ECpE 492 – Bi-weekly Report #1

Sept 2 – Sept 16

Project Title	Interactive evaluation of shortest path methods
Client & Advisor	Goce Trajcevski
Team	`sddec23-14`
Team Members	Alex Blomquist, Samuel Caldwell, Selma Saric, Yadiel Johnson

1 Report

1.1 Abstract

The team has met with their advisor, organized the upcoming plans for the semester, and presented their status on the PIRM #1 meeting. Additionally, progress has been made in the realm of gathering compatible algorithms for execution and evaluating the scope of the project as a whole.

1.2 Work Breakdown

The last few weeks saw us refocus on what the project should be, taking note of the feedback gathered last semester and attempting to consolidate it with the client's initial goals. This meant reassessing our project's stakeholders, purpose, and most importantly its verbiage to address some (painfully accurate) criticisms from the panel. In no particular order:

- Reassessing the scope of the project to remove researchers as a stakeholder. Our aims seemed loose in this regard, and the panel made sure to notify us that such a project would not be significant with that audience. Through discussion with our client, we've decided to reel back the scope, which has involved a lot of retreading through our design document.
- Algorithm research and usability of the tool. Given that our stakeholders are now primarily focused on the educational aspect rather than the bleeding edge, the essence of gathering appropriate algorithms to showcase has changed.
- Clearing up the intentions of our words in documentation. Because of a confusion associated with shortest path methods for *networking* vs. *transit* operations, we were made aware of the lack of specificity when talking about this subject, which has made us go through our design document to revise it once more.

Besides that, actual development (the programming kind) is set to begin in the following period, wherein once we get approval from our client, we will start creating the core functionality of our application. Additionally, a formal request has been submitted to ETG for a virtual machine to house the web server component.

1.2.1 Major accomplishments

- Requested a server to host our MVC Framework through the Electronics and Technology group here at ISU
- Created and delivered a presentation during the PIRM #1 meeting regarding the progress the team has made and what we plan to work on and accomplish next
- Analyzed the feasibility of the following algorithm implementations and their potential integration to our project:
  - https://github.com/navjindervirdee/Advanced-Shortest-Paths-Algorithms

1.2.2 Pending issues

- N/A

1.2.3 Individual contributions

Name	Individual Contributions	Worked Hours	
		This Period	Cumulative
Alex Blomquist	- Reasearch on which server to setup through the Electronics and Technology group given our planned MVC and the various source code's different languages - Requested an Ubuntu server from the ETG to host our MVC framework	4	51
Samuel Caldwell	- Research on various algorithm implementations - Research on Mapbox/graphology APIs	4	46
Selma Saric	- Researching different algorithm implementations for the project - Filled out meeting minutes document and Trello for project management	4	54
Yadiel Johnson	- Research for algorithm implementations in modern languages. - Section 1: Report and overall development for this weekly report.	4	66

2 Comments and extended discussion

2.1 Work Planned for Next Week

2.1.1 Collective

The next major step for our project is to begin developing system framework for both the front-end and back-end. This will involve designing the web application and visualization renderer for the frontend, and the server and execution driver for the backend. We will also need to design the REST endpoints to connect the components together.

2.1.2 Individual
- Alex Blomquist
  - Keep an eye out for the server request response from the ETG and installed the required software for the frontend/backend framework
  - Given the prior is done installed the respective algorithm and visualization code for the framework
  - Reasearch additional algorithm code in the case of potential incompatibility
- Samuel Caldwell
  - Finish research on algorithm implementation, as well as mapbox and graphology APIs.
  - Begin implementing system framework.
- Selma Saric
  - Continue updating the meeting minutes document when we meet with our client
  - Update the Trello as new tasks come up
  - Finish up algorithm code base research and begin integrating the code bases into our project
- Yadiel Johnson
  - Continue development of the RESTful API server.
  - Research more variations of algorithms that are applicable to this project, alongside their dataset formats.
  - Finish revising the comprehensive Design Document

2.2 Summary of weekly advisor meeting

Within the past couple of weeks, we have met with our client once. During this meeting, we discussed what our first steps should be for the project this semester. The first steps we will be taking/have already taken include researching various open-source codebases that contain shortest path algorithm implementations that we can integrate into our project and obtaining the server we want to use from ETG.