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## sdmay18-03: Use of imaging devices and machine learning software to assist in autonomous ve

### Week 10 Report

November 23 - December 5

#### Team Members

John — *Communications Lead*  
Souparni — *Meeting Facilitator*  
Fahmida — *Tester*  
Ashley — *Document Manager*  
Eric — *Webmaster*  
Bowen — *Hardware Maintainer*

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#### Summary of Progress this Report

Some members on our team successfully set up ImageNet Util and used this to manually label images. This program only works with .png files so we had to convert all of our .jpg files to .png. We successfully labeled about 300 of our 600 images, although some proved to have been collected incorrectly. We also met as a team to finalize our plans for next semester and revise our documentation. This involved thoroughly revisiting and revising all aspects of our project, from the primary goals and requirements to the final testing plan. While developing the test plan our group we determined that we would consider an accuracy of 80 percent on the test and a frame rate of 15 per second will be ideal for our object detection system. Also before this we have never discussed in depth how we would test our distance determination system and check if all our various components are well integrated. After brainstorming these details we updated our design document accordingly.

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#### Pending Issues

We have not completed labeling the images that we have collected and also need to collect quite a few more to properly train the neural net. We also have run into permission issues when trying to access Google's Open Images data set which will need to be resolved

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#### Plans for Upcoming Reporting Period

We plan to continue manually collecting relevant images while simultaneously resolving issues with the ImageNet and Open Images datasets so that we can use those. Once this is accomplished, half of us will split into a group to train and test the neural network using these images, while the other half will do in depth research in distance calculation.

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#### Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
John	Manually labeled about 100 images that were manually collected using ImageNet Util. Attempted to access data from Google OpenImages but ran into issues with the terminal commands available on Linux. Worked with Fahmida to revise our testing	8	63.5

	plan from the ground up.		
Souparni	<p>Converted all 600 images to from .jpg to .png format to be used with ImageNet Util.</p> <p>Manually labeled about 100 images and distributed the remaining images to the rest of the group. Revised design specifications, functional and nonfunctional requirements, and constraints to make them more concrete. Increased understanding of neural network outputs including mAP scores, loss, and accuracy to better understand our results.</p> <p>Worked with rest of the team to finalize documentations and set up plans for the next semester</p>	12	69
Fahmida	<p>Collaborated with John to workout details about testing our image detection and distance calculation system, including integration testing between the two.</p> <p>Manually labeled about 100 images using ImageNet Util.</p>	8	54.0
Ashley	<p>Reviewed and updated our project plan and design document to reflect team progress and include new information that we have obtained since the previous revision.</p>	8	51.0
Eric	<p>Revised design document and project plan. Created a detailed functional decomposition diagram.</p>	7	49.0
Bowen	<p>Revised hardware and software required for our project and worked to plan the testing phase. Discussed high level plan for next semester and documented it with a Gantt Chart.</p>	5	51.5