1. CAPTONE for CSC3020X00 Project Overview

Project Name: Sustainable Urban Transportation Management System (SUTMS)

Course: CSC 3020 Software Engineering Fundamentals

Team Members: John Kibozi, Parke Lovett, and Daniel Wilson

Date: 9/12/2024  
  
Brief Description: This section should provide a high-level summary of the project. For your project, you could explain that you’re developing a Sustainable Urban Transportation Management System to improve urban mobility through real-time traffic monitoring, public transportation management, and parking solutions. Mention the project’s focus on sustainability, efficiency, and user experience.  
  
2. Project Objectives  
Outline of the primary goals for the project

* Optimize urban transportation by providing real-time data on traffic and public transport.
* Facilitate sustainable urban mobility by managing parking and supporting public transportation.
* Provide insights into urban traffic patterns through data analytics and reporting.

3. Scope

* In-Scope: Features or components that will be included in the project.
  + Real-time traffic Monitoring
  + Public Transportation Management
  + Parking Management
  + Basic User Interface (cross-platform)
* Out-of-Scope: Features that will not be part of the project.
  + Complex environmental impact tracking
  + Advanced e-scooter integration
  + Large-scale regional or national transportation management

4. Deliverables

* Project Charter: This document is the project charter
* Software Requirements Specification (SRS): Parke will be creating a detailed description of functional and non-functional requirements.
* Use Case Diagrams and Specifications: Daniel will be working on a Visual representation of how users will interact with the system.
* Analytical Report 1: The group is coming together to Analysis and document the work done, challenges encountered, and strategies for the next phase.

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| Milestone | Due Date | Deliverables |
| Milestone 1: Project Initiation | Week 4: Sep 15, 2024 11:59 PM | Project Charter, SRS, Use Case Diagrams, Analytical Report 1 |
| Milestone 2: System Design | Week 7: Oct 20, 2024 11:59 PM | Architecture Document, Class Diagrams, UI Prototype, Analytical Report 2 |
| Milestone 3: Final Delivery | Week 15 Dec 8, 2024 11:59 PM | Complete Code, Test Plan, User Manual, Final Presentation, Analytical Report 3 |

5. Milestones and Timeline

6. Key Stakeholders:

* Project Sponsor: Diane Rhodes
* Daniel, Parke, and John
* End Users: City residents, city planners, public transportation operators.

7. Roles and Responsibilities:

* Project Charter Management (John Kibozi): Creates and monitors project progress, manages GitHub repository for documentation and over progress of project, and ensure team is on the same page via Project Charter.
* Project Leader/Lead Developer for Software Requirements (Parke Lovett): Responsible for developing the real-time traffic monitoring module. and ensure deadlines are met.
* Case Diagram/UX Designer (Daniel Wilson) Develops the user interface and ensures it is user-friendly and responsive.
* Testing and Analytical reporting (The Team): Ensures quality by writing and executing test cases for each module.

8. Risks and Assumptions:

* Risks:
  + Tight timeline leading to incomplete features
  + There will be a learning curve due to a lack of familiarity with certain technologies, such as real-time traffic APIs
  + We see some difficulty integrating multiple microservices.
* Assumptions:
  + All team members have access to and are familiar with using GitHub for version control and documentation.
  + We will most likely use basic cloud services, such as AWS S3 or Google Cloud. These will be available for testing and data storage.
  + We could use Jira for task tracking (the IT Helpdesk at RRCC use this software to track their tickets in their day to day operations).

9. Tools and Technologies:

* Programming Language: Python for backend services.
* Version Control: GitHub for collaboration and code management
* Project Management: Project charter and GitHub
* UI/UX Design: Figma or Adobe XD for prototyping the user I interface.

10. Success Criteria:

* The system is able to display real-time traffic updates and suggest alternative routes.
* Public transportation schedules are visible and updated accurately.
* The parking management system works across multiple locations and shows real-time availability.
* The system is scalable and can handle at least 1,000 concurrent users without performance issues.

11. Repository and Documentation

* GitHub Repo: [Jkiboz/Sustainable-Urban-Transportation-Management-System (github.com)](https://github.com/Jkiboz/Sustainable-Urban-Transportation-Management-System)