- With some changes we can make it identify human face and only the authorized user can play the video.
- Along with media player we can control other applications as well that is via hand gesture.

## 7 CONCLUSION

Thus, on the basis of literature survey and analyzing the existing system, we have can conclude that the proposed system we have introduced will use the features like hand gesture and face detection and that will be used to control the media player i.e. increasing and decreasing the sound of the video, closing the media player, dragging video forward or backward and choosing other video to be played etc. With some changes in the face detection module we can train it to recognize a particular set of faces and then media player will respond for their faces only.

## 8 REFERENCES

[1] Paul Viola and Michael J. Jones, "Robust Real-Time Face Detection", Published in 2004 International Journal of Computer Vision 57(2), 137154, and 2004.

[2] S.V. Viraktamath, Mukund Katti, Aditya Khatawkar Pavan Kulkarni, "Face Detection and Tracking using Open CV", The SIJ Transactions on Computer Networks & Communication Engineering (CNCE), Vol. 1, No. 3, July-August 2013

[3] Dnyanada Jadhav1, Prof. L.M.R.J. Lobo2, "Hand Gesture Recognition System To Control Slide Show Navigation", International Journal of Application or Innovation in Engineering & Management (IJAIEEM) Volume 3, Issue 1, January 2014

[4] N.Krishna Chaitanya, 2, R.Janardhan Rao "Controlling of windows media player using hand recognition system", The

International Journal of Engineering and Science (IJES) Volume 3 Issue 12 Pages

[5] Harshala Chaudhari1, Amrapali Waghmare2, Reshma Ganjewar3, Dr. Abhijit Banubakode, "A Media Player which operates depending on Human Emotions", International Journal of Advanced Research in Computer and Communication Engineering Vol. 4, Issue 5, May 2015

[6] Neha S. Rokade1, Harsha R. Jadhav2, Sabiha A. Pathan 3, Uma Annamalai, "Controlling Multimedia Applications Using Hand Gesture Recognition", International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395 -0056 Volume: 02 Issue: 05 — Aug-2015

[7] Mr. Sudarshan G. Gauge, Mr. Santosh G. Karkhile, "Operating an Application Using Hand Gesture Recognition System "International Journal of Innovative Research in Computer and Communication Engineering (An ISO 3297: 2007 Certified Organization) Vol. 4, Issue 2, February 2016.

[8] Mr. Sanjay Mena, "A Study on Hand Gesture Recognition", White Paper.

[9] Ruslana Makovetsky and Gayane Persian, "Face Detection and Tracking with Web Camera", White paper.

[10] Yushan Yu, Sheng Bi, Yaoyang Mo, Weiheng Qiu, "Real-time Gesture Recognition System Based on Camshaft Algorithm and Haar-like Feature ", The 6 th Annual IEEE International Conference on June 19-22, 2016

**BIOGRAPHIES**

**Mukesh Vishwakarma** is pursuing Bachelor's degree in Computer Engineering from Savitribai Phule Pune University at A.I.S.S.M.S College of Engineering, Pune, and Maharashtra, India.



**Akshay Navratne** is pursuing Bachelor's degree in Computer Engineering from Savitribai Phule Pune University at A.I.S.S.M.S College of Engineering, Pune, and Maharashtra, India.



**Sneha Ghorpadhe** is pursuing Bachelor's degree in Computer Engineering from Savitribai Phule Pune University at A.I.S.S.M.S College of Engineering, Pune, and Maharashtra, India.



**Saket Thombre** is pursuing Bachelor's degree in Computer Engineering from Savitribai Phule Pune University at A.I.S.S.M.S College of Engineering, Pune, and Maharashtra, India.



**Trupti Kumbhare** is Assistant Professor in Department of Computer Engineering from Savitribai Phule Pune University at A.I.S.S.M.S College of Engineering, Pune, and Maharashtra, India.