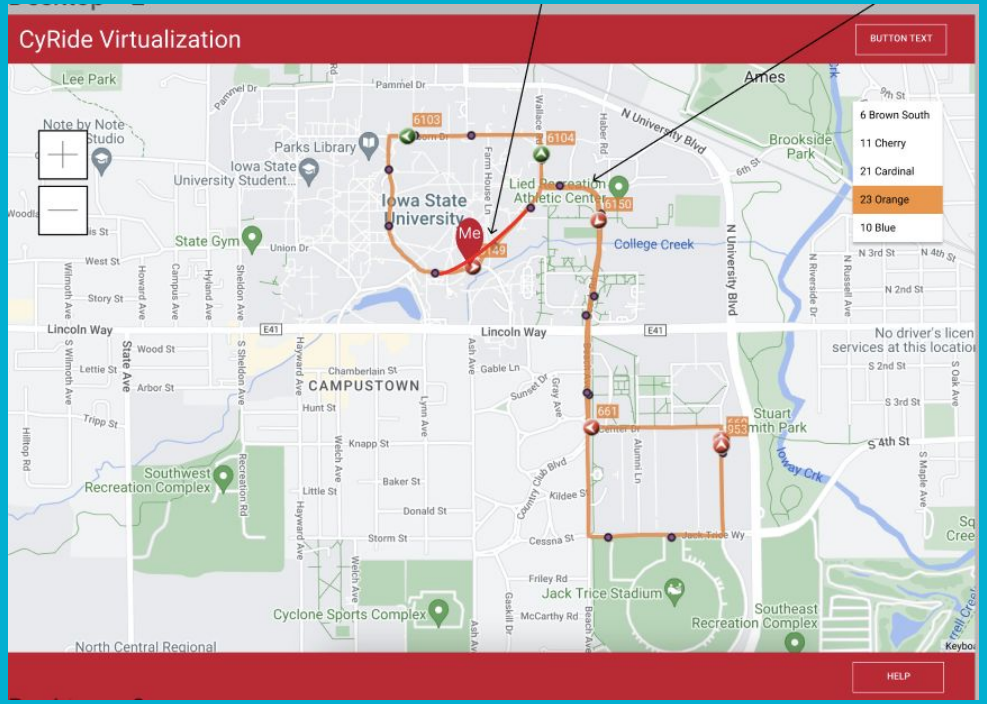
Team 22 - CyRide Visualization

Evan Schlarmann, Endi Odobasic, Andrew McMahon, Braden Buckalew

Client/Advisor: Mohamed Selim, Mohammed Soliman

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 show which method is being utilized, providing insight into the tracking methods so users can have accurate bus tracking.



Problem Statement

People need accurate tracking of vehicles with live updates.

Currently, it is often difficult to tell when bus routes are on the move or when their arrivals to the next stop are. Oftentimes they are quite inaccurate and inconsistent which is never a great feeling to the people who are using them to get from one destination to another.

- Difficult to get an accurate visualization of bus locations
- Inaccurate bus scheduling for arrivals

Users

IOWA STATE UNIVERSITY

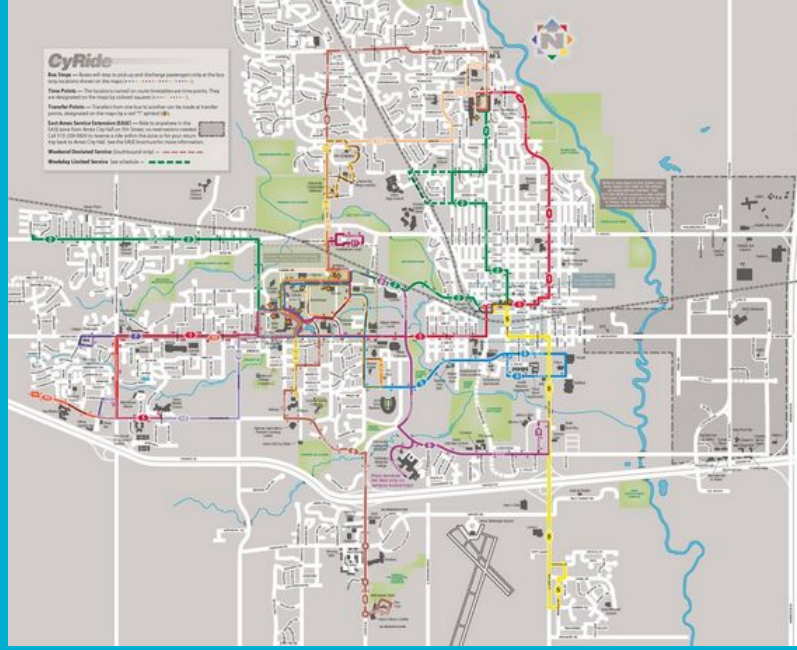
Iowa State Students

- Need accurate tracking of buses to find a route to campus
- Need the fastest route to arrive at their class on time
- Need an app that loads fast off different connections speeds

Users

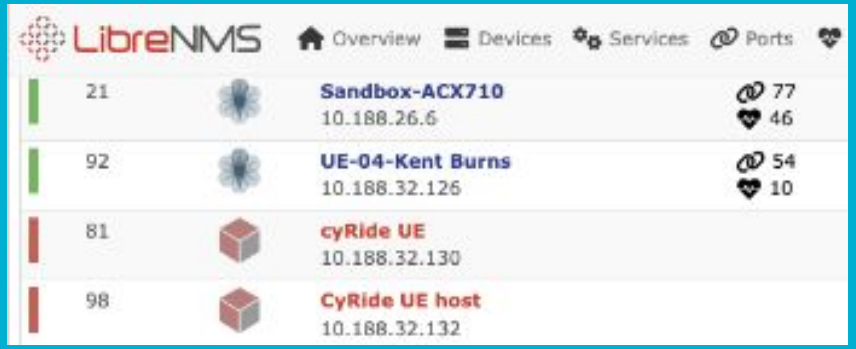
Ames Residents

- Need to know bus routes that go around Ames
- Want to have an accurate prediction of bus movement
- Need an app that loads fast and updates quickly



Users

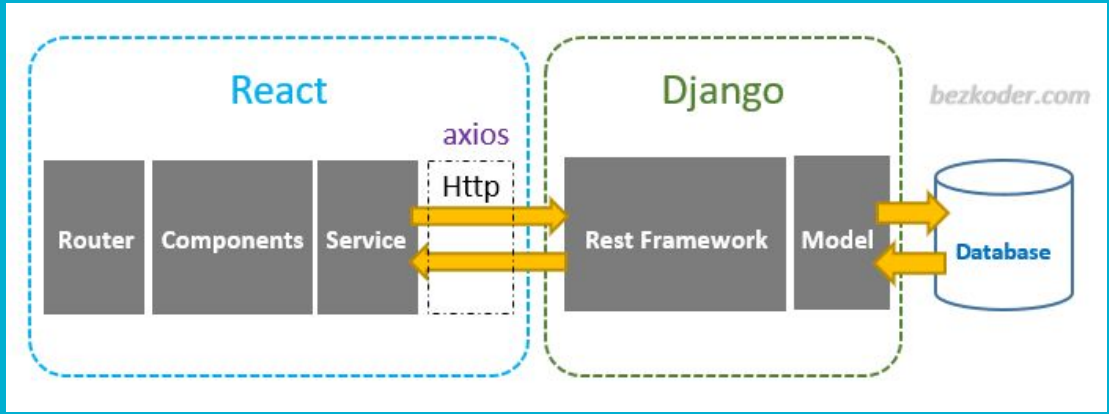
Researchers



- Want to know the limits of the ARA network
- Need to know when UE equipment is out of range or has weak signal
- Have to provide the locations of outages or no signal to improve the network

Our Approach

Use MySQL as a database to store locations at specific times. Django as a backend to receive bus locations and calculate predictions., and React as the frontend to show a map of where all buses are with live updates on their movement.



Conclusion

We want to provide live updates of the UE service that tracks bus locations within Ames while giving important information about signal connections in a efficient and accurate manner.