MunchiMaps

Lead: Kevin Shreenauth | Members: Devon Becker, Vincent Huang, Trivika Komatireddy, Chris Lo, Will Shockey, Andrew Wang

User Interface:

We aimed for a user friendly, clean and modern design. Many of the icons are custom design to fit our overall aesthetic. (Yes, we even have dark mode)

Custom icons on the map show locations with a drink machine (blue) or a food machine (tan) or both. Users can click on a location to find more information such as the payment type that is accepted, a space to leave reviews, and pictures corresponding to the building. We also included a dark mode (activated when 'd' is pressed).

MunchiMaps

Your Campus Vending Machine Tracker!

MunchiMaps is the vending machine tracker for RPI. With this tool, students no longer have to gamble on a vending machine having the snack they want or actually accepting their preferred method of payment!

Semester Goals:

- Debugging Errors Left Last Semester on the UI
- Reworking Backend to store user inputs
- Communication between backend and frontend components
- Create better documentation
- Host MunchiMaps on a new server for public access

Implementation:

HTML, CSS, Java Script, SQL, Python, C++

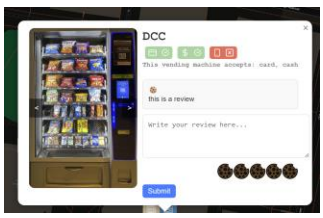
Features in Progress:

- Updating Documentation
- Making Application Mobile-Friendly
- Debugging slight frontend errors
- Updating Vending Machine Databases/Building Hours of Operation

Future Work:

- Connect web application to RPI servers through RCOS to be accessed by RPI community
- Complete necessary documentation to speed up learning process of current codebase
- Make application mobile friendly
- Possibly expand MunchiMaps to other campuses

Reworking the Backend:



This backend is a Python-based system for managing and interacting with vending machine data from a CSV file. The data includes information about building locations, amounts, drinks, foods, location descriptions, hours of operation, access information, and coordinates for each vending machine. The system allows you to load, store, and process this data, as well as check the availability of vending machines in real-time based on the current day and time. Additionally, the system provides functionalities to display vending machine locations on a map, find the nearest vending machine based on the user's current location and specific needs (food or drink), calculate the shortest path between vending machines if a single location does not meet all needs, and visualize the shortest distances between machines on a map, connecting the closest options with lines.

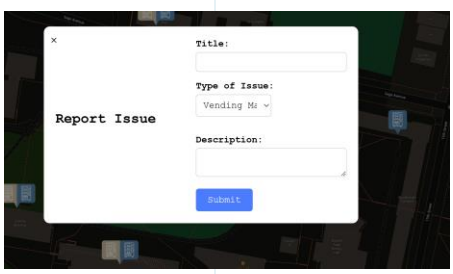
Changes that were made to the backend this semester consisted of much debugging to ensure user inputs were stored the backend. A lot of excess code was cleaned and reorganized and we are in the process of creating updated documentation that allows the backend to be understood much faster than it took this semester.

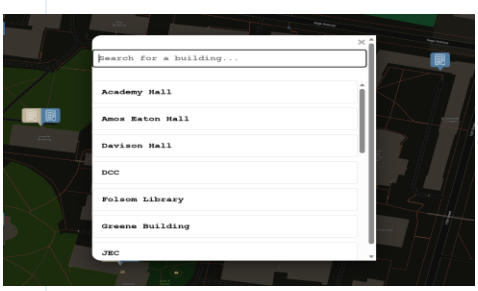
MunchiMaps Server:

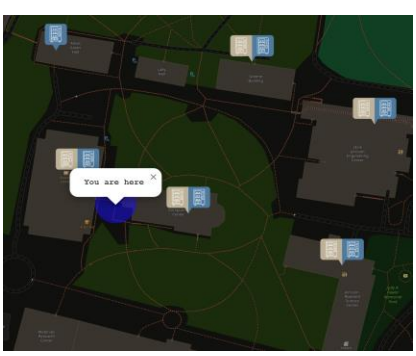
The server for the MunchiMaps project is built using Fastify, a high-performance, low-overhead web framework for Node.js. Fastify serves as the backbone of the application, efficiently managing all server-side logic and routing. It handles HTTP requests and responses, interacting seamlessly with an SQLite database. This allowed us to create an API for handling requests related to the plotting and collecting data as part of the frontend implementation. Our Web Application is hosted on CodeSandbox to make a live link accessible to users

Tasks Accomplished:

- MunchiMaps is now hosted on CodeSandbox, this is because our previous server, Glitch shut down entirely and forced us to find a new home
- Certain Front End Bugs, such as buttons that had no functionality, and popup window formatting issues, were resolved.
- New Front End Documentation was Created
- New Back End Documentation was Started
- Created a Report Feature on the Front End in addition to our existing Search and Pinpoint location features
- Explored Vite tech stack in hopes of creating a more seamless front end/back end integraton.
- Populated the Database with updated photos of vending machines
- Added a rating functionality with cookie icons







Scan QR Code for demo (NOTE: not intended for mobile use as of yet – But Still functional!!)

Challenges:

This project was inactive since Fall of 2024. As such, all members except the team lead were new to the codebase which had little to no existing documentation that explained the current setup of out codebase properly. Because of this, changes made this semester were slower than anticipated. Much of the semester was used to crreate better documentation and fully understand the existing tech stack so we could implement fixes as the team saw fit.

Acknowlegements:

We would like to thank:
Wes Turner, for his encouragement of the continuation of this project
John Sturman, for his advice on creating good documentation
Mike Cautela, creator of MunchiMaps
Anannya "Ash" Punia, previous co-lead of MunchiMaps
RCOS as a whole for its support on this endeavor.