Software Requirements Specification

for

PedalPal

Version 1.1

Prepared by

Group 4		Group Name: Bit Brewers
Raghav Manglik	220854	raghavkmanglik@gmail.com
Amogh Bhagwat	220288	amogh.2004b@gmail.com
Srishti Chandra	221088	chandra.srishti2403@gmail.com
Wadkar Srujan Nitin	221212	srujanwadkar@gmail.com
Anaswar K B	220138	anaswarkb013@gmail.com
Khushi Gupta	220531	khushi07g@gmail.com
Ananya Singh Baghel	220136	ananyabaghel2004@gmail.com
Pathe Nevish Ashok	220757	nevu.pathe1234@gmail.com
Debraj Kamakar	220329	debraj2003jsr@gmail.com
Kaneez Fatima	220496	kaneezfatimamehdi7@gmail.com

Course:	CS253
Mentor TA:	Mr. Bharat
Instructor:	Prof. Indranil Saha
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2.1. Product Scope

Many individuals, from students to faculties, have embraced the lifestyle of cycling at the IITK campus. These cycles require timely maintenance and often get lost. A large number of lost cycles are never found by the owners and remain stacked like waste. Considering the temporary stay of students on campus, buying new cycles is not very cost-effective in such cases. In addition to that, during fests and other campus events, visitors from outside generally face problems in roaming around our huge campus.

This calls for a need for public cycle stands, from where the cycles can be rented using our software application. These cycle stands will be located at some of the most visited locations on campus, which can be accessed through our portal, making the transport easier. Specifying the location will inform them about the nearest stands along with the number of available cycles in it. It will also schedule maintenance on a regular basis, taking a record of the client's feedback. The app will keep track of the duration for which the cycle is used by the client and charge accordingly. We will also provide cycle booking facilities

2.2. Intended Audience and Document Overview

Software Developers who will design the software as per the requirements given in the document, in this case, the group members. **Project Managers** who will supervise the planning and execution of the software development procedure, in this case, the TAs and the course instructor. **Testers and approvers** who will perform a quality check of the designed software and give their feedback on the interface, areas of improvement, etc. **Users** will be the customers of the software, in this case, our entire campus residents and visitors.

Document Overview

Section 1: Revisions

This section contains information about the various versions that this document has gone through.

Section 2: Introduction

In this section, we provide some basic information that would be useful in reading the SRS, such as document conventions, abbreviations, etc. The reader may choose to skip the section if they are familiar with the basic terminologies. In any case, this section will serve as a helpful collection of information to clarify any confusion that may occur while reading the document.

Section 3: Overall Description

This section offers an overall view of the software system and its functionalities, assumptions, and dependencies. This will be a useful read for those seeking to familiarize themselves with the system at a quick glance. A reader is encouraged to read this part as it provides a good basis for understanding the next section of the SRS.

Section 4: Specific Requirements

This section contains detailed information about the software and explains its functions in detail through the use of numerous tree diagrams. This proves indispensable for end-users, clients, and developers alike, serving as a roadmap during the development phase and a user manual for end-users.

Section 5: Other Non-Functional Requirements

Important non-functional requirements are expounded here. This is of special importance to the developers of the software.

2.3. Definitions, Acronyms, and Abbreviations

SRS	Software Requirements Specification
DBMS	Database Management System
UI	User Interface
API	Application Programming Interface
GPS	Global Positioning System
CSS	Cascading Style Sheets
SQL	Structured Query Language
OTP	One Time Password
HTTPS	Hypertext Transfer Protocol (Secure)
Subscribed Users	Users who avail services as per a prepaid subscription agreement
Guest Users	Users who avail services as per a postpaid agreement
Hubs / Stands	Places where the cycles will be present
Ride time	Total time between unlocking and locking a cycle

2.4. Document Conventions

2.5. References and Acknowledgments

- We would also like to acknowledge the help of our TA, Mr. Bharat, and our course instructor, Prof. Indranil Saha for guiding us through the document, and providing a template for the Software Requirements Specification document.
- We utilised Figma to craft visually compelling graphs, effectively translating our ideas into a concise and impactful pictorial representation.
- We used the tool Circuito.io to capture the electronic circuit of the hardware subsystem.

3. Overall Description

3.1. Product Overview

Our product, PedalPal, is designed to enhance the cycling experience for IITK students through a convenient and efficient bicycle-sharing system on campus. Invaluable for students who have lost their bicycles or are facing cycling issues, PedalPal serves as a self-contained product, allowing easy bicycle issuance from strategically installed hubs across the university. Moreover, it caters to campus visitors, providing a seamless means to explore the campus on wheels.

The software streamlines the user interaction process by allowing users to book cycles for desired durations and receive real-time information about available cycles. PedalPal further enhances the experience by offering personalized details on the closest hub to the user's current location, ensuring convenient access. The user interface incorporates a history feature, allowing users to review past cycling sessions and track usage patterns. Thus providing a user-friendly solution and optimizing the cycling journey for both students and visitors on campus.

3.2. Product Functionality

- Administrative access using designated usernames and passwords
- Provision for users to register to avail services and subscribe for enhanced features
- Availability of an advance cycle booking system exclusively for subscribed users
- Real-time visibility of available cycles at each hub
- Visibility of hubs in proximity to any specified location
- User location tracking for personalized service

4. Specific Requirements

5. Other Non-Functional Requirements

6. Other Requirements

Appendices

A. Data Dictionary

B. Group Log