

OBJECT TRACKER AND FOLLOWER ROBOT USING RASPBERRY PI

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Abstract –

The aim of our paper is to identify and track the object in real time. For the detection of object we have use raspberry pi-3 and webcam to collect the information. In this paper the robot detect the object and move depending upon the object movement. This idea is used for monitoring the army base, human machine interaction and traffic monitoring. In hardware we have used raspberry pi-3, webcam, servo motor, dc motor, which is interface to the robot for detection of object. The incoming object visual is process using image processing technique. By this technique the target is recognized by the robot, and follows a path to get the target.

Keywords: Camera Interface (CSI), Computer Vision(CV), Detection And Tracking Of Moving Object(DTMO), New Out Of Box Software(NOOBS),Operating System(OS), Random Access Memory(RAM), Universal Serial Bus(USB).

I. INTRODUCTION

As the future is growing new technology grows rapidly. With advancement of IOT, Artificial Intelligence, New Age Robotics, etc. Like normally the robots plays an important role in industry for dedicated and assign task. Now a days robot is widely used in various sector like aviation, defense, space craft, medical. Existing robot are dedicated & complex mechanism makes them expensive. Our proposed work is cost effective & equipped with basic sensor like servo motor, dc motor, webcam, etc. To identify & track the object precisely the system is developed. The webcam is used to detect the object. After detection the information is sent to raspberry pi-3. With the help of servo motor and dc motor the object is track. It is used for tracking the multiple objects having different colors, sizes, structure.

II. PROPOSED SYSTEM

As shown in figure raspberry pi is connected to servo motor, Dc motor drivers, camera module. In this we use the background subtraction. For these we need fixed camera to generate foreground mask. Then it compares frame with normal one with background images or the model that contain static part of scene and everything is

considered as the background part of image. This technique is done with the help of raspberry pi and web camera.

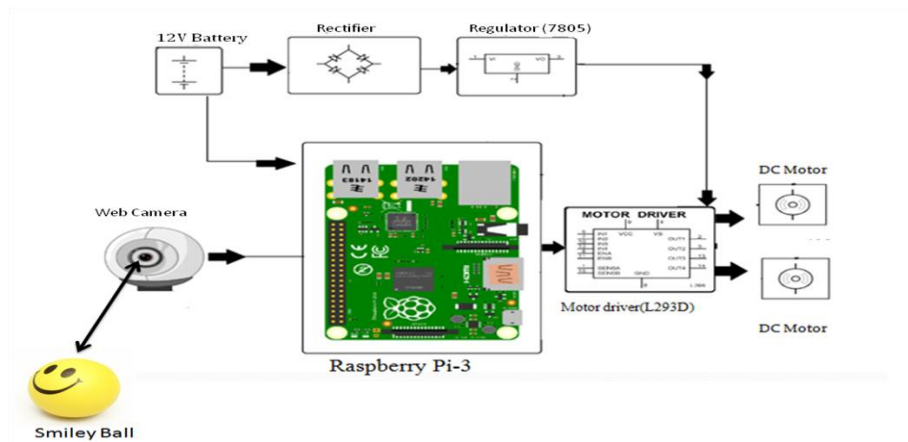


Figure 1: Block diagram of project

The camera is placed on the top head of raspberry pi kit from which the image has been taken. The camera is connected via USB port. Then the image is sent to raspberry pi kit and for execution it is followed by python coding. The signal is generated through python coding and the generated signal is sent to robot for execution. By the robot kit and raspberry kit it follows the color object effectively. We can monitor it in PC itself after tracking of ball.

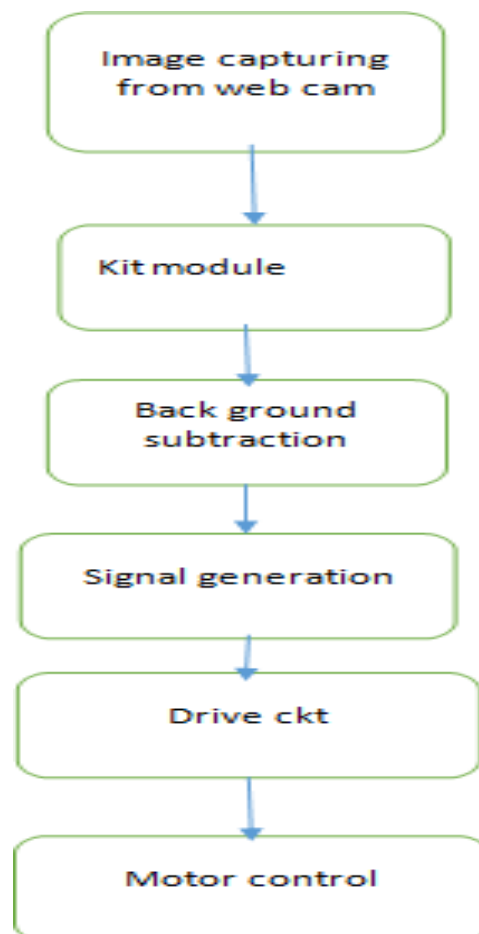


Figure 2: Block diagram of working model.

III. RESULT

The concept used in this paper make use of webcam to track the color object effectively along with raspberry kit. The picture of project is shown below.



IV. CONCLUSION

After successful implementation of our proposed work, we have find our robot is not only to identify the shape, color, distance of object with respect to robot but also trace the movement of object in 180 degree. As compare to similar features of robot in the market, our robot is less expensive and easy to assemble and troubleshoot.

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