Artificial intelligence Final Project

Project is shape detection:

General Overview of My Python Code <>

1. Take image using camera interfaced.
2. For a single shape create a centroid to boundary distance profile
3. Based on that profile classify these shapes into individual one
4. Also using that profile measure the length of each vertices if shape have vertices between two-to-six and radius and major and minor axis if it is circle or ellipse respectively
5. We need to measure all basic properties of each shape using that profile
6. So you need to do detection, classification, counting, and measuring properties for each shape
7. Plot detection vs distortion i.e. the accuracy how it behaves against distortion
8. Plot time taking for each shape detection

Program steps will be like this <>

1. Read image and convert it into binary
2. label the image
3. For each blob, get its boundaries and find the distance from the centroid to each boundary point
4. Plot of distance from boundary distance function
5. Compute the number of vertices by looking at the number of peaks/valleys in a plot of distance from centroid
6. Classify the shape by the centroid-to-boundary
7. Determine the number of length of vertices according to the centroid-to-boundary
8. Place a label on the shape
9. Count the total number of same shape i.e. how many circles in image of same radius, how many equilateral triangle in image

Different shapes to be classified are <>

1. Tri
2. Circle
3. Square
4. Rectangle