**Project Walknet: Status Report**

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**Curb Detection Based on Labeled Data Image Set**

Using the University of Maryland Project Sidewalk data as a starting point, the team was able to partially extract the 150 GB tar.gz file to the source images and text files.

The text “Curb” and “NoCurb” files were loaded to Python data frames. The Curb and No Curb files contain a 4 point bounding square for the location of where curb cuts should be, or are. Using the (x,y) coordinates of the bounding boxes, the panoramic images were cropped, and subsequently resized to 100 pixel by 100 pixel full color images, and sorted to separate directories based on the presence of curb cuts. Approximately 40,000 images were output, with about 90% falling into the categorization of “Curb” and 10% as “No Curb.”

The data was then split into test and training sets. 80% of the data was dedicated to training, and the other 20% to testing. The Keras library was used interface to the TensorFlow backend. No boosting or duplication of the data was performed to increase the training data set size, or to boost the relatively low occurrence of No Curb cuts in the data set.

The images were loaded in color as 100x100 pixel files, and the data from the images standardized against a 255-point scale.

The Conv2D function in the Keras library was used to add layers to the model. The model was fit using a batch size of 32 and 10 epochs.

An accuracy of 66.2% was achieved on the data set provided.

**Object Detection Based Model**

Using the object detection API in Tensor Flow and the coordinate information from the University of Maryland data, the code will walk through each image and the labels from the University of Maryland. The TensorFlow object detection API will be trained on this data, and will be able to produce bounding boxes for each object type once trained. The process is working for a single image, and now needs to be built into a loop process to work through all of the images.

**Next Steps**

Steps to help improve accuracy of the model