Part 6 Deliverable 5

Campus Bus Tracking App

Overview

Transit Navigator is a html, php and JavaScript-based campus transportation app designed to help students use the campus buses to great efficiency. It allows them to view routes, buses in said routes, locations of buses, set favorite buses, and more!

The app is tailored to fit desktop and mobile devices, providing a clean interface for both.

It uses html, php, css, and javascript for application looks and functions while using MySQL for database, storing information such as routes, buses, etc.

Features

Authentication System

- Users mu st log in to utilize application
- Login information is stored in database, providing access anywhere
- PHP provides session accessibility across browsers

Home Page

- Contains a search bar for searching routes, buses, or stops
- Contains preset actions like Schedule, Live Tracking, Nearby Stops, Saved Routes
- Schedules are posted so users can plan ahead

Real-Time Bus Tracker Page

- Shows buses on a map of the campus with live activity of each bus

Saved Routes

- View saved bus routes allowing users to only focus on routes they actually use

Recent Trips

- Allow users to easily see route, bus, and activity they did previously

Settings

- All about user setting features. Allows the customization of profile, payment methods, notifications, and more

Navigation Bar

- Quick where to settings for fast applications

Project File Structure

1.) Index.php:
    a.) Handles the functions of the site, main page

2.) login.php
    a.) Handles login information with collaboration from database

3.) db.php:
    a.) The actual connection framework with the database

4.) app.js:
    a.) Handles the logic functions of the app

5.) Styles.css:
    a.) Adjusting the style of the app

6.) Docker-compose.yml:
    a.) On the cloud compose file. Easy integration

Authentication/Login/Out Process

1. User Submits Login Form

login.php receives email & password from the index file and cross references with the database

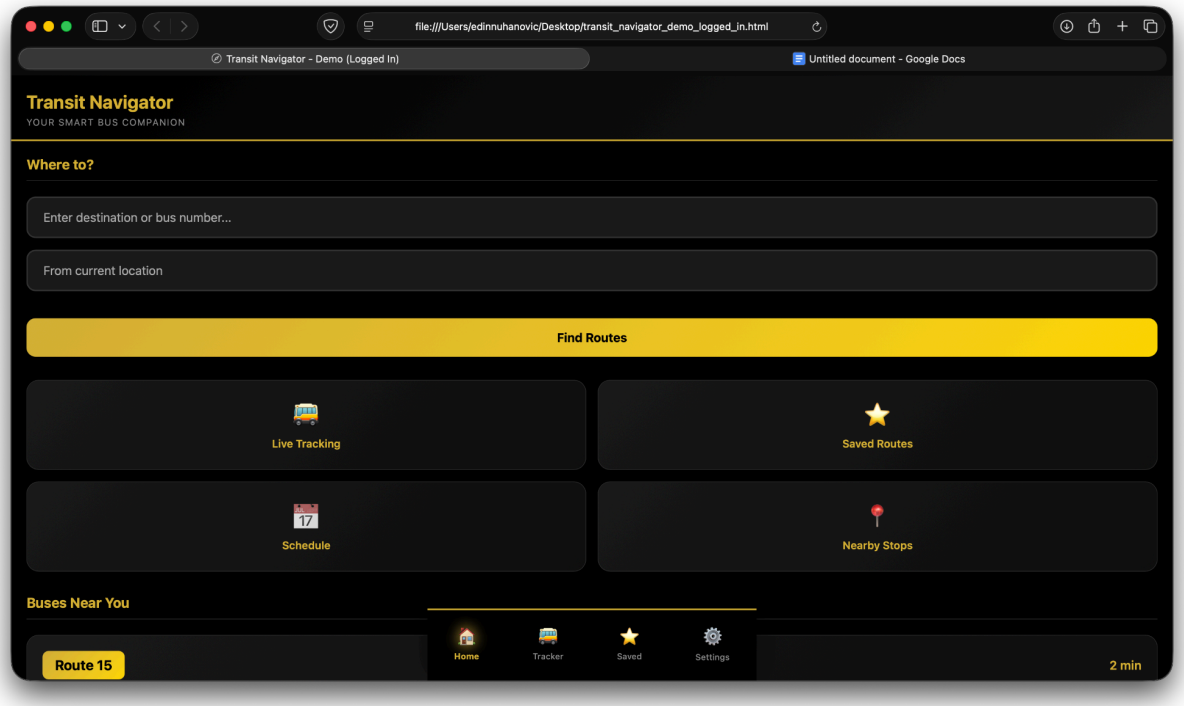
2. Password Check

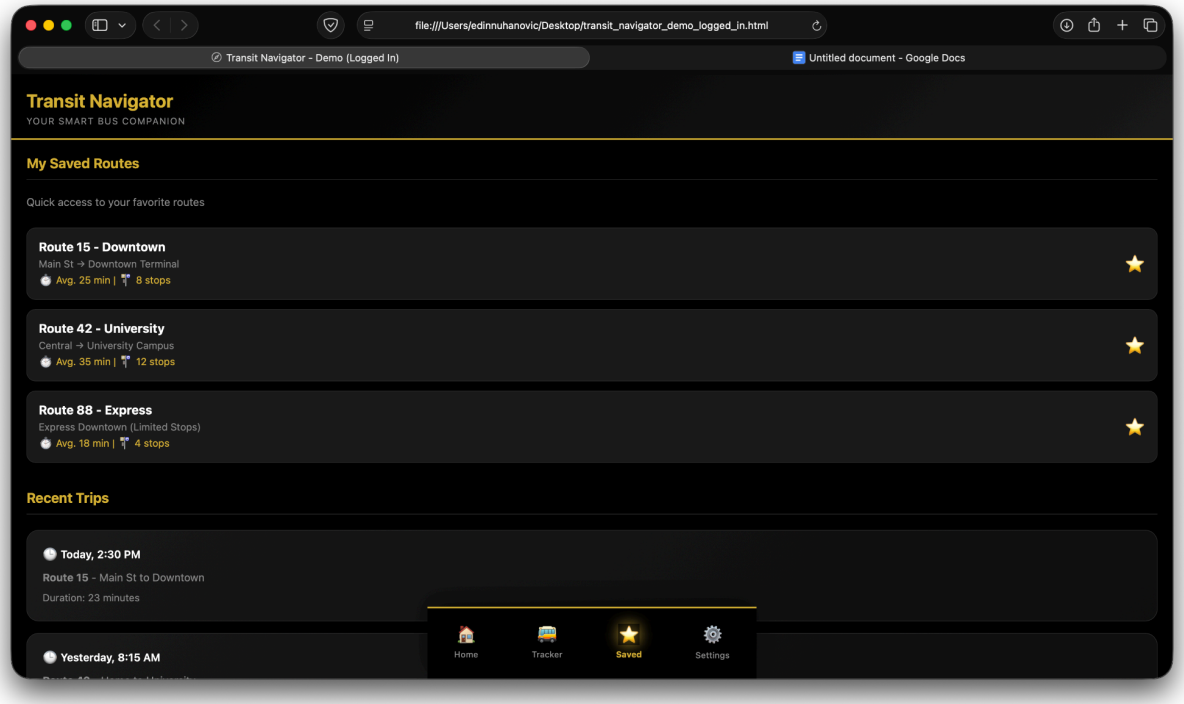
Same thing is done but database cross references with passwords stored

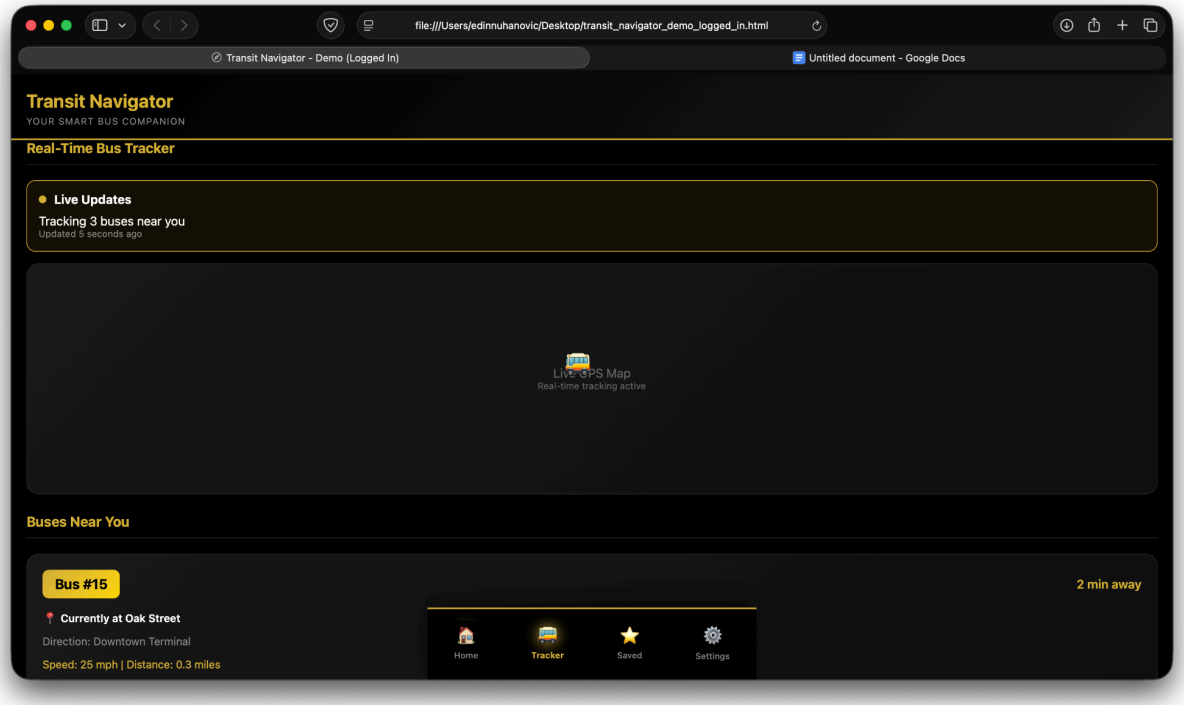
3. Session Success

Session is confirmed and connection is allowed. Options for users are visible and allowed.

Pictures of Site




file:///Users/edinnuhanovic/Desktop/transit_navigator_demo_logged_in.html
Transit Navigator - Demo (Logged In)
Untitled document - Google Docs
Transit Navigator
YOUR SMART BUS COMPANION
My Saved Routes
Quick access to your favorite routes
Route 15 - Downtown
Main St → Downtown Terminal
Avg. 25 min | 8 stops
Route 42 - University
Central → University Campus
Avg. 35 min | 12 stops
Route 88 - Express
Express Downtown (Limited Stops)
Avg. 18 min | 4 stops
Recent Trips
Today, 2:30 PM
Route 15 - Main St to Downtown
Duration: 23 minutes
Yesterday, 8:15 AM
Home
Tracker
Saved
Settings


file:///Users/edinnuhanovic/Desktop/transit_navigator_demo_logged_in.html
Transit Navigator - Demo (Logged In)
Untitled document - Google Docs
Transit Navigator
YOUR SMART BUS COMPANION
Real-Time Bus Tracker
Live Updates
Tracking 3 buses near you
Updated 5 seconds ago
Live GPS Map
Real-time tracking active
Buses Near You
Bus #15
2 min away
Currently at Oak Street
Direction: Downtown Terminal
Speed: 25 mph | Distance: 0.3 miles
Home
Tracker
Saved
Settings

Docker Pull Steps

Steps for running docker:

1. git clone https://github.com/Programmingfan345/Deliverable_Five.git
2. cd Deliverable_Five/Campus-Bus-Tracker
3. docker compose pull
4. docker compose up
5. docker compose down

Without Docker

1. Go to this website: https://hub.docker.com/r/sachinpathak123/campus-bus-tracker
2. click "Run in Docker Desktop" to run in their Docker Desktop

Final Project Plan With SDLC…

Requirements Analysis

We need a very convenient campus bus tracker where students have access to important information such as bus location, type, routes, and timetables. App must be easily accessible and customizable for favorites which require login systems. The student will be able to search what he wants and is provided a map where all buses are located with timetables of stops. App must work on desktop and mobile. Will work with a database to consistently store and remove the latest information so students get 100% correct information

---

System Design

The app will be full stack. It will have a front end (html, ccs, javascript), middle tier (php), and backend (MySQL, Docker). The website will be beginner friendly with a UI understandable and clean for anyone to use.

Implementation

Frontend

- Page switching with JavaScript (navigateTo())
- Animated tracker and bus movement
- Quick action buttons
- Saved routes and recent trips UI

Backend

- login.php validates credentials using MySQL
- Sessions store logged-in user info
- index.php shows different UI based on login state

Styling

- Custom CSS for cards, buttons, icons, maps, navigation
- Modern mobile app look and feel

Testing

All major aspects of the app were tested such as the map, login success and failures, database conformity, use of desktop and phone, and bus/route information. We faced some issues with the map as we don't have it in place, we can just assume what will be done which will require future programming and testing.

Implementation & Maintenance

The app was tested for conformity across all systems to which is succeeded. We have left space for future improvements and easy maintenance which will allow our system to be used for the foreseeable future. The database is available for a large consumer base with security being a priority with measures being put into place.

Demo + Talking Points

1. Introduction

- Our project is **Transit Navigator**, a mobile-friendly campus bus tracking app.
- It helps students quickly find buses, check arrival times, and track routes.

---

2. Problems Students Face Currently

- Students do not have a platform that definitively outlines all information regarding campus buses
- Existing platforms are outdated and incorrect

---

3. Key Features

- **User Login System** allowing seamless connection to MySQL
- **Standard Dashboard** with search and quick actions
- **Live Bus Tracker**
- **Saved Routes** for routes consistently taken
- **Recent Trips** for easy lookup to consistently taken routes
- **Settings** for personalization
- **Nav bar** for quick lookups

---

4. Technology Used

- PHP for session handling
- HTML for frontend website
- MySQL for database storing and authentification
- JavaScript for functions associated with site
- CSS for styling
- Docker for database

---

6. Challenges

- Mainting a client server connection regardless of browser
- Keeping up to date session
- Making the app mobile and desktop accessible
- Setting up Docker, PHP, and MySQL integration

---

7. Future Improvements

- Add real GPS data
- User suggestions and a contact page

---

8. Conclusion

- Transit Navigator is a prototype for a complete campus bus app
- It is designed and tested to be implemented and used for a campus wide bus service!