**Project Report**

Cross-Platform SBSTC Bus Status App

**A BUS APPLICATION DESIGN**

**1. Introduction:**

The project aims to develop a cross-platform mobile application for providing information related to South Bengal State Transport Corporation (SBSTC) buses. The app will cater to the needs of passengers traveling on SBSTC buses by offering a user-friendly interface for checking bus schedules, and receiving notifications about any updates or changes.

**2. Objectives:**

- Develop a user-friendly interface for showing the timing of SBSTC buses.

- Provide real-time information on bus schedules, routes, and availability of seats.

- Ensure compatibility with both Android and iOS platforms.

**3. Features:**

- Bus Schedule: The app will provide users with up-to-date information on bus schedules, including departure and arrival times..

- Notification: Users will receive notifications about departure times, and any updates or changes regarding bus route journey.

- Ticket Booking: Users can have a seamless ticket booking experience

- Feedback: Users can provide feedback on their journey experience, helping to improve the service.

**4. Technology Stack:**

- HTML, CSS, SCSS

- Bootstrap

- Angular Templating/Bable

- UI/UX Design

- Backend: Java, Springboot, API writing for the server-side application [ if needed ]

- Application Logic: Angular, Typescript, Capacitor

- Database: SQLITE for storing buses and other information

- Notifications: Firebase Cloud Messaging (FCM) for push notifications [ if applicable ]

- Progressive web application, Hybrid application

**5. Estimated Duration:**

18th March to June 2024 [ Expected ]

**6. Team Members:**

* Avijit Saha [ FRONT-END ]
* Puspendu Mahata [ FRONT-END ]
* Chandril Mukherjee [ BACK-END ]
* Rudranil Das [ BACK-END ]
* Riya Samanta [ BACK-END ]

**7. Work Flow-Chart:**

**8. Work Completed [Till 15/05/2024]:**

Understanding CSS preprocessors i.e. SCSS and SAAS, Learning Frameworks such as Tailwind, Bootstrap and Material UI. Angular project development and understanding how the capacitor works. Creating some basic projects in angular and converting it into Android projects ( To Do Application and some others ) to understand the basics of PWA and hybrid web/android application development. Gathering the APIs.UI/UX Designing,\

**Elaboration:**

CSS Preprocessors (SCSS and SASS): These preprocessors extend CSS with features like variables, nesting, and mixins, making CSS more maintainable and efficient. SCSS is a syntax for SASS, which stands for Syntactically Awesome Style Sheets.

Frameworks (Tailwind, Bootstrap, Material UI): These are CSS frameworks that provide pre-designed components and utilities to help you quickly create user interfaces. TailwindCSS focuses on utility classes, Bootstrap provides a set of components, and Material UI follows Google's Material Design guidelines.

Angular Project Development: Angular is a popular frontend framework for building single-page applications. It uses TypeScript and follows the component-based architecture.

Capacitor: Capacitor is a cross-platform native runtime for web apps. It allows you to build web apps that can be deployed as native iOS, Android, and Progressive Web Apps (PWAs).

PWA (Progressive Web Apps): PWAs are web applications that use modern web capabilities to provide a user experience similar to that of mobile apps. They can work offline, send push notifications, and more.

Hybrid Web/Android Application Development: Hybrid apps are applications that combine elements of both native and web applications. They are built using web technologies (HTML, CSS, JavaScript) but are wrapped in a native application using tools like Capacitor or Cordova.

UI/UX Designing: User Interface (UI) design focuses on the look and feel of the application, while User Experience (UX) design focuses on the overall experience and usability of the application.

**9. Work To Be Completed:**

Application Logic Designing Reservation Interface Designing (if possible), Implementation of ML to do a suggestion system (if possible). Reservation Interface

**Elaboration:**

1. Application Logic Designing: This involves designing the logic and flow of your application to ensure that it functions correctly and efficiently. It includes defining how data is processed, stored, and retrieved, as well as how different components of the application interact with each other. Good application logic design is crucial for building a scalable, maintainable, and user-friendly application.

Authentication and Routing [ In Progress ]

2. Reservation Interface Designing: A reservation interface is a user interface that allows users to book or reserve something, such as a hotel room, a table at a restaurant, or a seat on a flight. Designing a reservation interface involves creating a user-friendly and intuitive interface that guides users through the reservation process smoothly. It should include features like selecting dates, times, and options, as well as providing feedback on availability and confirmation of the reservation.

3. Implementation of ML for a Suggestion System.

4. Testing

5. Maintenance

**10. Conclusion:**

The proposed SBSTC bus booking app aims to enhance the travel experience of passengers by providing a convenient and efficient platform for accessing essential travel information. The app's user-friendly interface and real-time updates will make it a valuable tool for SBSTC passengers, contributing to improved customer satisfaction and loyalty.

Supervisor’s Signature

Student(s) Signature