

Project Title:

**GeoBus Navigator**

Submitted by:

**Aliya Zahra (2020-CE-16)**

**QURAT UL AIN (2020-CE-02)**

Submitted to:

**Mam Sana**

**Dr. Asim Rehmat**

Course:

**CS381: Software Engineering**

Semester:

**5th**

Date:

**15th November 2023**

**Department of Computer Engineering**

**University of Engineering and Technology, Lahore**

Table of Contents

[Abstract 2](#_Toc149923044)

[1. Introduction 2](#_Toc149923045)

[2. Problem statement 2](#_Toc149923046)

[3. Objectives 3](#_Toc149923047)

4. Requirements ........................................................................................................................................4

5. Flowchart………..................................................................................................................................7

6. Software/Tools ...................................................................................................................................7

7. Useability..............................................................................................................................................7

8. Conclusion...........................................................................................................................................9

[References 9](#_Toc149923050)

# 

**Abstract:**

The "GeoBus Navigator" project aims to improve the efficiency and convenience of university bus transportation for students and staff by utilizing geolocation technology.

**1.Introduction:**

The "GeoBus Navigator" project aims to improve the efficiency and convenience of university bus transportation for students and staff by utilizing geolocation technology. The project utilizes GPS technology to provide real-time tracking of university buses and their routes, allowing users to easily view the location and estimated arrival time of their bus. Additionally, the project provides detailed information on all bus routes and the drivers assigned to each route, allowing users to make more informed decisions about their transportation options.

**2.Problem Statement:**

The problem that the "GeoBus Navigator" project aims to address is the lack of visibility and accessibility of information regarding university bus transportation for students and staff. Specifically, new students often struggle to learn the bus routes from their homes to the university and the driver details, and are unable to track the location of their bus, leading to missed buses and difficulty with transportation planning. Additionally, current students and staff may not have access to real-time information about bus location and estimated arrival times, making it difficult to plan their commutes. This project is aimed to provide a solution by creating a real-time bus tracking system, which will allow students and staff to view the location and estimated arrival time of their bus, as well as detailed information on all bus routes and the drivers assigned to each route. This will help the students and staff to plan their commutes, and increase their transportation efficiency.

**3.Objectives:**

• To design a software to manage all the routes details and live bus tracking.

• System lists all of the routes of UET.

• There are two sections of this project:

* Panels for Admin.
* Panel for Student.
* Live bus location using google map API.

**4.Requirements:**

Identify the requirements for the project by interacting with the stakeholders, such as bus operators, drivers, and users.

**System design:**

Design the architecture of the system, including the frontend, backend, database, and geolocation API. Database design: Design the database schema, including the tables and relationships needed to store the bus location, routes, and driver information.

**Development:**

Develop the frontend using JavaScript framework such as jQuery UI (JUI) and the backend using the Larval PHP framework. The XAMPP stack will be used as the local development environment.

* **Integration:** Integrate the frontend and backend to communicate and fetch data from the database and geolocation API.
* **Testing:** Test the system to ensure that it meets the requirements and is free of bugs.
* **Deployment:** Deploy the system on a Apache server, and make it accessible to the users.
* **Maintenance:** Monitor the system and provide maintenance and support as needed.
* **Improvement:** Continuously gather feedback and improve the system accordingly.
* **Architecture:** The architecture of the project would likely involve the following components:
* **Frontend:** A web interface built using HTML, CSS,JS and blade engine of in Laravel to display the bus location, routes, and driver information to the users. The frontend will also have an admin section, where the administrator can manage the bus routes, driver information, and live tracking details.
* **Backend:** A server-side application built using the Larval PHP framework to handle the data communication between the frontend and the geolocation API. The Larval application will run on the Apache web server, which is included in the XAMPP stack.
* **Database:** A database (e.g. MySQL) to store bus location, routes, and driver information. The database will be running on the MySQL server, which is also included in the XAMPP stack.
* **Geolocation API:** An API used to retrieve real-time location data of the buses. This data is then used to update the bus locations on the map displayed on the frontend.
* **Google map API:** The Google Maps API is one of those clever bits of Google technology that helps you take the power of Google Maps and put it directly on your own site. It lets you add relevant content that is useful to your visitors and customize the look and feel of the map to fit with the style of your site.

**Software Development Process:**

The project will undertake the modified waterfall model because there is a well-defined set of requirements. As the Client has very specific needs for the system which will not likely change in a short timeframe, and given that this is a production system (not a research project), the modified waterfall model should be better suited and gives the

**5.Software/ Tools:**

* HTML
* CSS
* PHP
* Geolocation API
* Google map API
* JavaScript

**6. Flowchart:**

**Start**

**User Authentication**

**symptoms**

**Decision**

**symptoms**

YES

NO

YES

**User Panel**

**Admin Panel**

**Not Valid User**

**DataBase Management**

**END**

**Bus Routes**

**Admin Panel**

**Bus Routes**

**Geolocation Tracking**

**END**

**Google Map Integration**

**END**

**6.Usability:**

Usability for UET Bus Tracking Project:

Make the bus tracking app at UET easy for students:

**Clear Information:** Show bus routes, schedules, and live updates clearly.

**Map Interface:** Use maps to display bus locations and routes for easy understanding.

**Search Feature:** Let students find specific bus routes with details like stops and arrival times.

**Notifications:** Alert students about delays or schedule changes.

**Mobile Access:** Make it accessible on mobiles for on-the-go info.

**Feedback Section:** Include a section for students to share feedback or report issues.

**Testing:** Regularly test with students to ensure it's easy and helpful.

**7.Conclusion:**

In conclusion, the UET bus live routes and tracking system is a useful tool for students, staff, and faculty at the University of Engineering and Technology. It allows users to track the location and estimated arrival time of buses in real-time, making it easier to plan their commutes and navigate the campus. Additionally, the system helps the university to improve the efficiency and safety of its transportation services by providing real-time data on bus movements. Overall, the implementation of this system has been successful in meeting its goals and has received positive feedback from users.

**8.References:**

1. <https://www.apm.org.uk/resources/find-a-resource/agile-project-management/>
2. <https://www.google.com/search?client=opera&q=what+is+geolocation+api&sourceid=opera&ie=UTF-8&oe=UTF-8>