# **Software Requirements Specification (SRS) for MU Mobile Application**

## **Prepared By**

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## **1. Introduction**

### **1.1 Purpose**

The MU Mobile Application aims to provide an efficient and user-friendly platform for students, parents, and faculty to access university-related information, track students’ real-time locations, and receive faculty announcements.

### **1.2 Document Overview**

This document outlines the software requirements for the MU Mobile Application. It details the system’s functionality, constraints, and expected behavior.

### **1.3 Intended Audience**

This document is intended for:  
- University administration  
- Faculty members  
- Student developers  
- Potential users (students and parents)

### **1.4 Scope**

The MU Mobile Application will:  
- Provide university information  
- Offer student geo-tracking  
- Enable faculty announcements  
- Support QR code-based attendance  
- Display personalized timetables

## **2. Overall Description**

### **2.1 Product Perspective**

This application is an improvement over the university’s existing website, which lacks mobile accessibility and interactive features.

### **2.2 Product Functions**

1. University Information Access: View university news and updates.  
2. Real-Time Student Geo-Tracking: Allows parents to monitor student locations.  
3. Faculty Announcements: Faculty members can broadcast messages to students.  
4. QR Code-Based Attendance: Students can check in to lectures.  
5. Personalized Timetable: Displays schedules based on course and section.

### **2.3 User Characteristics**

- Students: Access timetables, attendance, and faculty announcements.  
- Parents: Track students’ real-time locations.  
- Faculty: Broadcast announcements, update timetables, and manage attendance.

### **2.4 Assumptions & Constraints**

Assumptions:  
- Students and faculty will actively use the app.  
- University administration will support the project.  
  
Constraints:  
- Data privacy must be ensured.  
- Limited development time and budget.  
- Scalability concerns for a growing user base.

## **3. Specific Requirements**

### **3.1 Functional Requirements**

1. User Registration & Authentication  
 - Users (students, parents, faculty) must sign up using their university credentials.  
 - Two-factor authentication for security.  
  
2. University Information Access  
 - Display university updates, announcements, and schedules.  
  
3. Geo-Tracking for Students  
 - Uses GPS to track student locations in real-time.  
 - Parents can view locations via the app.  
  
4. Faculty Announcements  
 - Faculty can send announcements to students.  
  
5. QR Code-Based Attendance  
 - Students scan QR codes to mark attendance.  
 - Faculty can view attendance records.  
  
6. Personalized Timetable  
 - Students can view class schedules based on their section.

### **3.2 Non-Functional Requirements**

Performance: Must handle 1000+ users concurrently.  
Security: End-to-end encryption for sensitive data.  
Usability: Simple UI for easy navigation.  
Scalability: Supports increased users over time.

## **4. Technologies to be Used**

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| **Component** | **Technology Stack** |
| Frontend | Java (Android SDK), XML (UI Design) |
| Backend | Spring Boot (Java) |
| Database | Firebase Firestore (Cloud-based) |
| Authentication | Firebase Authentication |
| Real-Time Tracking | Google Maps API, Firebase Realtime Database |
| Push Notifications | Firebase Cloud Messaging (FCM) |
| QR Code Processing | ZXing (QR Code Scanning Library) |

## **5. Future Scope**

- iOS version using Swift.  
- AI-powered analytics for student performance tracking.  
- Integration with Learning Management Systems (LMS).