USPS Locator 2021

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Summary: Our project will scan pictures for USPS Blue mailbox's. While it attempts to find the mailbox in the photo under a variety of different lighting and situations.

Background: This problem is a very well researched problem. Object recognition has been a discipline of computer vision since the start of its existence. However, this does not mean we can't make something useful out of a well researched problem. We want to make an application that can take a picture and identify if there is a blue USPS mailbox within the picture. This will differ from other programs because we will have to not only use shape to determine whether it is the appropriate mailbox, but also color.

The Challenge: One of the challenges we will experience from this project will be trying to find the mailboxes in bad lighting and low resolution photos. This will be done by modifying the light and saturation settings of our algorithms until we can get back positive detections. With low resolutions or blurry photos we will apply an algorithm to attempt to upscale or sharpen the photo's (this will be determined once we see how each algorithm affects the photo's and which give us the most usable photos.).
These two challenges are what we think the majority of our problems will stem from.

Goals and Deliverables:

Plan to Achieve

We plan on achieving a project that can take photos that are of reasonable detail and determining if that photo has a blue box and where it is in the photo with a relatively high degree of certainty.

Hope to Achieve

If we are ahead of schedule we think it would be cool to implement the program to be like a Captcha, in a sense that it can determine what photos have boxes and which don't and be on par with that of a human.

What success looks like

For us success will be our program to identify mail boxes in photos fed into it and not have any obvious false detections. How this can be evaluated is based on the accuracy of the programs detection of mail boxes.

Realistic?

We believe that this project scope will be realistic to accomplish in time with our busy school schedules. As the project seems very achievable within the time allotted for this course.

Schedule:

Starting Monday February 7th

Week 1(February 7th): We want to have get images into OpenCV and start using the material that is covered in the lectures

Week 2&3(February 14th-21st)(Reading Week): We want to have successfully took an image and applied some matrix theory to it.

Week 4(February 28th): We want to be able to use a stream of photos from a database instead of putting the individual photos into the software ourselves. That way we can accelerate the testing process

Week 6(March 13th): We want to be able to identify some USPS mailboxes given that the condition of the photo is reasonably good

Week 8(March 27): We want to be able to enter a stream of pictures of USPS boxes and be able to recognize most of them

Week 10(April 10th): We want optimize detection to reduce false finds and possibly have the captcha