Software Requirements Specification

BusMate: Real-Time Microbus Transportation System

Version 2

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Contents

1. Introduction **6**
- 1.1. Purpose . . . 6
- 1.2. Scope . . . 6
- 1.3. Definitions, Acronyms, and Abbreviations . . . 6
- 1.4. References . . . 7

2. Overall Description **8**
- 2.1. Product Perspective . . . 8
- 2.2. Product Features . . . 8
- 2.3. User Classes and Characteristics . . . 8

3. Specific Requirements **9**
- 3.1. External Interface Requirements . . . 9
  - 3.1.1. User Interfaces . . . 9
  - 3.1.2. Hardware Interfaces . . . 9
  - 3.1.3. Software Interfaces . . . 9
- 3.2. Functional Requirements . . . 9
  - 3.2.1. Passenger Functionality . . . 9
  - 3.2.2. Driver Functionality . . . 9
- 3.3. Performance Requirements . . . 10

4. Conclusion **11**

List of Figures

List of Tables

1. Revision History 5

Revision History

Version	Date	Edited By	Description
1	Oct 18, 2023	Andrew Amin	Initial functional requirements and users definition
1	Oct 21, 2023	Karim Muhammad	Initial interface and non-functional requirements
1	Oct 22, 2023	Muhammad Hamdy	Project purpose, scope and re-define users
1	Oct 23, 2023	Muhammad Hossam	System architecture and block diagram
2	Nov 7, 2023	Andrew Amin	Rewrite functional requirements, purpose and scope

Table 1.: Revision History

1. Introduction

1.1. Purpose

The purpose of this document is to provide a detailed software requirements specification for the BusMate Web Application. It outlines the functionalities, constraints, and performance requirements of the application.

1.2. Scope

The Microbus Transportation Web Application aims to connect microbus drivers and passengers in real-time. It addresses the challenge of passengers waiting for microbuses that do not align with their needs, while drivers are unaware of potential passengers along their routes. The application seeks to improve the transportation experience by providing a platform for efficient communication and coordination between drivers and passengers.

1.3. Definitions, Acronyms, and Abbreviations

- BusMate: The name of project
- SRS: Software Requirements Specification
- IEEE: Institute of Electrical and Electronics Engineers
- Microbus: A small public transportation vehicle that can accommodate a limited number of passengers.
- Passenger: An individual who intends to use the microbus transportation service.
- Driver: An individual who operates a microbus and provides transportation services to passengers.
- Web Application: A software application that is accessed through a web browser and provides functionality and services over the internet.
- Real-time: The ability to provide and receive information instantaneously or with minimal delay.

1.4. References

- IEEE Std 830-1998: IEEE Recommended Practice for Software Requirements Specifications

2. Overall Description

2.1. Product Perspective

The Microbus Transportation Web Application will be a standalone system, interacting with microbus drivers and passengers through a user-friendly web interface. It will not rely on any external systems for its core functionality, but may utilize geolocation services and payment gateways for additional features.

2.2. Product Features

- Real-time microbus tracking and availability display
- Passenger registration and profile management
- Driver registration and profile management
- Route selection and scheduling for drivers
- Passenger search and booking for available microbuses
- Notifications for drivers and passengers regarding trip updates

2.3. User Classes and Characteristics

The Microbus Transportation Web Application will have two primary user classes: passengers and drivers. Passengers will include individuals who rely on microbuses for transportation, while drivers will be microbus owners or operators. Both user classes are expected to have basic computer literacy and access to the internet.

3. Specific Requirements

3.1. External Interface Requirements

3.1.1. User Interfaces

The web application will have a user-friendly interface with intuitive navigation and clear instructions. It will support multiple devices and provide accessibility features for users with disabilities.

3.1.2. Hardware Interfaces

The application will run on standard hardware configurations, including desktops, laptops, and mobile devices. It will utilize GPS capabilities for real-time tracking.

3.1.3. Software Interfaces

The application will integrate with geolocation services for accurate tracking and mapping. It will also integrate with payment gateways for secure online transactions.

3.2. Functional Requirements

3.2.1. Passenger Functionality

1. Register as a passenger by providing necessary details
2. Search for available microbuses based on location and timing preferences
3. View microbus details, including driver information and capacity
4. Book a seat on a selected microbus
5. Receive notifications regarding trip updates

3.2.2. Driver Functionality

1. Register as a driver by providing necessary details
2. Create and manage routes, specifying pickup and drop-off points

3. Set availability and capacity for each microbus
4. Receive booking requests from passengers
5. Confirm or reject booking requests
6. Receive notifications regarding trip updates

3.3. Performance Requirements

- The application should be able to handle a large number of simultaneous users without significant performance degradation.
- Real-time tracking and updates should have minimal delay, providing accurate information to both drivers and passengers.
- The application should be responsive and provide a seamless user experience, with quick loading times and minimal downtime for maintenance.

4. Conclusion

This Software Requirements Specification document has outlined the functional and non-functional requirements for the Microbus Transportation Web Application. It provides a comprehensive understanding of the application's purpose, scope, and specific requirements, following the IEEE Standard for SRS.