

Automatic detection of objects in video surveillance using R-pi

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ABSTRACT

Real time object detection is one of the foremost interesting subjects because of its compute costs. Algorithms in these applications can be developed with in machine learning and/or numerical methods. These operations are possible only if communication of objects within their selves in physical space and awareness of the objects nearby. Artificial Neural Networks may help in these studies. In this study, we detect the object by using camera through R -Pi Controller real-time object detection is researched. We also reduced the time when any object is moved from one camera to another then our system maintain the all details of that moving camera object, and identified exact where the object is located by camera.

Keywords: Object Detection, Image processing, R-pi, Camera.

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I. INTRODUCTION

The robot and mechanical arm give principle capacity and valuable to human laborer in industry Digital picture are more pixie in science and innovation by utilizing picture pre - handling this paper build up a y that perceive shading for sort protion. To empower the long haul following, there are various issues which should be tended to. The key issue is the recognition of the question when it returns in the camera's field of view. This issue is exasperated by the way that the question may change its appearance consequently showing up from the underlying casing unessential. Next, a fruitful long term tracker ought to deal with scale and enlightenment changes, foundation mess, halfway impediments and work continuously. The long haul following can be drawn nearer either from following or from identification points of view. The beginning stage of our exploration is the acknowledgment of the way that neither following nor identification can illuminate the long term following undertaking freely. The Commitments of

this paper are to show a portable automated acknowledgment of the way that neither following nor identification can illuminate the long term following undertaking freely. The commitments of this paper are to show a portable automated framework which can all the while identify a protest and maintain a strategic distance from hindrances continuously.

This model gives an overview of Raspberry Pi ARM Corte x- A53 based processor board. The main features of Raspberry Pi are Broadcom BCM2837 ARM Corte x-A 53 processors (900M Hz), 1GB RAM, on board USB 2.0 ports .Providing a wide range of processors based on a common architecture that delivers high performance and cost efficiency. To control the movement of servos, the controller is used. Since Arduino has more number of PWM pins and it supports open source hardware, it is preferred to use Arduino has a 32-bit At mel ARM processor.

II. LITERATURE SURVEY

Sr.No	Title of paper	Abstract	Proposed approach	Year
1	Object detection and tracking using image Processing	This paper mainly focuses on the basis to imple ment the object detection and tracking based on its color and shape.	This paper mainly focuses on the basis to implement the object detection and tracking based on its color.	2014

2	Real Time Object Detection & Tracking System (locally and remotely) with Rotating	This paper presents an implementation of real time detection and tracking of an unknown object	Detection of a moving object is necessary for any surveillance system.	2013
3	Mobile Robot for Object Detection Using Image Processing	This paper describes a robotic application that tracks a moving object by utilizing a mobile robot with sensors and image processing.	In the majority of surveillance and video tracking systems, the sensors are stationary.	2012
4	Color Image Processing and Object Tracking System	This report describes a personal computer based system for automatic and semiautomatic tracking of objects on film or video tape.	The Tracking System achieves the automation by integrating the discrete components into a cohesive system	1996
5	Practical Applications of Robotic Hand using Image Processing	Robotic hand is used in image processing our paper Presents various application for robotic hand.	The robot and robotic arm provide main function and useful for human worker in industry.	2015

III. RELATED WORK

This segment audits the related methodologies for each of the segment of our framework. The accompanying figure demonstrates the square graph of this venture. As appeared in the figure, picture will be caught through the camera which is then given as a contribution to the Raspberry Pi.

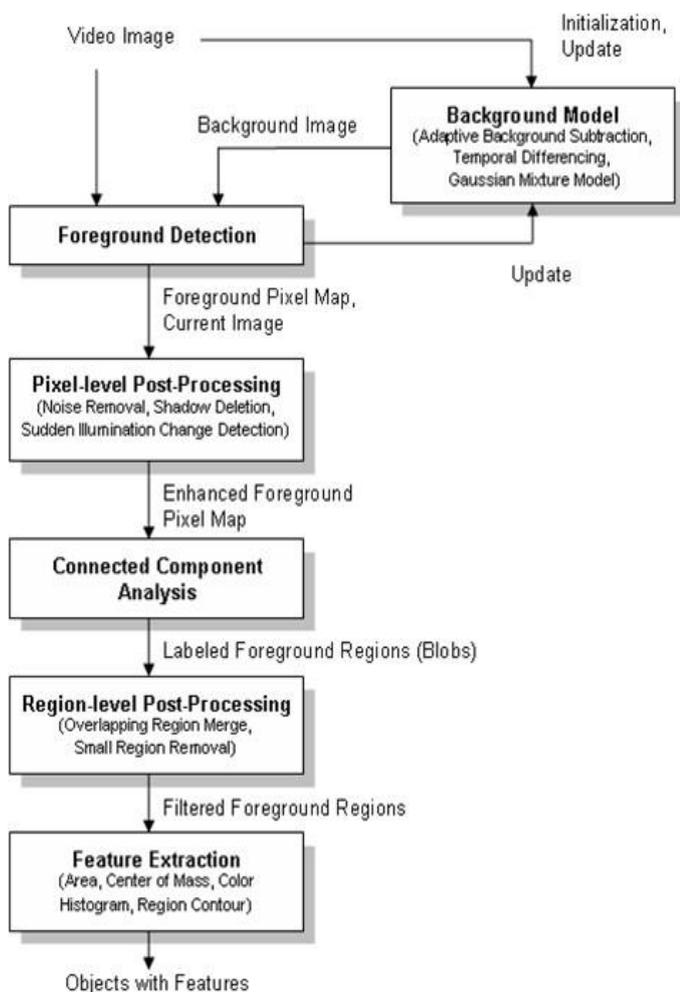


Fig 1: Block Diagram of Image Processing

1. OBJECT DETECTION-

Protest recognition is the undertaking of restriction of articles in an information picture. The meaning of a "question" shift. It can be a solitary occurrence or an entire class of articles. Complaint identification [4] is a technique to distinguish a protest in a video or a photo outline. The question can be anything that is of enthusiasm for further investigation. Quantities of strategies have been created to recognize a moving article utilizing a dynamic camera. Normally a moving article recognized by static camera utilizing foundation subtraction. A question [1] can be spoken to by its shape, position and appearances.

2. OPEN CV LIBRARIES-

OpenCV is released under a BSD allow and thus it's free for both academic and business use. It has C++, C, Python and Java interfaces and it supports Windows, Linux, Mac OS, iOS and Android. OpenCV was expected for computational profitability and with a strong focus on consistent applications.

Question following is the undertaking of estimation of the protest movement. Trackers ordinarily expect that the question is unmistakable all through the arrangement. To track a question, numerous sort of figuring's are essential e.g. protest introduction, question shape, heading of protest. Here we concentrate on the strategies that speak to the items by question shapes and their movement is assessed between back to back edges.

IV. METHODOLOGIES

1: Creation of Interfacing and connection

In this phase, parts of phase we are assembled & interfaced. This phase contain two sections, connection and interface. (a) Connections: In connection part we design the connection of robot means where we should place or connect the particular h/w.

(b) Interfacing: In this section we create the interface between the hardware and s/w.

2: Programming for Object Detection

In this phase we write the program for the object detection. We develop the program in python language using open CV library.

3: Implementation of image processing

This phase comes after the programing phase. The program we create for object detection we install in raspberry pi board. For implementing image processing there are two subsections which are as follows:

(a) Object detection: For detecting the object we can give the object to the bot in two ways first direct via programing, second by camera.

(b) Feature e extraction: After detecting the object important task is feature extraction. For extracting the features the given image is change BGR to gray image. This helps to detect the size, shape of the object.

Algorithm Steps:

1. Get the image containing objects.
2. Convert the image into gray image.
3. The image should be resize into a fixed dimension since all the images are not of same size.
4. Now segment the image into fixed matrix of M x N numbers.
5. Now numbering is done for each segmented images.
6. Take one of the segmented image and apply the process to find exact object. Process is that take the standard of the image and apply some threshold value. If the processed value is greater than threshold value than that segment image contain particular object.
7. Then check all the segmented image in the process and find the exact images which contain object.

V. APPLICATION

- Office for authentication
- It can be used in many industries for security purpose • This application used in voting system
- It is used in Bank and Medicals • This application is used in aeronautical fields for high level security purpose
- Vehicle Security
- Research LABs security
- Military Applications
- Industrial Security

VI. CONCLUSION

This proposed solution gives better results while compared with the earlier projects such as efficient image capture. Identification of object by using this image processing based raspberry pi.

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