**LAB#08**

**(OPEN ENDED)**

**OBJECTIVE:** Calculate the diameter of an object using the matlab with in the image.

**SOFTWARE REQUIRED:** MATLAB

“MATLAB is a high-level language and interactive environment for computer computation, visualization, and programming. Image Processing Toolbox is an application available for use in MATLAB, which provides a comprehensive set of reference-standard algorithms, functions, and apps for image processing, analysis, visualization, and algorithm development.” Using these tools provides a fast and convenient way to process and analyze images without the need for advanced knowledge of a complex coding language.

**DIAGRAM:**

**METHODOLOGY:**

i = imread('C:\Users\Aazib Ahmed\Desktop\ball.jpg');

imshow(i)

figure(1)

red = i(:,:,1);

green= i(:,:,2);

blue = i(:,:,3);

subplot(2,2,1);

imshow(i);

title('Original Image');

subplot(2,2,2);

imshow(red);

title('Red');

subplot(2,2,3);

imshow(green);

title('Green');

subplot(2,2,4);

imshow(blue);

title('Blue');

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figure(2)

level = 0.37;

bw2 = im2bw(blue,level);

subplot(2,2,1);

imshow(bw2);

title('Blue Threshold')

fill = imfill(bw2,'holes');

subplot(2,2,2);

imshow(fill);

title('Holes filled');

clear = imclearborder(fill);

subplot(2,2,3);

imshow(clear);

title('Remove blobs on border');

se = strel('disk',7);

open=imopen(fill,se);

subplot(2,2,4);

imshow(open);

title('Remove small blobs');

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figure(3)

open=bwlabel(open);

diameter = regionprops(open,'MajorAxisLength')

imshow(i)

d = imdistline;

**OBSERVATIONS:**

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diameter = MajorAxisLength: 120.00

**RESULT & DISCUSSION:**

**FIGURE(1):**

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**FIGURE(2):**

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**FIGURE(3):**

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**CONCLUSION:**

In this lab I have perfomed to calculate a diameter of a circle with in a image using matlab software. The diameter is now displayed in the Command Window to be 120.00 pixels across. This was verified in Figure 3 by using the imdistline function.