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CCI(CAMERACOMPUTERINTERACTION) LEARNING TECHNOLOGY

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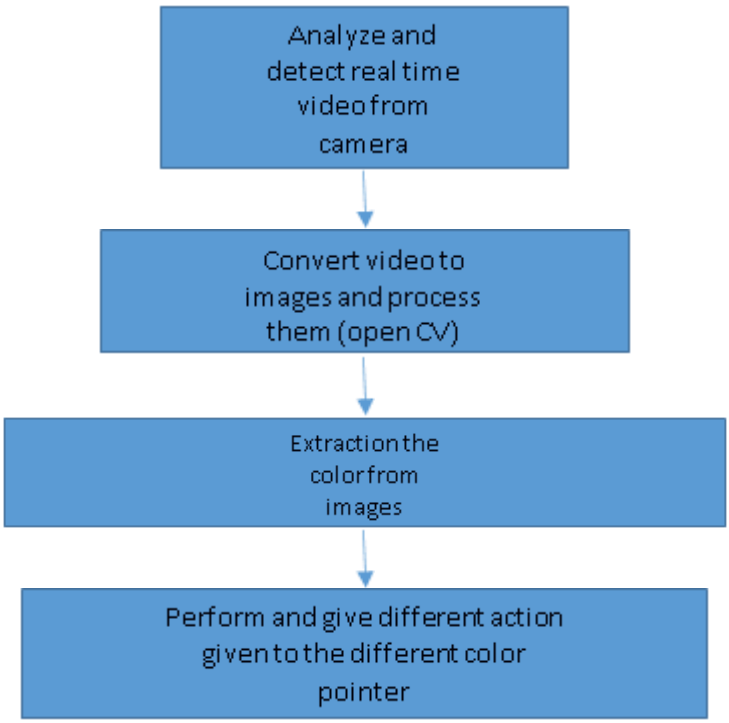
Abstract
In this program the main approach is to control the mouse cursor movement and click events of the mouse using color detection algorithm, where colors are stick on any part of body. We generally use hand gestures for this method. It mainly focuses on the use of a Web Camera on your computer to develop a virtual human computer interaction device in a cost effective manner, which we call camera computer interaction. This interaction is also possible through online.
Group of 10 people with disabilities tested the CCIT and quickly learned how to use computer in effective way.

Keywords: Communicationdevice,real-timetracking,vision-basedhuman–computerinterface,HumanComputerInteraction,ColorDetection, Webcamera.

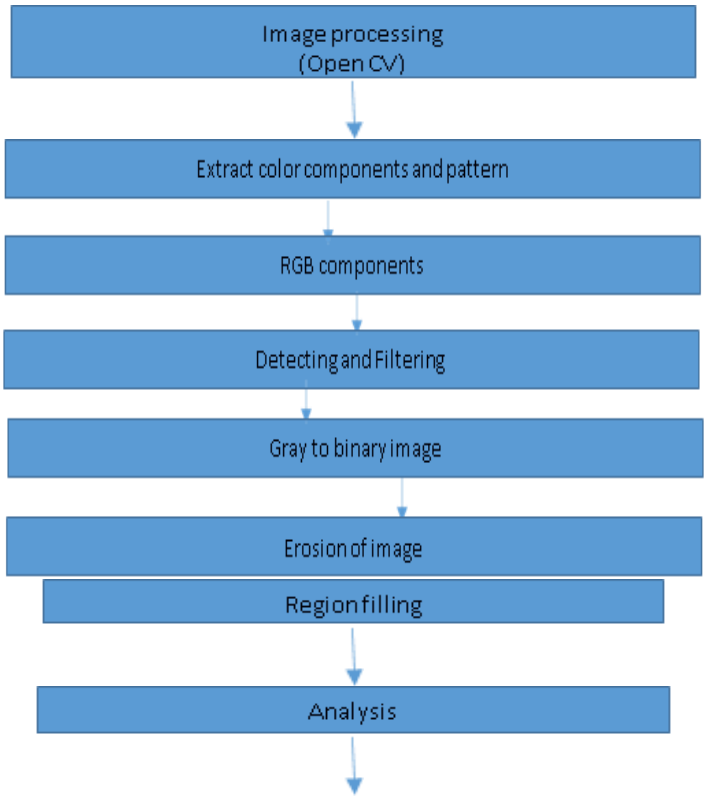
I. INTRODUCTION

CCIT is a program which allows you to control and use the mouse pointer on a computer just by moving the particular color or its color combination and then Clicking can be done by moving the mouse pointer over a particular spot on the screen, it explain by Soloman et al. (2011).
1. This particular program is working is as follow:
2.Capturing real time video activity using Camera.
3.Then it processing the individual image frame by using open CV library which available as open source.
4.Analyses of each image frame.
5.Convert image to a grey scale image.
6.Then this algorithm detects and extract the different colors from given gray scale image.
7.Convert the image into a binary formatted image.
8.Now find the region of the image and calculating its center point.
9.Tracking the mouse pointer using the coordinates (details got from center point).
10.Simulating the left and the right click events of the mouse by assigning different color pointers (mostly RGB).
Block diagram of camera mouse

Blockdiagramofcameramouse

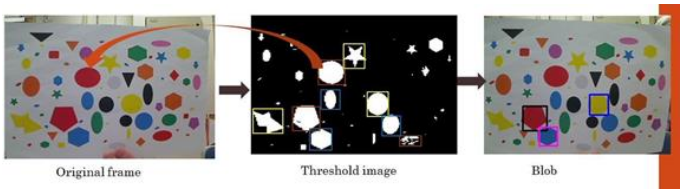


Mousecontrolflowchart

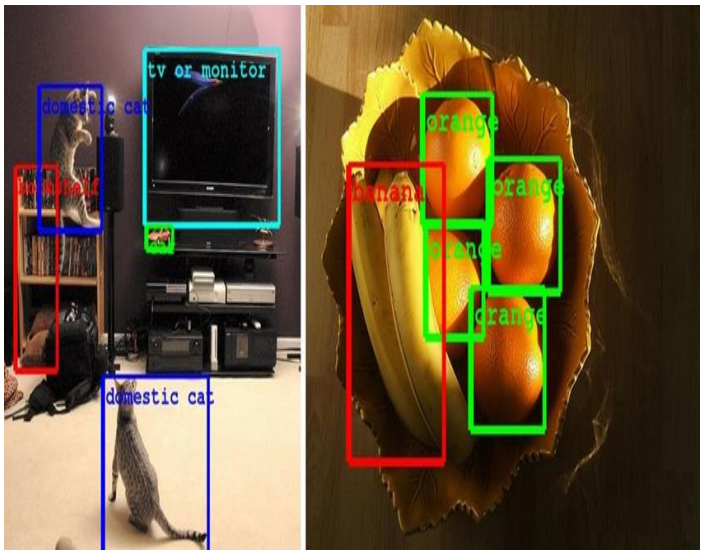


Findingce
ntroid

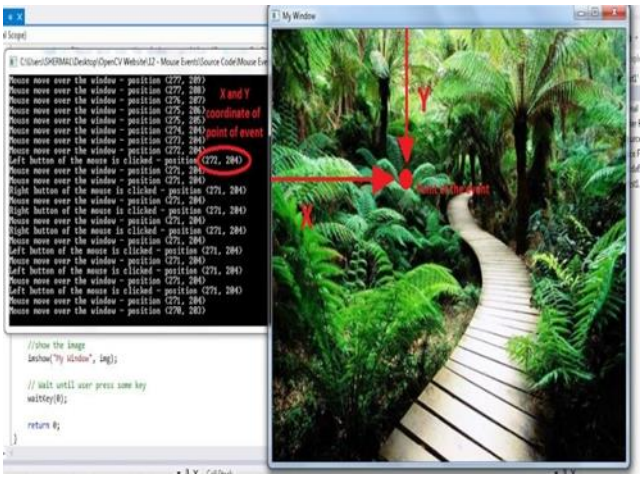
1. Capturing real time video: For make system to work we need a sensor to detect the movements for that we use webcam of the computer is used as a sensor by Park et al. (2008).
2. Flip the images: When the camera is get captures an image, it is in inverted form. To avoid problem of Left is detected as right and right is detected as left we need to vertically flip the image.



3. Convert Flipped Image into Gray scale Image so that complexity is reduced in a gray scale image.
4. Color Detection: RGB color object is detected by subtracting the flipped color suppressed channel from the flipped Gray-Scale Imageby Kumar et al. (2012).



5. Conversion of gray scale Image into Binary scale Image: Convert pixels value to binary as pixel values lay between the ranges 0 to 255 where 0 represents pure black and 255 represents pure white color.
6. Finding coordinates to control the mouse pointer it is necessary to determine a point whose coordinates can be sent to the cursor. According to that, the system can control the cursor movement.



7.Tracking the Mouse pointer: Once the coordinates determine, the mouse driver is send information to the cursor. And with respect to it the cursor places itself in the required position.
8.Performing Clicking action: The control actions of the mouse or which assign to the mouse are performed by controlling the flags associated with the mouse buttons.

Problems

As explain by Gonzalezet al. (20120) Sincetheprogramcaptureimagethroughawebcam, itisdependenton quality (resolutionofcamera)andpresence of other colored objects in the background might cause the system to give a response.Thoughthisproblem canbereducedbutstill itisproblem.
Computerswithlowcomputationalaffecttheoutputandresponse.

CONCLUSION

This proposed program will completely change the way people (generally handicapped) would use theComputersystem.Themainmotivewastocreatethisprogramistheconstructcheapestpossiblewaytocreate such technology which help full to society. Further it used to create a wide range of applicationswithdifferentapproaches andwithminimum requirementofresources.
Future work will incorporate a detection by using Eye tracking, Nose tracking, Lip Tracking, ThumbTracking,DarkLighting,MultiplePoint,BlinkDetection,EyebrowClickerfoehandlingthecomputers ystems.

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