
SOFTWARE REQUIREMENTS SPECIFICATION

for

Sarthi

Version 1.0

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Contents

1	Introduction	3
1.1	Purpose	3
1.1.1	Project Scope	3
2	Overall Description	5
2.1	Product Perspective	5
2.2	User Classes and Characteristics	5
2.3	Product Functions	7
2.4	Operating Environment	8
2.5	Design	8
2.5.1	System Design Overview	8
2.5.2	User Interface Design	8
2.5.3	Navigation Flow	9
2.5.4	Design Constraints	9
3	System Features	10
3.1	Description and Priority	10
3.2	Functional Requirements	10
4	Other Nonfunctional Requirements	12
4.1	Performance Requirements	12
4.2	Security Requirements	12
4.3	Software Quality Attributes	12
4.4	Business Rules	12
5	Other Requirements	13
6	Project Timeline	14

1 Introduction

1.1 Purpose

Students at the Indian Institute of Information Technology Guwahati (IIITG) currently lack a centralized and efficient platform to manage common peer-to-peer utility services. Essential activities such as organizing taxi pools, buying or selling hostel items, and even seeking academic or logistical help are mostly handled through temporary and unorganized channels such as WhatsApp or Telegram groups. These methods are fragmented, difficult to search, and often result in missed opportunities, communication delays, and unnecessary overhead.

The purpose of the **Sarthi Web Application** is to address these challenges by providing a dedicated, persistent, and structured digital platform tailored to the needs of the IIITG student community. The application aims to streamline essential student interactions by enabling:

- Peer-to-peer buying and selling of essential items.
- Coordinated ride-sharing to reduce travel costs and improve convenience.
- Future integration of community forums, lost-and-found, rental listings, and vendor tie-ups.

Through these features, **Sarthi** enhances campus resourcefulness, encourages collaboration, and simplifies student life—especially for hostel residents and students traveling from distant regions.

1.1.1 Project Scope

The scope of the **Sarthi Web Application** encompasses the design, development, and maintenance of a web-based platform tailored specifically for the IIITG student community. The platform will serve as a one-stop solution for common logistical and social needs of students, addressing the inefficiencies of current informal communication channels.

Phase 1: Web Application (Current Development)

1. Buy and Sell Module

- Post and browse listings to buy or sell everyday essentials (e.g., mattresses, buckets, utilities).

- Enable in-app messaging or contact functionality for negotiations.

2. Ride-Sharing Module

- Allow students to post upcoming travel plans (with date, time, and destination).
- Discover ride-sharing opportunities and coordinate to split costs.
- Integrated chat system for planning and coordination.

Phase 2: Future Enhancements (Mobile + Web Expansion)

1. Lost & Found

- Report and track lost or found items on campus.

2. Community Forum

- A platform for announcements, feedback, queries, or general discussions.

3. Vendor Tie-ups

- Collaborations with local shops to facilitate direct delivery of goods to campus.

4. Rental and PG Listings

- Search or post about available rooms, PGs, or flats near the campus for students preferring off-campus living.

2 Overall Description

2.1 Product Perspective

The **Sarthi Web Application** is conceived as a new, centralized platform that replaces the current fragmented and temporary communication methods used within the IIITG student community. At present, most interactions for ride-sharing, peer-to-peer sales, or logistical coordination are conducted through informal WhatsApp or Telegram groups. These existing solutions are ad hoc, difficult to search, and lack structured features tailored to the requirements of students.

Sarthi provides a structured, searchable, and persistent digital environment for these activities. It is designed as a stand-alone web application in its first phase, accessible through modern browsers on desktops, laptops, and mobile devices. In subsequent phases, a dedicated mobile application will be introduced to enhance accessibility and usability.

From a system context perspective:

- **Users:** Primary users will be IIITG students, with optional access for faculty and administrative staff in the future (for announcements or vendor tie-ups).
- **Interfaces:** The system will provide a browser-based interface. It will later support mobile platforms (Android/iOS) as part of Phase 2 development.
- **Dependencies:** The system requires a stable internet connection and authentication linked to the IIITG email domain for account creation and verification.
- **System Interaction:** Initially, the application will not integrate with external systems. Future enhancements may include APIs for payment gateways, vendor management, or external delivery services.

Thus, Sarthi will evolve from being a self-contained, campus-focused web application into a more comprehensive ecosystem that supports both web and mobile users, vendor tie-ups, and extended community interactions.

2.2 User Classes and Characteristics

The **Sarthi Web Application** is intended for the IIITG community. The following user classes have been identified:

1. **Students (Primary Users)**

- Description: Undergraduate, postgraduate, and doctoral students at IIITG form the primary user base.
- Responsibilities:
 - Create and browse buy/sell listings in the marketplace.
 - Post and join ride-sharing opportunities.
 - In future versions, participate in community forums, lost and found, and rental listings.
- Characteristics: Digitally literate, familiar with using web-based platforms, and accustomed to informal communication tools like WhatsApp/Telegram.
- Access: Browser-based login using IIITG credentials.

2. Administrators (System Maintainers)

- Description: Selected members of the technical team or IIITG IT staff responsible for platform management.
- Responsibilities:
 - User account management and authentication support.
 - Content moderation and removal of inappropriate material.
 - System monitoring, troubleshooting, and configuration of platform settings.
- Characteristics: Technically proficient, with knowledge of system administration and web applications.
- Access: Privileged access to administrative dashboards and moderation tools.

3. Vendors (Future Scope)

- Description: Local shops and service providers engaged with the IIITG community for commercial tie-ups.
- Responsibilities:
 - Post and update product or service listings for students.
 - Handle direct orders or inquiries from students.
- Characteristics: Varying technical literacy; therefore, their interface must be simple and intuitive.
- Access: Restricted accounts for business use only, enabled in future phases.

In summary, **Students** constitute the main user class in Phase 1, **Administrators** ensure proper system operation, and **Vendors** will be introduced in Phase 2 to expand the ecosystem.

2.3 Product Functions

The **Sarthi Web Application** will provide the following high-level functions, organized by major modules:

1. Buy and Sell Module

- Allow students to create, update, and delete buy/sell listings for commonly used items such as mattresses, buckets, and other essentials.
- Enable browsing and searching of existing listings with filtering options.
- Provide secure in-app messaging or contact mechanisms to facilitate negotiations between buyers and sellers.

2. Ride-Sharing Module

- Allow students to post travel details including date, time, destination, and available seats.
- Enable discovery of existing ride-sharing opportunities through search and browsing.
- Support basic communication (chat or messaging) for coordination between ride-sharers.

3. User Management Functions

- Provide account creation and login functionality using IIITG credentials for authentication.
- Support role-based access: student, administrator, and (in future phases) vendor.
- Allow administrators to manage accounts, reset passwords, and deactivate users if necessary.

4. Administrative Functions

- Provide moderation tools to review and remove inappropriate or irrelevant listings.
- Allow monitoring of platform usage, reports of misconduct, and handling of disputes between users.

5. Planned Future Enhancements (Phase 2)

- **Lost & Found:** Post and track lost or found items on campus.
- **Community Forum:** Facilitate discussions, announcements, and query resolution.
- **Vendor Tie-ups:** Enable local vendors to post product or service listings and handle student orders.

- **Rental Listings:** Allow students to search and post rental or PG accommodations near campus.

Overall, these functions will streamline essential student interactions, reduce dependence on informal communication platforms, and ensure secure and organized information exchange within the IIITG community.

2.4 Operating Environment

The website will operate in any modern operating environment, including macOS, Windows, and Linux.

2.5 Design

2.5.1 System Design Overview

The **Sarthi Web Application** is designed as a browser-based platform accessible only to IIITG students through institute email authentication. The system enforces secure login using the student's official institute email and password. After successful login, users are directed to the Home Page, which acts as the central hub for all modules of the application. The application is modular in nature, with each functional component accessible through the Home Page. The design follows a role-based structure, ensuring different privileges for students, administrators, and (in future versions) vendors.

2.5.2 User Interface Design

The user interface (UI) will be simple, minimalistic, and mobile-responsive to ensure usability on laptops, desktops, and smartphones. The navigation structure will be consistent across all modules.

1. Login Page

- Users must log in with their IIITG institute email ID and password.
- Ensures that only verified students can access the platform.
- Failed login attempts will trigger appropriate error messages.

2. Home Page

- Acts as the central hub of the application.
- Provides navigation to the following components:
 - a) Profile
 - b) Buy
 - c) Sell
 - d) Travel

- Additional modules will appear in future releases:
 - a) Lost
 - b) Found
 - c) Marketplace (Vendor integration)
 - d) Rent/PG Listings

3. Profile Page

- Allows students to customize their personal information (name, contact number, room/hostel details).
- Provides options to manage posted listings, ride-sharing posts, and transaction history.

2.5.3 Navigation Flow

The navigation flow of the system is as follows:

1. User accesses the application and is presented with the Login Page.
2. On successful authentication, the user is redirected to the Home Page.
3. From the Home Page, the user can select modules such as:
 - **Profile:** Manage personal details and past activity.
 - **Buy:** Browse posted items from other students.
 - **Sell:** Create or manage item listings.
 - **Travel:** Post or join ride-sharing opportunities.
4. Future modules (Lost, Found, Vendor Marketplace, Rent/PG) will integrate into the same navigation structure.

2.5.4 Design Constraints

- Only IIITG email IDs are allowed for login (restricting usage to the IIITG community).
- Internet connectivity is required at all times to access features.
- Initial version is web-only; mobile app support will be provided in later phases.
- Security constraints include email-based authentication, password protection, and administrator-level monitoring.

3 System Features

Sarthi is a peer-to-peer utility web application for IIITG students. The main purpose of this product is to streamline student interactions such as buying/selling, ride-sharing, and eventually extend to lost & found, vendor marketplace, and PG/rental listings.

3.1 Description and Priority

Sarthi has both core features (Phase 1) and extended features (Phase 2). All Phase 1 features are **mandatory**, while Phase 2 features are planned for future releases.

The features with priority (top to bottom):

1. **Login and Authentication:** Only IIITG students can log in using their institute email ID and password. This ensures restricted and secure access. (**High Priority**)
2. **Marketplace (Buy & Sell):** Students can buy or sell essential items (mattresses, buckets, books, etc.). Includes item posting, browsing, search, and messaging. (**High Priority**)
3. **Ride-Sharing:** Students can post travel plans (date, time, destination) and coordinate shared rides to split costs. (**High Priority**)
4. **Profile Management:** Students can customize their profile, edit personal information, and manage their past listings or ride posts. (**Medium Priority**)
5. **Administrative Functions:** Admins can moderate posts, remove inappropriate content, manage user accounts, and monitor system usage. (**High Priority**)
6. **Future Enhancements (Phase 2):** Lost & Found system, Community Forum, Vendor Marketplace for local shop tie-ups, and PG/Rental Listings. (**Low Priority – Future Scope**)

3.2 Functional Requirements

The **Sarthi Web Application** will be built using modern web technologies to ensure scalability and ease of use.

Technology Stack:

- **Front-End:** React.js, JavaScript
- **Back-End:** Node.js / Express.js
- **Database:** MongoDB (NoSQL database for flexibility)
- **Authentication:** OAuth 2.0 or Google Sign-In restricted to IIITG domain emails

Core Functionalities:

1. User login restricted to IIITG email IDs.
2. Create, view, update, and delete marketplace listings.
3. Search and filter items in marketplace.
4. Create and browse ride-sharing posts.
5. Enable in-app messaging between users.
6. Profile customization and activity history tracking.
7. Admin moderation tools for managing users and content.

4 Other Nonfunctional Requirements

4.1 Performance Requirements

- The system shall support many concurrent users without performance degradation.
- Average response time for major actions (login, search, post) shall be fast.

4.2 Security Requirements

- Only users with valid IIITG email IDs shall be able to register and log in.
- Passwords shall be stored in encrypted form.
- Session management with automatic timeout after inactivity.
- Admin accounts shall have elevated privileges with stricter authentication.

4.3 Software Quality Attributes

- **Usability:** Simple, clean, and mobile-friendly interface for easy adoption by students.
- **Reliability:** The system shall have maximum uptime during academic semesters.
- **Maintainability:** Modular code structure to allow integration of new features (Lost & Found, Vendor Marketplace, etc.).
- **Portability:** Accessible on all major browsers. Mobile application to be developed in Phase 2.

4.4 Business Rules

- The application is strictly for IIITG students and requires institute email authentication.
- Users are responsible for their own listings and negotiations; Sarthi acts only as a facilitator.
- Admins hold authority to remove posts or suspend accounts violating community guidelines.

5 Other Requirements

- The system will require periodic maintenance, including database backups and security updates.
- Future requirements may evolve based on student feedback, such as adding new modules or vendor services.
- Scalability must be ensured so the same platform can later host both web and mobile applications.

6 Project Timeline

The following table represents the **estimated** time to complete the entire process.

Phase	Timeline
Software Requirement Specification (SRS)	1 Sep - 10 Sep
Design Document	11 Sep - 30 Sep
Development	1 Oct - 31 Oct
Testing and Deployment	1 Nov - 10 Nov