


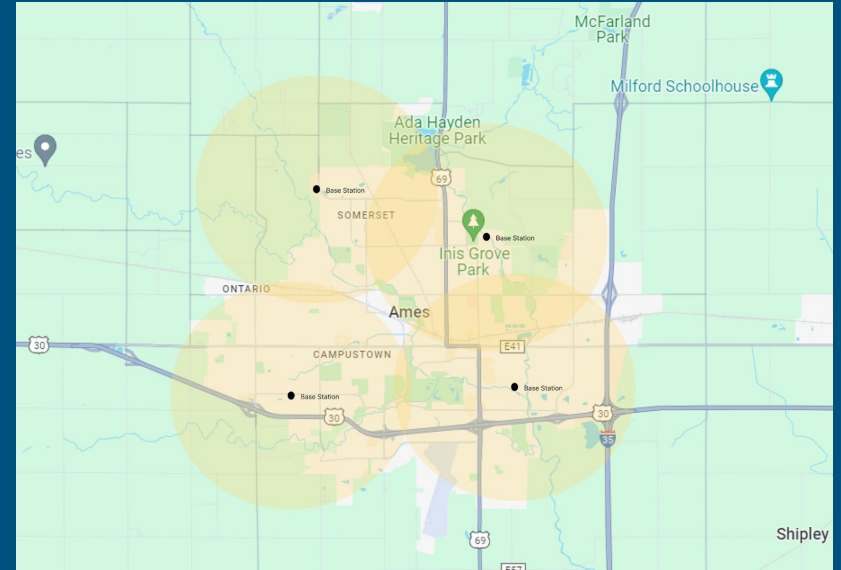
Continuous Visualization of CyRide Through an Interactive Map

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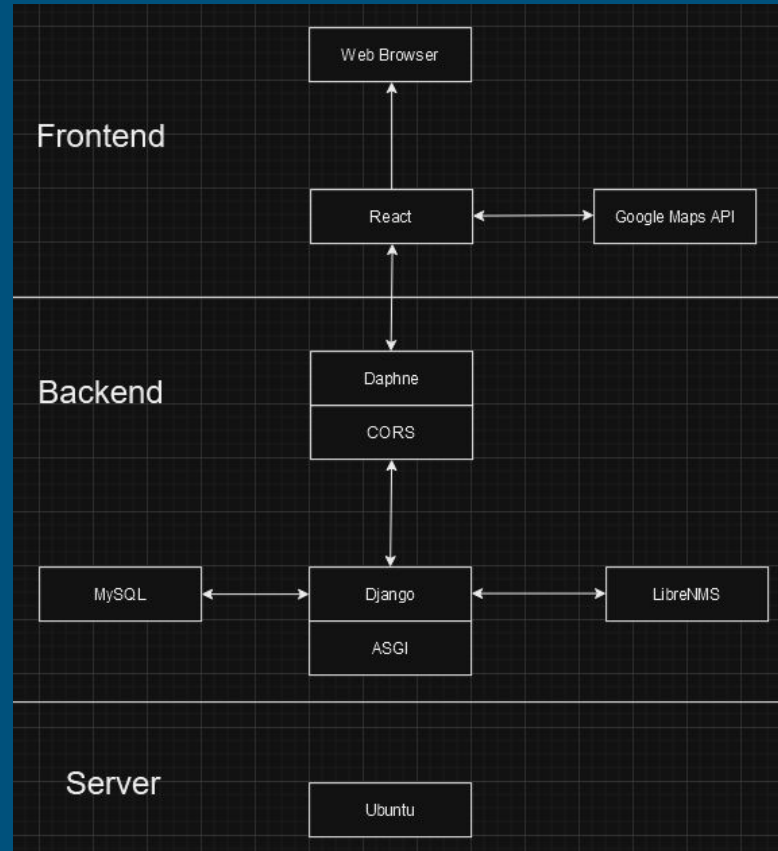
Project Overview

Provide a visualization of Cyride movement through a UE (user equipment) device that transmits its location when in range of given base stations (signal towers). This is called ARA and provides a wireless network to track locations. When outside of that range, it will predict the movement using GPS locations and machine learning. The application will update on the UE connection and provide predictions for when a UE will be in range of base stations.



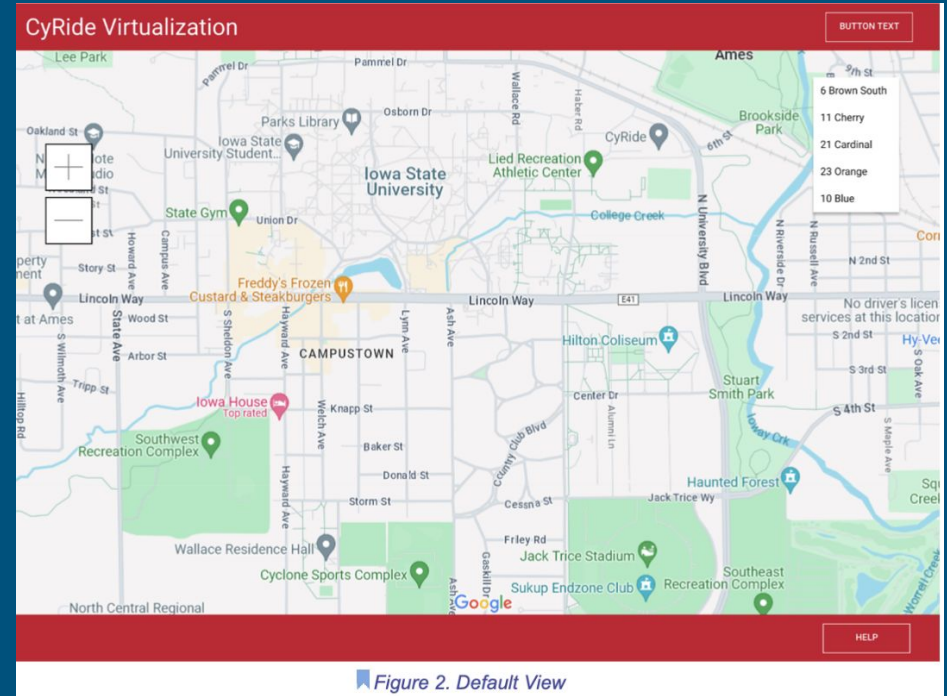
Detailed Design

- Frontend
 - React
- Backend
 - Django
 - MySQL
- Server
 - Ubuntu



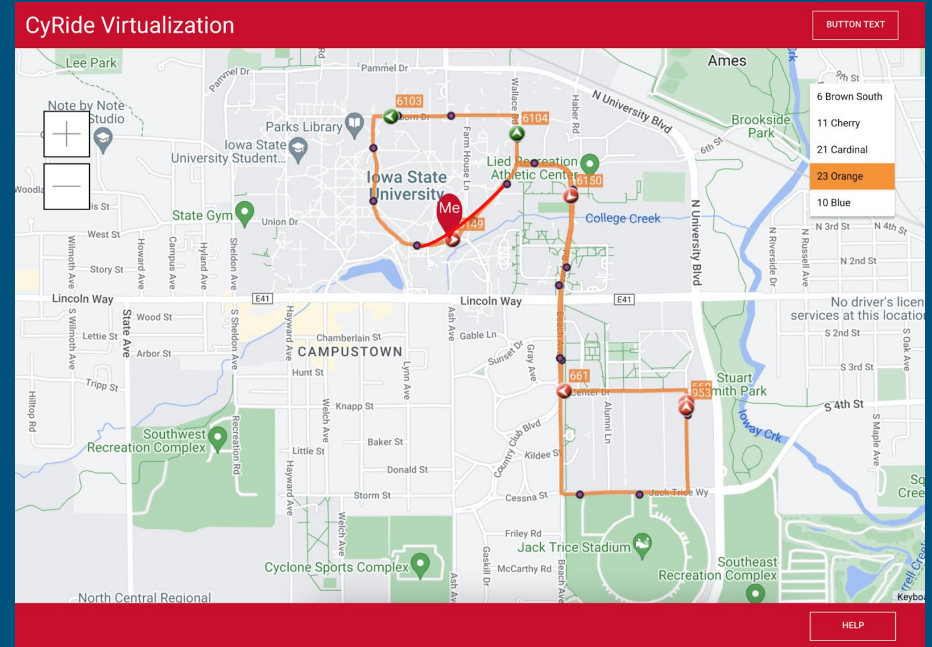
Detailed Design

- User Home Screen
 - Provides view of Ames using google maps



Functionality

- Routes
 - User can pick a bus route
- Coverage
 - Shows UE connection on the route
- Real + Predictive Arrival Times
 - Predictions for when UE will be connected



Functionality

- Notifications
 - Notify when UE is in range
- Insights
 - Provide UE/bus data

The screenshot displays the 'CyRide Virtualization' interface. At the top, a red header contains the title 'CyRide Virtualization' on the left and a 'BUTTON TEXT' placeholder on the right. The main area is a map of Ames, Iowa, showing a bus route with stops marked by colored dots and lines. A popup window is centered over the map, displaying the following information:

- Orange 23 - UE [Number]** (with a close button 'X')
- UE connection: none
- Latitude: 38.9765
- Longitude: 57.023
- Speed: 23 MPH

On the right side of the map, there is a legend for bus routes:

- 6 Brown South
- 11 Cherry
- 21 Cardinal
- 23 Orange** (highlighted in orange)
- 10 Blue

At the bottom of the interface, a red footer contains a 'HELP' button on the right.

Technology Considerations

- Different Tech Stack
 - Decided on Django, React, MySQL, CORS

Criteria	MEAN	MERN	LAMP	RDCS	MEVN
Learning Curve/Difficulty	Low	Low	Moderate	Moderate	Low
Familiarity	High	High	Moderate	Moderate	Moderate
Flexibility	Moderate	Moderate	Moderate	Moderate	Low
Suitability	Moderate	Moderate	High	High	Moderate
Scalability	Moderate	Moderate	Moderate	Moderate	Low
Learning Opportunity	Low	Low	Moderate	Moderate	Low
Total	3/5	3/5	4/5	4/5	2/5

Conclusion

Any Questions?