

Software Requirements Specification Document

amEx University Marketplace

Group 11

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1. Introduction

1.1 Purpose

amEx is a university-specific **community marketplace** providing students with secure methods to trade goods and services among themselves. The user authentication process requires university email or phone number access while an OTP system verifies completed exchanges. Students can perform transactions more easily on this platform while it develops an economy based on student participation.

1. **Students can explore listings and requests** that members of their university have posted.
2. **Users can list items for sale or request services** like help with pickups or small tasks.
3. **Users verify exchanges** by entering an OTP through the platform after a request gets accepted for final confirmation.
4. **Users can view and organize their ongoing listings** together with their active request entries from their dashboard.
5. **Authentication protocols** are implemented to create a protected space for students only.

1.2 Intended Audience

1. **System Architects** – To design the system architecture and integrate all components together.
2. **UI/UX Designers** – To create interfaces which follow the established feature specifications..
3. **Developers** – To execute the system's functionalities according to the established development requirements.
4. **Project Manager** – To lead development oversight while distributing resources and maintaining schedule adherence..
5. **Testers** – To create test cases which align with specified functionalities alongside defined constraints.
6. **Stakeholders** – To understand the system capabilities, check alignment with business goals and offer feedback.

1.3 Product Scope

- amEx is a **web application** deployed per university, allowing authenticated students to trade goods and services.
- Students can create posts (selling items/services) or requests (seeking items/services).
- Users confirm transactions through an OTP system after completing the exchange.
- Users will be able to search and filter both posts and requests through this platform.

- The personal dashboard provides users with control to manage their posted listings and transactions.
- The upcoming versions will add features for ratings and reviews together with moderation capabilities.

1.4 References

1. **University ID Verification Standards** – Confirms that only approved students with university-provided outlook ids can use the system
2. **OTP Authentication Best Practices** – Secure methods for generating and validating OTPs using a nodejs library for authorization through mail.
3. **Data Privacy Regulations (e.g., GDPR, IT Act 2000 - India)** – Users need to understand which data storage practices and usage methods apply to their information. The system needs security practices that will stop unauthorized system entry.
4. **Peer-to-Peer Marketplace Security Guidelines** – Since the app facilitates direct transactions between students, ensuring security and preventing fraud is essential. Moderation & Policy Enforcement is crucial.

2. Overall Description

2.1 Product Perspective

- This platform operates as a **peer-to-peer marketplace** that connects students at one university for buying and selling and service requests inside their educational institution. The platform creates a secure trusted environment through its feature that allows only verified university members to access the system.
- The application stands apart from standard e-commerce websites because it connects users for **face-to-face transactions** without requiring shipping services. The system verifies transactions by requiring users to confirm meet-ups through **OTP-based meetup confirmation** to validate that both parties have successfully completed the exchange.
- The proposed app targets the **unique requirements of university students** by allowing them to trade textbooks as well as rent dorm necessities and complete small tasks which differ from broader marketplaces like OLX and Facebook Marketplace. The platform functions as a standalone system serving student users without current integration of third-party services for payment or platform communication or moderation.

2.2 Product Features

1. **User Authentication** – OTP-based login via university email/phone.
2. **Marketplace** – Users generate posts and browse through requests as well as respond to them.
3. **Service Requests** – Post and accept service requests through which students submit small tasks such as item pickup assignments.
4. **Search & Filter** – Search listings through the system and filter by category, price, and urgency..
5. **OTP-Based Transaction** – Ensures secure exchange confirmations.
6. **User Dashboard** – Enables students to monitor their current listings as well as their pending requests and all their completed transactions.
7. **Messaging System** – Enables students to exchange messages through the application.
8. **Notifications** – Users get automatic alerts regarding both post responses and transaction updates.
9. **Admin Dashboard** – A place to track platform activity and check for compliance with established guidelines.

2.3 User Classes and Characteristics

1. **Students (Buyers & Sellers)** – Create listings, browse inventory, and accept offers and finalize transactions.
2. **Requesters (Service Seekers)** – post their service demands through the platform which they accept and verify completed tasks through an OTP system.
3. **Service Providers** – Accept service requests by meeting with requesters to execute the tasks.
4. **Administrators** – Track user behavior and manage listings while settling disagreements and upholding policy requirements..

2.5 Design and Implementation Constraints

1. The system needs to manage 10,000 simultaneous users for each university.
2. The system enables users to set request expiration times for maintaining their usefulness.
3. A maximum 5-second delay period should exist for OTP verification.
4. The live location tracking system should operate with delays that do not extend beyond 10 seconds.

2.6 Assumptions and Dependencies

1. Users need internet connection to operate the platform.
2. The university will allow authentication via its email system.
3. The reliability of University email OTP services needs to be maintained for proper execution.

3. Specific Requirements

3.1 Functional Requirements

1. User Authentication

- University email addresses serve as the required registration method for system users.
- An OTP is sent to the university email.
- All users need to authenticate their identity prior to making posts or responding to any requests.

2. Posting & Requesting

- Users can present their listings with descriptions as well as set their prices.
- Users possess the ability to submit requests for particular requirements.
- The required information for listings includes a title along with category, detailed description, specific price and availability status.

3. Transaction Confirmation

- After transaction agreement the system produces an OTP for authentication purposes.
- Users share the OTP screen content through their app before the second user confirms it for transaction verification.
- The transaction becomes completed after successfully entering the OTP.

4. Messaging System

Users can chat within the app after responding to a listing.

5. Notifications

Users get automated notifications about new post responses as well as transactions and received messages.

3.2 External Interface Requirements

1. User Interfaces

- Mobile-friendly web app with a clean, responsive design.
 - Dark/light mode options for accessibility.
2. **Hardware Interfaces**
 - Device camera support for taking product photos.
 - Dark/light mode options for accessibility.
 3. **Software Interfaces**
 - Integration with the Google Maps/OpenStreetMap API for location tracking.
 - The system will implement payment gateway capabilities for transactions as part of future software developments.
 4. **Communication Interfaces**
 - Email-based OTP authentication.
 - Push notifications for request updates.

3.3 Performance Requirements

1. The marketplace search engine needs to deliver results to users in less than two seconds.
2. The OTP verification process needs to finish its operation inside ten seconds.
3. The system must support maximum simultaneous user connections at 1,000 for each university implementation.

3.4 Security Requirements

1. All passwords must be hashed and stored securely.
2. OTP tokens must be short-lived and expire after 5 minutes.
3. The system requires all user data to receive encryption during its transmission.
4. The system must disable external link posting to stop fraud.

3.5 Software Quality Attributes

1. **Availability** – 99.9% uptime.
2. **Scalability** – Supports growth in users and transactions.
3. **Usability** – Intuitive UI with minimal steps for listing and transactions.
4. **Maintainability** – Codebase should allow for easy updates and feature additions.

3.6 Other Non-Functional Requirements

1. **Legal Compliance** – Must adhere to university policies and local data protection laws.
2. **Accessibility** – Users with visual impairments must find the user interface accessible.