ENEE 499 Mid-semester Progress Report

# Image Processing: shape detection, color grouping, text recognition and text output

This is a Matlab-based project that uses the image processing toolbox to analyze an image. It will detect the major shape within the image and give its name as a text output. Then it is to take a histogram of the colors in the image to differentiate between the different colors in the image. Once this is done, it will output the background color and the color of the shape as a text output again. Then, the program will make an attempt to identify a letter or number within the shape and give its guess as a text output once more. With all of this accomplished, the last goal of the project is to build these capabilities into a GUI with a button for each, as well as an option to do all three tasks and another option to run the tasks on a group of images. At this point, the goal at this point in the semester was to have completed the shape recognition and color detection portions of the code and have a good idea of how the text output would be formatted.

## Shape Recognition

For this portion of the project, I have been successful in loading an image into Matlab, detecting the edges of the image, finding the centroid of the image, and getting the distances from each point on the edge to the centroid to use in differentiating the shapes. I was also able to detect corners within images using these plots. However, some of the graphs

## Color Differentiation.