Journal Report 4
9/23/19-9/26/19
Your Name
Computer Systems Research Lab
Period 1, White

Daily Log

Monday September 23

I spent today running edge detection on the rest of the data I didn't process. I modified the code of my edge detection to run a few images at a time. I let the code run for a while and eventually got all the images processed.

Tuesday September 10

Today, I started by reading pickle values and creating a method that would give me the max and min y values for the pixels in that contour. I then had to find where the bottle started by finding contours which had a large gap between them (explained in the reflection). Using this knowledge, I sought to find the height of the bottle. I did this by going through all the contours belonging to the bottle, and finding the minimum and maximum y values throughout the contours. Had to finish this at home with my partner between work days.

Thursday September 12

I spent today applying the same type of logic to finding the height of the plant. This wasn't as difficult since the code was similar to what my partner and I did above. Once I had data for both height of the plant and bottle, I used the ratio between their heights and the known height in meters of the bottle to find the height of a plant in meters

Timeline

Date	Goal	Met
Today minus 2 weeks	Finish image processing and start edge detection code	Yes, found a canny edge detection library and started to use it
Today minus 1 weeks	Finish edge detection on all images gathered	Yes, was successful in creating clean images that were run through edge detection, and outputting them as jpgs.
Today	Gather height data from the edge detection and detect growth over all the images collected	Was able to detect the height of a plant in an image in meters, but have not progressed with actual growth over time.
Today plus 1 week	Be able to output height for all images, and also display some sort of visualization for height over time	
Today plus 2 weeks	Start on the web application design to implement the data processing and edge detection into	

Reflection

I wasn't able to do everything I set out for this week, but got still got major progress. I have experience with canny edge detection, but this is the first time I tried using pickles as storage. I actually found them to be useful in storing the contours of my edge detection output.

A tricky part of this section was finding which contours belonged to the plant and which belonged to the bottle (my reference for height). I reasoned that there must be a gap between the plant and bottle due to the way my images were. I searched for contours with at least a set gap value between them, and if there weren't any (bottle size comes out to be 0 in this case), I would slightly decrease the gap value and search until I found one. By finding the shortest/tallest contours below and above these contours with a gap, I was able to get a good estimate of height for both plant and bottle. To output plant height, I found how tall it was compared to the bottle, which was about 0.15 meters tall when measured. Right now, it may not be completely accurate due to the unprofessional nature of my photos, but I hope that this will be good enough so that refining the picture taking process later on can fix any inaccuracies here.

For next week, I want to be able to display the growth of a plant over time. With all the data generated through my program, I'll hopefully be able to spot an upward trend of height over time. I had six plants I took pictures of, so I will need to see if this trend is present for all of them.