Mark Gorewicz

**Summary**

**Final status update**

See file name Final Status Update.

**Summary of all scope changes**

The program does not allow for multiple objects in the image.

**List of deliverables**

* Initial designs
* Final designs
* Source code

**Known bugs and recommended enhancements**

The program is greatly affected by light. Light can change the color values and cast shadows which will create false edges which distort the shape that will compared. To enhance this project I recommend switching from edge detection to feature detection, which is used in facial recognition.

**Discussion of how your work satisfies what you proposed**

My work satisfies what I proposed very simple. First the image is captured using the openCV library. The image is then processed to preform edge detection. The edge detection makes a matrix of edge points the points are used to create a shape template which is saved for each object and used as a point of comparison. This helps narrow down the possible objects. The program then looks at color at does a comparison of the most frequent color which will help us identify the object. If the object is not already in the database an option to add the object is given. The object can be skewed as long as enough of the front face of the object is still visible.

**Summary of what was accomplished**

I was able to accomplish my proposed project with object being correctly identified. The accuracy was not where I wanted it to be, however I believe many of the errors were due to the extra lines create by the background. I was able to take images from the webcam and manipulate the image to find its edges and then find its outer edges to create an object shape.

**What you learned from doing the project**

During this project I learned about the Canny edge detection method and how it works. I found formulas to convert RBG colors to grayscale. I learned just how difficult image processing can be when using images from a webcam. I learned how troublesome lighting can be for both color recognition and edge detection. I learned what can seem simple one moment can become a royal headache in a single moment. I found that many parts of the project become trial and error when detailed documentation is lacking for certain processes. Overall the most important thing learned from doing this project was patience and stopping to take a break to collect my thoughts when I am stuck.