

# AUTOMATED OBJECT SORTING ROBOT

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**Abstract** -In this project we are measuring the dimensions of object manufactured it the company by using image processing code. The digital camera is interconnected with the computer that is digital camera is interfaced with the computer. Now the image is captured by the digital camera. Then the image is transferred to the PC through camera. The dimensions are then measured by using image processing. After executing the code we will get the dimensions on computer. Then we can compare the dimensions of our object with the required dimensions. If the dimensions are not matched then we can send that object for reprocessing. . The input image can be any type of image; we can convert it into binary image by using the above function. In our project the important step is to convert any type of image that is RGB image or grayscale image it has to be converted into binary image. . In a binary image, each pixel assumes one of only two discrete values: 1 or 0.

**Keywords** — MATLAB, RGB, Binary Code.

## I. INTRODUCTION

Many industrial manufacturing processes depend on the accurate measurement of circular shapes. For example, in pipe or tube manufacture, it is necessary to maintain parameters such as inside diameter, outside diameter, wall thickness, ovality and eccentricity within tolerances specified by the manufacturing standards .This measurements are required to control these parameters are often time consuming. By developing a code using image processing toolbox it is possible to determine the dimensions of the object such as length, width, and thickness. We cannot determine dimensions of an object only with its image and without scaling and orientation of that object. If we have known geometry and camera calibration factors then it becomes a simple process of edge detection, object identification and just counting pixels from features to features. In this project we are measuring the dimensions of object manufactured it the company by using image processing code.[1] image processing using matlab is discussed ; is experimentally tested and results are obtained [2] different types of images are discussed like RGB, Binary, grey etc.[4] calculation of width, length, area of the different images is discussed in this paper.[6] pixel measurement and edge detection technique are discussed in this paper [5]in this book techniques of image conversion is discussed

## II. DESIGN AND CONFIGURATION

In this section, the working of object sorting Robot is described. The camera used in this case will be overhead camera it will take the snapshot of the object for sensing purpose. The image captured by the camera will be processed by image processing using matlab. The image of the object is taken by the camera is given to the PC and PC store this image, now the image of the object is compared with the image of the standard object in PC if there is dissimilarity in two images then signal goes from PC to microcontroller. In this Robot we have used AT89C52 microcontroller, which is a low-power, high-performance CMOS 8-bit microcomputer with 4 Kbytes of Flash Programmable and Erasable Read Only Memory (PEROM).

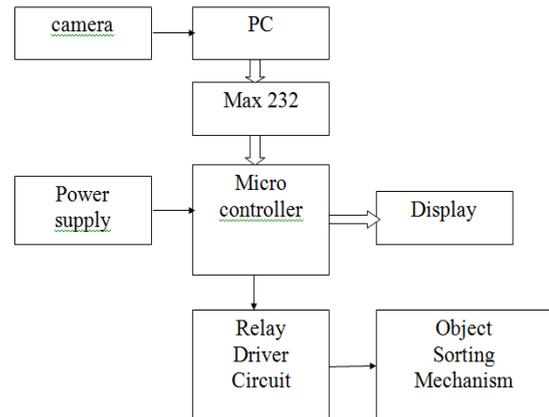


Fig.(a) Block Diagram

The basic data structure in MATLAB is the array, an ordered set of real or complex elements. This object is naturally suited to the representation of images, real-valued ordered sets of color or intensity data. Using MATLAB commands we compare the image captured by the camera and original image stored in the PC .Then PC give the signal to microcontroller and depending upon signal, microcontroller take the decision.

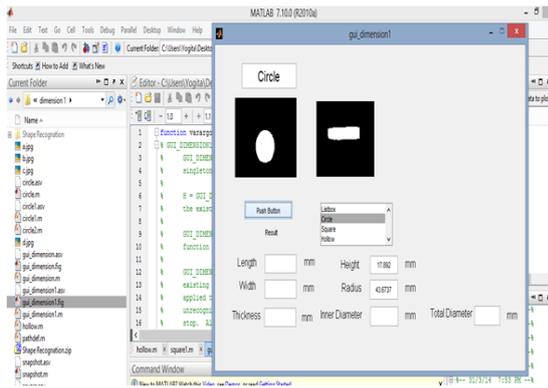


Fig.(b) Simulation on MATLAB



Fig.(c) Hardware design



### III. CONCLUSION

In this project we develop a code such that we will get the result very fast and correctly as compare to manual measurement and we can compare that with the required or ideal dimension. If the dimensions are incorrect then we can send that object for reprocessing.

### REFERENCES

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