Final Project Proposal
CS5000 – Theory of Computability

Character recognition with drones using Optical Character Recognition Algorithms

Team Size: 2

Team Members:

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Basic Description:

We are planning to implement OCR algorithm on set of images that are taken by the drone. This will help us in identifying the location by reading the location specific name boards. To make the problem simple we are keeping the locations as single Character. Our program plans to identify the character in the sequence of pictures and then able to identify the areas that it has covered. Our program will be built in such a way that it can recognize the character on the image or no character if it does not recognize it and then move to the next image.

If time permits, we will implement all the locations connected as a graph and try to find a path from source to destination. We will also try to get a subset of all the visited nodes in the graph.

Third party tools or API's:

1. Tensor flow – This is a Google's open source software library which is used for machine learning. It is built by the Google Brain team and is used by many of the Google's applications.
   URL: http://www.tensorflow.org/tutorials/mnist/tf/index.md
   The above URL gives some basic understanding about the API and its usage.
   It is written in Python and C++.
2. Tesseract – This is an open source software for character recognition that we are planning to integrate in our algorithm.
3. OpenCV - OpenCV is an open source API used in many image processing applications.

Risks:

1. The risk is identifying the character in the image when the back ground is changing.
2. The characters in the images may be rotated which is also a challenge to overcome.
3. Integrate all the packages and API in the developing environment.

Skills:

1. We have experience in C++, java and python languages.
2. Knowledge of image processing and machine learning algorithms.