

# **IMAGE PROCESSING T2**

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**TOPIC:** Design an algorithm to count the number of coins and size of each coin in the image.

## **METHODOLOGY USED:**

### **1. Input Image**

In this stage the input image is taken for processing image. Image format taken is .png or .jfit

### **2. Pre-Processing**

Image pre-processing is a manipulation of an image so that result would be more suitable than the original image and hence it is a significant stage of an object recognition. First in the pre processing stage is to translate a picture into binary images using **OSTU's method** of thresholding. Binary image is having either 0 or 1 as a pixels intensity. The backdrop carries white pixels that are having 1 intensity and the forefront carries the black pixels that are having 0 intensity.

The second step is to remove imperfections in the image and provide information on the form and structure of the image. Morphological operation such as dilation is used.

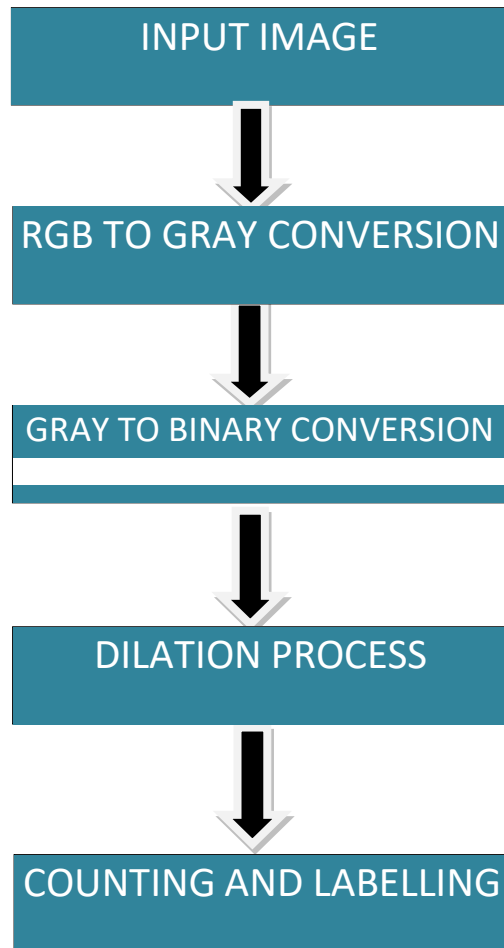
### **3. Segmentation**

Image segmentation is the division of an image into regions which correspond to different objects. It is typically used to locate objects and boundaries in image.

### **4. Detection**

Segmented areas in an image is labeled for detection of objects.

## BLOCK DIAGRAM:



*figure: flow-graph*

## STEP WISE OUTPUT:

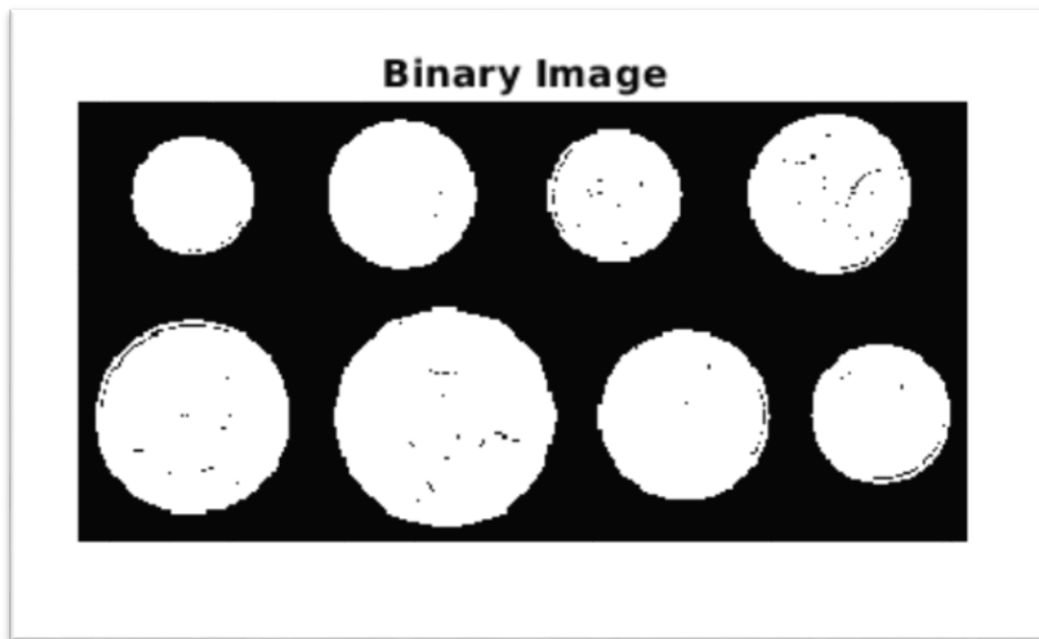
Step 1: Input Image



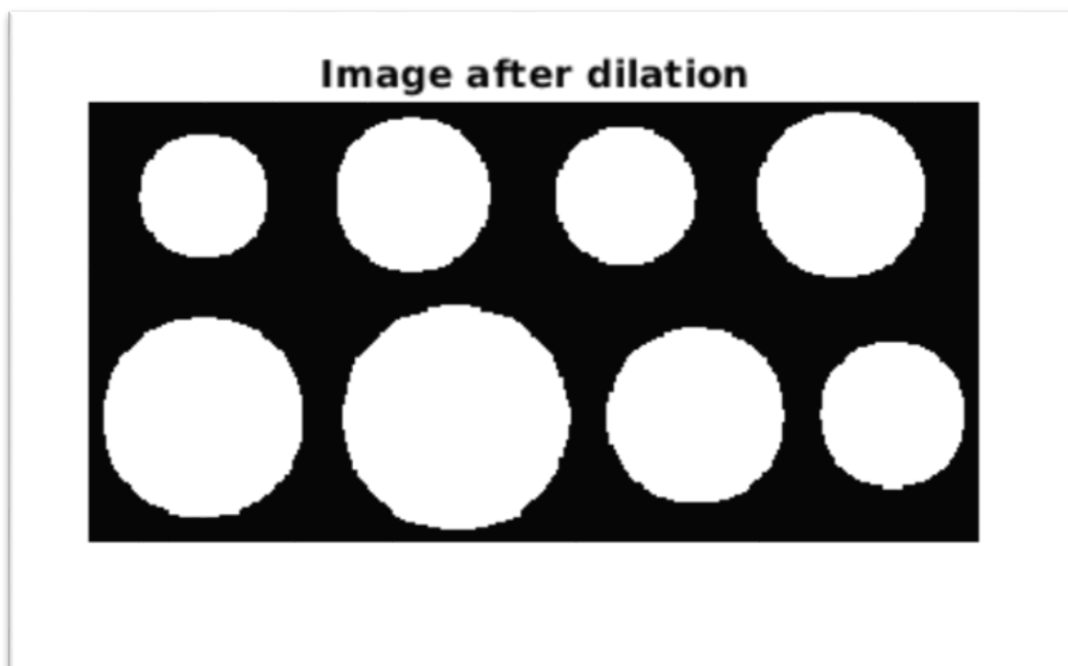
Step 2: Conversion to gray scale



Step 3: Conversion to Binary image using OSTU's method of thresholding



Step 4: Image after applying Dilation



## **RESULTS:**

A. Number of coins detected = 8

B. Size of each coin is:

1. 4130
2. 1659
3. 2441
4. 5185
5. 1969
6. 3188
7. 2870
8. 2215

## **CONCLUSION:**

Image processing based on MATLAB is effectively used to determine count of different objects. It has been observed that for bigger objects the counting accuracy is more. Threshold value is given different for different size of object. Size of disk structuring element has more effect on accuracy. Smaller the object is, less the size of disk structuring element should be. Accuracy can be increased by separating conglutination among the objects.