EE/CprE/SE 491 WEEKLY REPORT 3

02/13/24 - 02/20/24
Group number: 22
Project title: CyRide Visualization
Client: Mohammed Soliman
Advisor: Mohamed Selim

Team Members & Role:
Bradon Buckalew: Programmer
Endi Odobasic: Programmer
Evan Schlarmann: Programmer
Andrew McMahon: Programmer

Week Summary

The team worked towards picking a tech stack that would work best for the project and everyone's skills. We also reconstructed our workflow diagram to match our new project description of users wanting predictions of being within range of WiFi. The project was started in GitLab with essential files.

Accomplishments

We chose to go with the React-Django-MySQL tech stack for our project as we felt that it fit best for our project idea. On top of all, everyone was already comfortable with the tech stack, and we thought the CyRide Visualization project was going to be a great learning opportunity for everyone. React is a fast-loading and easy-to-build front-end framework that our team can develop easily. React can also be converted to React Native if the application is developed for mobile devices in the future. Django provides a framework using Python which provides fast computation for what will be a high amount of data received from the UE and GPS. MySQL allows us to structure our data that could be coming from different vehicles that we must track.

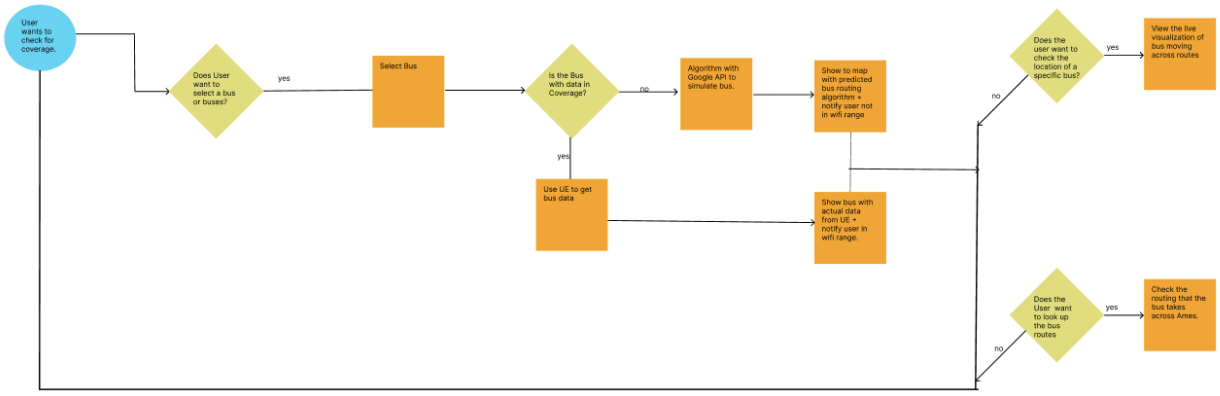
Evan created the project within GitLab along with a README file so that everyone can pull and make their own modifications.

The team looked into Google APIs and found that an account receives 28,500 calls for free each month. This will be needed when calling the API to receive coordinates for the

moving vehicles. In order to make sure we have enough calls, every member can cycle through accounts with different API keys as needed.

We also looked into a project that provides a similar vision of buses and tracks them within range towers in Salt Lake City, Utah, named “POWDER.” This project has all the routes within range, so they receive constant precise data on the bus location. Our project doesn’t have full coverage for the bus routes, so we will need to provide insight to users on when they will be within coverage and give time estimates. This requires the use of the UE when it is within coverage and Google Maps API when outside of coverage.
POWDER (Salt Lake City, Utah) Project: https://powderwireless.net/map.php

We revised our workflow diagram from the general interface of tracking bus stops to something more focused and accurate on predicting when UEs are in range. This update was critical, as it helped us better understand our project goals by narrowing down the diagram’s focus.



Pending Issues

None

Individual Contributions

NAME	Individual Contributions	Description	Week Hours	Cum. Hours
Evan Schlarmann	1) Workflow diagram 2)Project Creation	1) Refined the workflow diagram to match the new project goals for users. This is more focused on giving users predictions for when they will be in range of WiFi along the routes they are tracking. 2) Created the base project within GitLab with essential files to start off.	3	9
Braden Buckalew	1) Developed Group Tech Stack Meeting 2) Obtained Ubuntu VM from ETG	1) Initiated collaboration with the group to make a final decision on the preferred tech stack to use, citing both positive and negative aspects of each tech stack. Brought preferred tech stack to advisor and client, and was approved. 2) ETG request for our Ubuntu system was granted. Obtained and set up a virtual environment to run and experiment with the backend for this project.	3	9
Endi Odobasic	1) Workflow diagram 2) Google API research	1) Made the workflow diagram more accurate to pertain to our project in the scope of GPS signals in range or not. Focused more on what features users don't have, such as updates on if they have WiFi or not (in correlation to GPS coverage range or not) 2) Researched some of the google API to see what our team might expect for costs and the kind of structure we have to work with.	3	9
Andrew McMahon	1) Research POWDER map routing flow 2) Wrote weekly client/advisor summary, formatting report	1) Researched a similar project in Utah (POWDER), as suggested by Advisor & Client. Determined the specific goals of the project based on the example given, and laid out a baseline of what the team looks to complete in 491/492 that is related to the POWDER project. 2) Layed out and executed format for this week's report, added specific info regarding meeting with CyRide, workflow diagram, and minor changes elsewhere on the doc.	3	8

Plans For the Upcoming Week

- Create a Figma Mockup of the application - Team
    - 2/29/2024
    - Create a Figma mockup that shows how it will function with user interaction.
- Break the application into buildable software components - Team
    - 2/29/2024
    - Go through all the application requirements, ensuring everything meets its constraints. Then, break them down into small components that team members can create separately from each other.
- Create the tech stack in the GitLab project - Team
    - 2/29/2024
    - Make sure all dependencies are installed to then create a basic project for the frontend and backend using the tech stack and upload them to GitLab.

Weekly Client/Advisor Meeting Summary

We redefined the project description during the client meeting to learn about different users. Our meeting with our Advisor last week helped clarify exactly what we were doing for our project. Before, we were thinking of the CyRide Visualization project as a whole and the user interface of everything, but after our meeting, we realized our project is a lot more focused on the bus coverage area. This means that we want to build a way that we can get accurate live bus routing even when the vehicle might not be in a valid area for GPS signals. Additionally, we want to focus on what other apps do not have; we don't need something like another CyRide; we want more innovative and accurate things for students using the application. These new users would then be able to accurately predict when buses would be within coverage so they could receive wifi. This differs from giving predictions of buses that are approaching bus stops.

We also deleted a previous to-do task in a meeting with CyRide. The Advisor explained to us how a partnership with CyRide is already in place, and rather than our team setting the meeting up, the Client should do so. This way, we likely will have vast insight regarding CyRide’s systems, which can better our project. Though we have some basic information, we feel some hyper-specific questions need to be asked so we all have a good grasp of how our project is similar yet different than what CyRide has in place currently.

Overall, this meeting helped us better grasp what we are trying to do for our project.