

FACE TRACKING USING SERVO MOTOR

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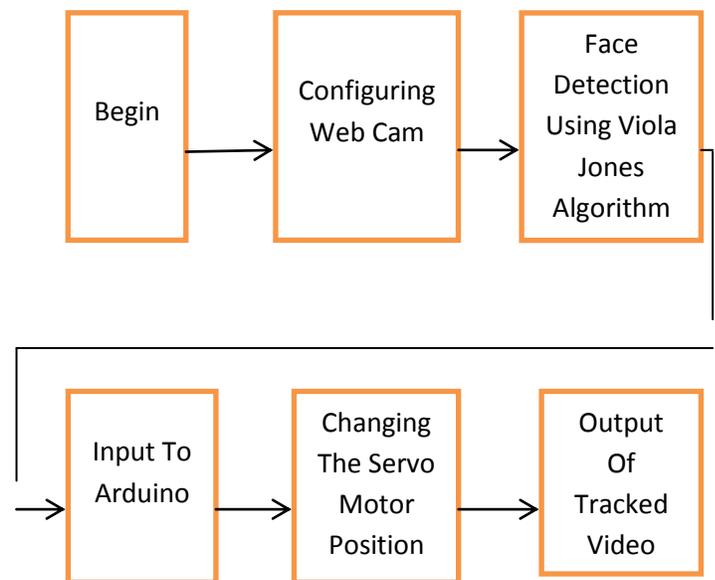
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ABSTRACT - In this journal we will The tools that we used for this process are clearly show how face is detected and MATLAB and Arduino. The reason behind how face tracking is done .The objective using MATLAB software is that it has of this journal is to establish anit has a wide range of built in functions of efficient algorithm in detecting and t- -r Image Processing and it is also easy to racking human face. The algorithm used-club it with Arduino software. The Arduino for detecting and tracking face is -o Uno is used to control the movement Viola Jones algorithm. The platforms of servo motors . The communication pa that we use for this process are MATLAB tth used while clubbing MATLAB with and Arduino.The hardware Arduino is of serial communication type. hat we use for tracking is servo motor. There are many algorithms to detect and This servo motor is controlled by usi-track a face but we have used Viola Jone g Arduino. The MATLAB and Arduino algorithm because of its speed of comp no software are communicated serially. More number of frames/second

1.INTRODUCTION

are computed using this algorithm. In the present days there is a great demand for video surveillance. Therefore it is a challenging work to come up with an efficient algorithm for face detection and tracking. Then it can be used in ATM cetres etc where limited people are allowed to go to a certain area.

2.PROPOSED ALGORITHM Similarly for the second condition, the figure is First of all the camera position is configured by the Arduino to the shown in (2).For the first codition, the digital represeinitial position. The camera is attached to the servo motor. Then the ntation is given by :camera provides video input to the laptop which is installed with MATLAB software. We know that a video is nothing but a combination of images. The MATLAB detects the face and sends the co-Ordinates of face to the Arduino. Based on the principle of centroid For the second condition , the digital representation the Arduino tracks the face. Is given by :



Face for tracking Now initially the video

3.SOFTWARE IMPLEMENTATION is given for the MATLAB for face detect

Viola Jones algorithm is used for the detection of face. The properties of -ion and inserts a bounding box around the Human face used in this algorithm are : 1.The eye region is darker than -e bounding box around the face. The al The upper cheeks 2.The nose bridge region is darker than the eyes algorithm detects the face from the video

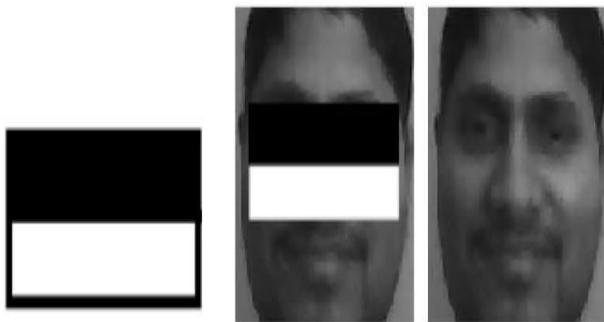


Fig 1 : Illustrating Viola Jones Algorithm



Fig 2 :Illustrating Viola Jones algorithm Similarly , for tilting also , if the co-ordinates have varied x and y values then both pan and tilt servos work simultaneously and calculates the co-ordinates of the centroid .These co-ordinates to get the face in the range. Thus tracking

from the face and is the result of the video which is taken from the camera of image takes place by using the coordinates connected to two servos for pan and tilt of the camera. These servos of the face sent by the MATLAB. connected to the digital outputs of the Arduino Board and co-ordinates are connected as inputs. The camera set position is taken as origin and four co-ordinates are formed. If the co-ordinates are in a quadrant the Arduino board sends signals to the servos such that the co-ordinates Are again come back to the origin position. If the co-ordinates are on the positive x-direction then the servo pans to the negative x direction makes the co-ordinates to the origin.

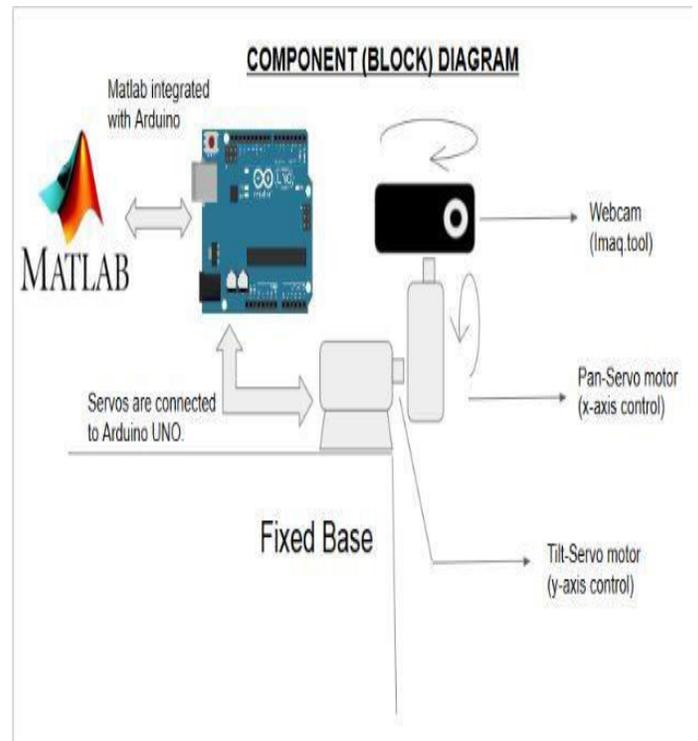
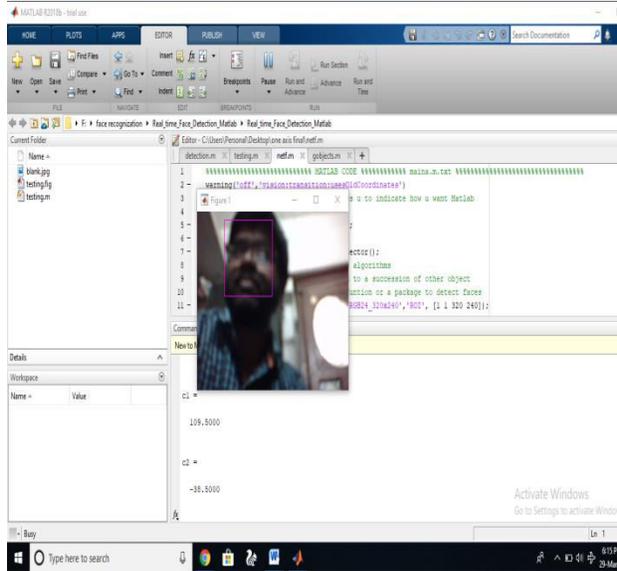


Fig: Block diagram of the experimental set-up

4.SIMULATION AND RESULTS

The below figure shows detection and tracking of colour using MATLAB software :



5.REFERENCES

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