PRACTICAL APPLICATIONS OF ROBOTIC HAND USING IMAGE PROCESSING

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***Abstract* -Robotic hand is used in image processing our paper Presents various application for robotic hand . This Application consist of video camera, video camera is used acquisition image The acquisition image is further processed for recognition and sorting from this acquisition images we develop algorithm that algorithm enable the arm to either sort object. This object have different shapes. In our paper object identify and coordinate exaction method are for implement series of image processing methods used. Contour detection, contour extraction, are series of image processing tech the aim of this paper is to provide an total overview of practical app PI controller, use for the position of robotic hand is manufacture.**

***Index Terms*—segmentation , GUI**

I.INTRODUCTION

The robot and robotic arm provide main function and useful for human worker in industry Digital image are more imp in science and technology by using image pre-processing this paper develop a y that recognize color for sort object.

The images are important in different technology and art. Image processing has a extremely critical component in science technology many task are done only with image processing. It is very important or useful subject used in robotics, medical image astronomy and many other fields.
The vision is technology of intelligent robot. The research of vision is called as "computer vision" it use as fundamental and scientific approach to invest how it works. The use of this paper is to report extra application for users than earlier. This paper supply student with total theory and soft development working of robotic hand can be explain in stages shown below.

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II. LITERATURE SURVEY

Sr No.	Title of paper	IEEE Transactions	Author	Method Of Implement.
1	EMG signal classification for human computer interaction: A review	*Eur. J. Sci. Res., vol. 33, no. 3, pp. 480–501, 20090*	M. R. Ahsan	Using Image processing
2	Human–computer interaction design and development approaches	Human–computer interaction design and development approaches	J. A. Jacko	Human–computer interaction design
3	Intelligent robotic wheelchair with EMG-, gesture-, and voice-based interface	*Intell. Robots Syst., vol. 4, pp. 3453–3458, 2003.*	I. H. Moon, M. Lee, J. C. Ryu, and M. Mun	Intelligent robotic

III. METHODLOGY :

- **Image Capture**

The image to be processed is first captured with the help of webcam. In this method we initially blur the image with a canny Thresholding according to image environment and noise of the camera which is achieved by user friendly interface.

- **Image preprocessing**

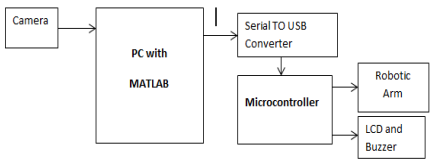

Fig1 System Block Diagram

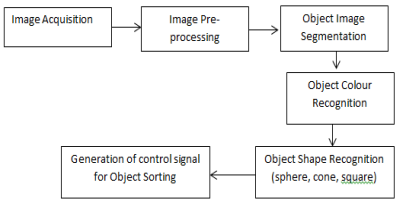

Fig2 Image Processing Part

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The image captured is to be preprocessed in order to remove the noise several noise
Methods are available. Out of this the salt
And pepper noise is removed with the help
Of median filter.

In this method the pixel which
Is affected is noise replaced by the median of all surrounding pixel.

If the neighborhoods does not have exact center the block has a bias to ward upper left corner and place the median value there.

- **SEGMENTATION**

In order to provide image reorganization and image compression we cannot directly process the image as it is unpractical. There are various segmentation method and algorithm used to segment an image before reorganization or compression basically inn image segmentation we classify or cluster an image into several pats according to characteristic of image.

- **IMAGE RECOGNITION**

Object recognition sys finds objects this task is difficult algorithmic description of recognition is very difficult .In this paper we will discuss different steps of recognition. The complexity of recognition depend on some factors the factors are scene constancy, image model spaces, no. of object in the model database. Specific approaches involve pattern recognition using feature extraction using edge detection and region growing techniques .

5. OBJECT SORTING

Object detection is a computer technology related to computer vision and image processing that deals with detecting instances of semantic objects of a certain class in digital image and videos. Sorting process is used for sorting the object it is sorted by camera or there are many type of algorithm. Color camera with higher color resolution are capable of detecting millions of colors camera are includes red, green and blue after the object has been found is assigned some code.

The mobile platform is used in experiment development This passes through three states:
1.position at input coordinates
2.determine the object and grab object with arm.
3.return to first position
All there states are communicate using ARIA

IV. ALGORITHM

The robotic arm development algorithm is given below.

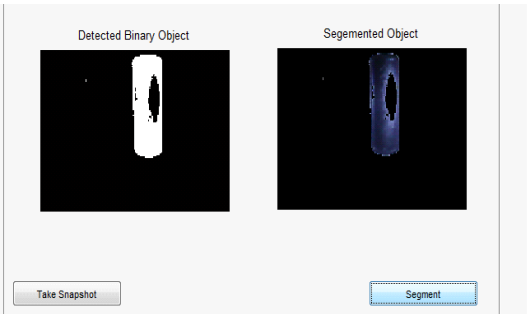
1. Image Acquisition.
2. Image Pre-processing.
   Noise Reduction
   Histogram Adjustment
   Exposure Adjustment
3. Thresholding based Object Segmentation
4. Object Color Recognition
   Red
   Green
   Blue
5. Object Shape Recognition
   Sphere
   Cone
   Square
6. Generating Control signals from recognized color and shape for sorting
7. Repeating step 1 to 6 till exit.

V RESULTS

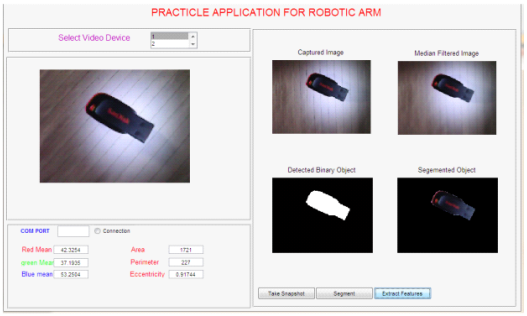
- Description of scenario 1:

In this scenario firstly MATLAB is used . here the moving camera which is moved in both direction is used. the is object is also moving . In this scenario we capture image and image acquisition is done .
The capture image is shown below :

First image is acquire then segmentation is done .segmentation is shown in blow gui.



- Description of scenario 2:



The final output is shown in scenerio 2. The detected binary image and sgmented image is shown in gui.

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VI. CONCLUSION

In this paper we establish practical laboratory application. This application provides a total information of project that is essential for robotic arm. The object detect and contour extraction methods are implemented this method are implemented using image processing technique .The robotic arm is moving in desired direction.

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