

Software Engineering - Course Project Proposal

Course Title : Software Engineering

Course Code : CSE412

Section : 04

Group: 03

Semester : Summer2025

Submitted To:

Yasin Sazid

Lecturer

Department of Computer Science & Engineering
East West University.

Submitted By:

Name	ID
Abrar Khatib Lajim	2022-3-60-043
Md. Saiful Islam	2022-3-60-045
Umme Mukaddisa	2022-3-60-317

1. Project Title:

ResQMob – Real-Time Emergency Response Application



A comprehensive emergency response mobile application, featuring real-time SOS alerts, community safety networks, and emergency communication.

2. Team Members & Roles:

Name	Student ID	Role
Md. Saiful Islam	2022-3-60-045	Team Lead, Full-Stack Developer
		Frontend Developer (Flutter/React)
Abrar Khatib Lajim	2022-3-60-043	Backend Developer(Supabase/Firebase)
		UI/UX Designer & Documentation
Umme Mukaddisa	2022-3-60-317	Risk Analyst
		QA Tester & Deployment

3. Project Overview:

ResQMob is a real-time **emergency alert** and **community safety network** application that **enables** users to instantly **send SOS signals**, **share live location**, and **notify** both **emergency contacts** and **nearby users** for quick assistance. Designed especially for **safety-sensitive areas** like **Bangladesh**, it uses scalable technologies to build a reliable crowd-based safety system.

4. Objectives:

1. Provide one-tap SOS alerts with real-time location.
2. Notify emergency contacts and nearby users instantly.
3. Create a crowd-based response network to increase safety.
4. Implement background SOS detection via hardware triggers.
5. Enable in-app communication through emergency chatrooms.
6. Deliver a fully functional, production-ready application.

5. Scope:

This project will include:

1. A cross-platform mobile app using Flutter.
2. Real-time SOS alert system with escalation logic.
3. Nearby user detection and emergency level mapping.
4. Emergency chat and notification system.
5. Admin-level safety reporting and privacy management.

Out of Scope:

1. Direct government/police integration (mocked for now).
2. Payment, donations, or insurance modules.

KEY STAKEHOLDERS

Development Team ▾

Course Instructor / Supervisor ▾

Potential Investors / NGOs ▾

Institutions ▾

End Users ▾

6. Proposed Methodology:

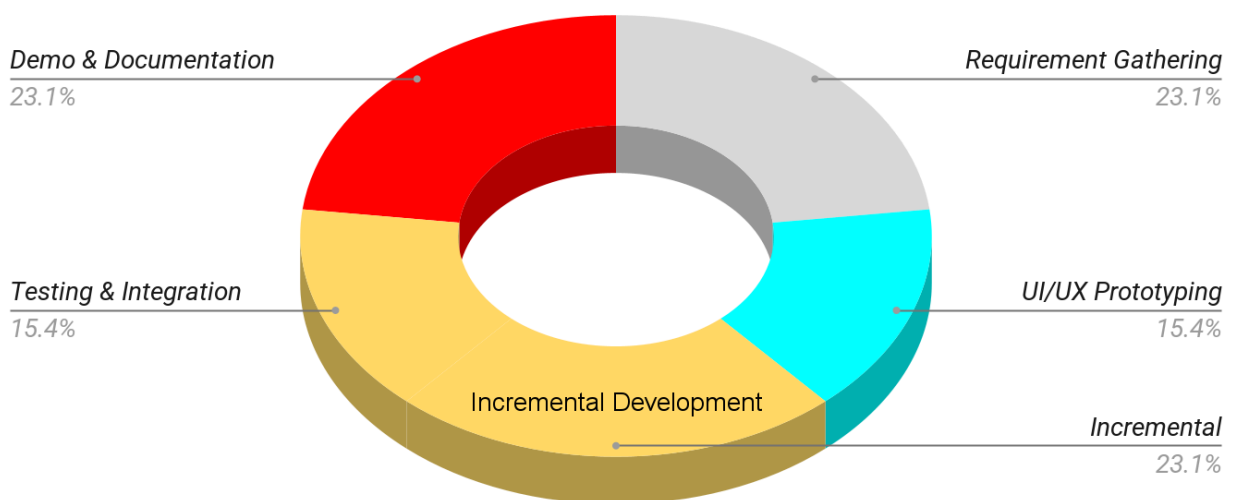
We will use the **Agile Software Development Life Cycle (SDLC)**. Work will be divided into sprints with regular sprint planning, standups, development, and retrospectives.

Phases:



1. Requirement Gathering
2. UI/UX Prototyping
3. Incremental Development
4. Testing & Integration
5. Final Demo & Documentation

Expected Ratio



7. Expected Technologies:

Area	Technology
Frontend	Flutter
Backend/Database	Supabase (PostgreSQL, Auth, Storage, Realtime)
Maps/Location	Google Maps SDK / Mapbox
Notifications	Firebase Cloud Messaging / OneSignal
Authentication	Supabase Auth
Chat/Realtime	Supabase Realtime & Edge Functions Or Firebase
Dev Tools	GitHub, VS Code, Trello, Notion

8. Tentative Timeline:

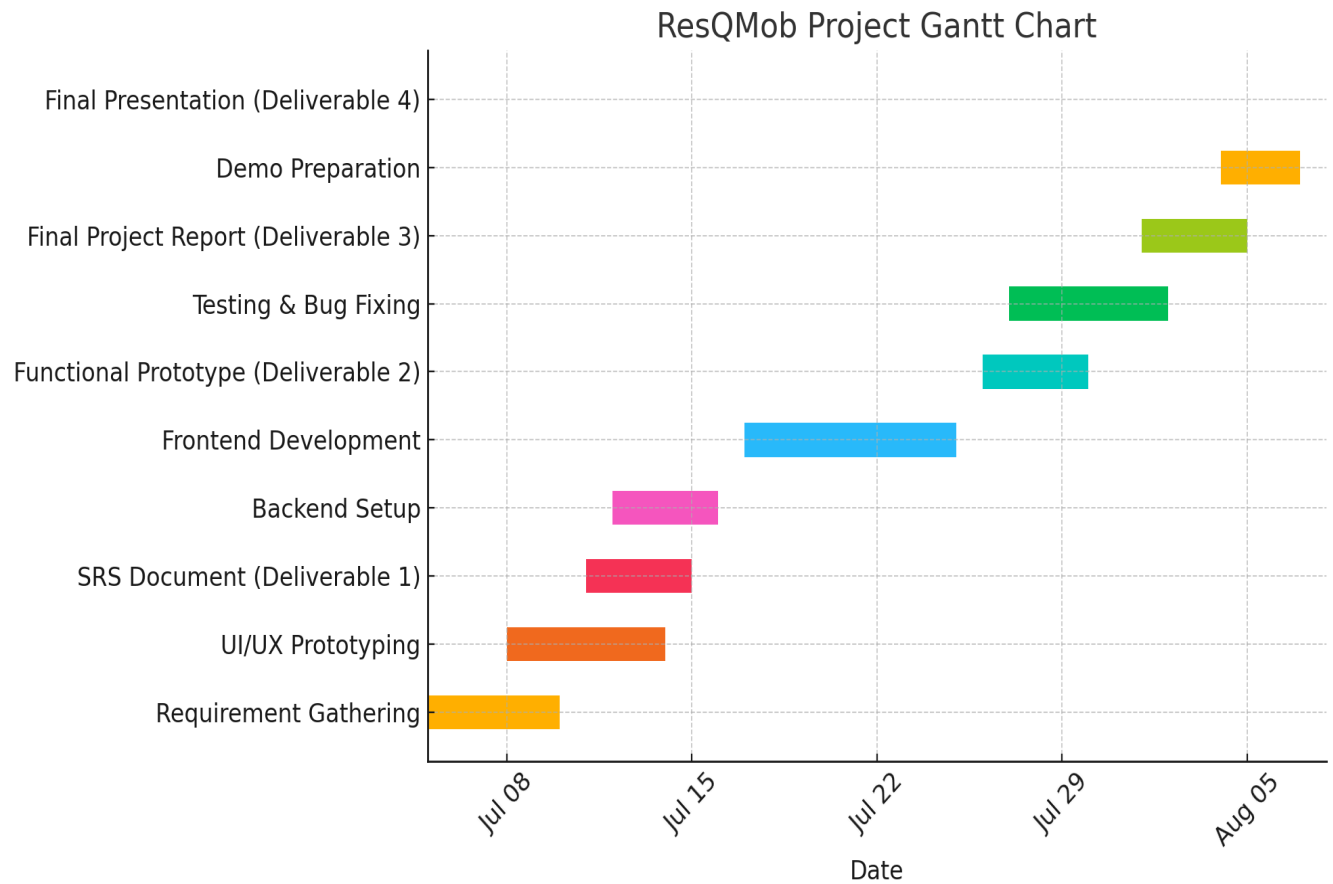
Week	Milestone
~ 1	Project Planning, Requirement Analysis
	UI/UX Design, Wireframing
	Backend Schema Setup (Supabase/Firebase)
~ 2–3	Core SOS Functionality + Location Module
	Nearby User Detection + Alerting Logic
	Chat + Notification System

~ 4	Final Testing, Debugging, UI Refinement
	Report Writing, Demo Presentation

DESCRIPTION	TARGET COMPLETION	ACTUAL COMPLETION	STATUS
Requirement Analysis	Jul 7, 2025	Jul 10, 2025	In progress ▾
UI/UX Design	Jul 21, 2025	📅 Date	Not started ▾
Implantation	Jul 28, 2025	📅 Date	Not started ▾

9. Expected Deliverables:

- Software Requirements Specification (SRS)
- UI/UX Wireframes & Flowcharts
- Functional Mobile App Prototype (Cross-platform)
- Mid-Term Progress Report
- Final Technical Report
- Deployment-ready source code (GitHub)
- Presentation Slides & Demo Video



TASK DESCRIPTION	START DATE	END DATE	ASSIGNED TO	STATUS
Proposal	Jul 4, 2025	Jul 6, 2025	Abrar Lajim	In progress ▾
Requirement	Jul 8, 2025	Date	Person	Not started ▾
Design	Jul 10, 20...	Date	Person	Not started ▾

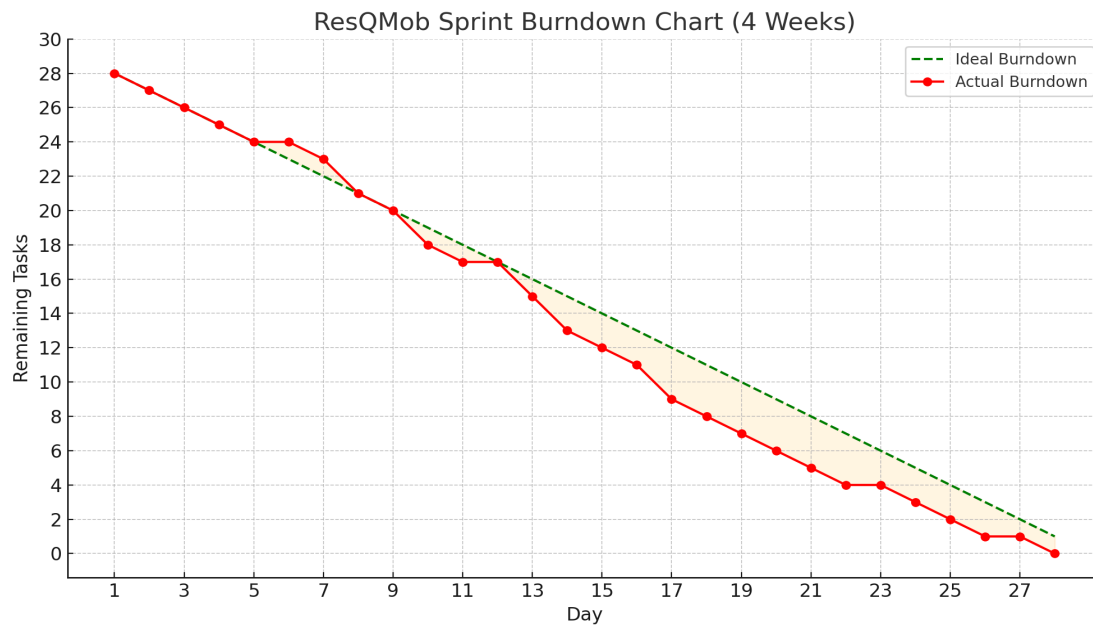
10. Potential Risks:

Risk	Mitigation Plan
Misuse of SOS alert feature	Add user verification, abuse flagging
Background location tracking issues	Implement platform-specific permissions
Real-time updates delay	Optimize database and subscriptions
Scope expansion beyond timeline	Prioritize MVP features strictly
Privacy & data safety concerns	Use encryption, anonymization, user control

Summary

Agile Approach Highlights:

- Work is divided into **sprints** (1–4 week iterations)
- Regular **sprint planning, daily stand-ups, and retrospectives**
- Continuous integration and testing
- User feedback is incorporated throughout the development



ResQMob – Feature Table

Category	Feature Description
Emergency Response	One-tap SOS alerts with customizable urgency levels
	Real-time location sharing during emergencies
	Automatic escalation for unresponded alerts
	SMS and push notifications to emergency contacts
Interactive Map	Live emergency alerts displayed on map
	Safe zones: hospitals, police stations, fire stations
	Nearby responders and their current status
	Real-time location tracking of alert origin
Emergency Communication	Emergency chat rooms for each active alert
	Community-wide safety discussions
	Real-time messaging with live location sharing
	Voice and video call integration for emergencies

Community Safety	Public safety feed with tips and incident reports
	Local neighborhood watch groups
	Real-time safety updates from community members
	Verified listings of emergency service providers
Privacy & Security	Row-level security implemented using Supabase
	Privacy mode for discreet operation and alerts
	End-to-end encrypted communications
	Secure authentication and optional ID verification