Daily Log

Tuesday January 21

I researched ways to import street data from the real world. I tested 0%, 10%, 20%, and 30% of users using DTD on my 'basic' map. I found that the average travel time was reduced by 0%, 7.6%, 11%, and 12%, respectively.

Thursday January 23

I researched ways to import street data from the real world. I tested 40%, 50%, 60%, and 70% of users using DTD on my 'basic' map. I found that the average travel time was reduced by 16%, 26%, 7%, and 7%, respectively.

Wednesday January 29

I researched ways to import street data from the real world. I tested 80% and 90% of users using DTD on my 'basic' map. I found that the average travel time was reduced by 6% and 11%, respectively.

Thursday January 30

I tested 100% of users using DTD on my 'basic' map. I found that the average travel time was reduced by 6%. I researched ways to import street data from the real world. Google Maps is proprietary, so I will not be able to use it. OpenStreetMap is a free map generated by users around the world. MapBox is another open-source map that I could try to download. I am considering using one of these databases to create input data files that correspond to real road systems and can be used by my program.

Timeline

Date		Goal	Met
1/6/20 - 1/12/20		Make *Event* only be exchanged between *Cars* that are directly within the communication range.	Yes
1/13/20 - 1/19/20		Reduce execution time and output data by not generating *Events* in certain circumstances	Yes
1/20/20 - 2/2/20		Test varying percentages of DTD population	Yes
2/3/20 - 2/9/20		Visualize input data on web server without running the program	
2/10/20 - 2/16/20		Research how to import real maps from OpenStreetMap	

Reflection

This week, I tested different percentages of DTD population. I found that the DTD navigation system helped reduce the average travel time up to 50% of the population using DTD. At high percetanges of DTD, the travel time was better than no DTD, but it actually increased compared to mid percentages of DTD. This may be caused by clusters of *Cars* on the same *Edge* picking the same path, and consequently causing increased amounts of traffic when they enter the same *Edge*. I met my goal for this week, so I will continue with the currently scheduled goals. This week, I also began reading into how to import street data and I came across the OpenStreetMap API. In the future, I would like to import real streets from OpenStreetMap.