

Project Synopsis.

Project Title; Designing a Mobile Application for Real-Time Gender-Based Violence (GBV) Crisis Response and Digital Self-Defense

1. Introduction

Gender-Based Violence (GBV) remains a pervasive public health and human rights challenge globally and within Tanzania. Despite the presence of institutional support systems such as the Police Force, Social Welfare Departments, and Non-Governmental Organizations (NGOs), survivors often face significant barriers in accessing immediate and discreet assistance. These barriers are amplified by geographical disparities, social stigma, fear of retaliation, and limited real-time coordination among service providers.

Mobile technology presents an opportunity to bridge this critical gap by enabling confidential, rapid, and location-aware access to emergency support services. With the high penetration of Android-based smartphones in Tanzania, a mobile-based intervention is both practical and contextually appropriate.

2. Problem Statement

Existing security and emergency response mechanisms in many Tanzanian communities are characterized by slow response times, limited discreet reporting options, and fragmented delivery of legal, medical, and psychosocial services. In GBV cases, these limitations discourage timely reporting and intervention, thereby increasing the risk of further harm to survivors.

The core problem addressed in this project is the absence of a unified, secure, and technology-driven platform that enables real-time emergency signaling, discreet evidence documentation, access to self-defense and legal information, and immediate linkage to verified GBV support stakeholders.

This project proposes the design and evaluation of a mobile application prototype, provisionally named Mlinzi-Connect, which functions as a digital lifeline for GBV survivors. The application leverages mobile computing, GPS technology, and secure data handling mechanisms to provide survivors with confidential control over their safety and access to formal support networks

3. Project Objectives

The main objective of this project is;

To design and develop a functional prototype of an Android-based mobile application featuring a secure and discreet real-time distress signaling mechanism (Silent Alert/Panic Button) integrated with GPS-based location sharing.

Specific objectives

1. To integrate and validate a digital resource library providing culturally relevant self-defense guidance, GBV awareness, and legal rights information.
2. To design a network framework that connects users with verified local GBV stakeholders, including police hotlines, safe houses, legal aid organizations, and counselling services.
3. To evaluate the technical feasibility, usability, and potential socio-cultural acceptance of the proposed application within the Tanzanian context.

4. Scope of the project

The study focuses on the design and development of an Android-based mobile application prototype, selected due to the widespread use of Android smartphones in Tanzania. The project includes the preparation of complete system design documentation, including software architecture, database structure, data flow diagrams, and user interface wireframes.

The scope further covers the implementation of core safety functionalities, notably a discreet Silent Alert or Panic Button mechanism and GPS-based real-time location sharing to enable rapid connection with trusted contacts and verified Gender-Based Violence (GBV) support stakeholders. In addition, the project incorporates the integration of a curated and verified directory of local GBV response services, such as police hotlines, legal aid providers, counselling services, and safe houses, supported by geo-fenced resource mapping to prioritize nearby assistance.

The application will also include a digital self-defense and awareness component, providing both offline and online educational materials focused on basic self-defense techniques,

GBV awareness, and legal rights within the Tanzanian context. Secure evidence management is included within the scope, allowing users to discreetly store time-stamped audio and photographic evidence locally on the device using encryption.

5. significant of the project

This project is significant because it provides practical and accessible tool for preventing and responding to Gender Based Violence (GBV) in real time, enhancing the safety and security of potential victims.

By integrating emergency alerts, location sharing, and digital self-defense features, the application empowers users to protect themselves, seek immediate help, and reduce vulnerability to both physical and online abuse. Additionally, it supports services providers and responders by facilitating faster intervention and coordinates response while promoting awareness of digital safety practices.

Overall, the projects contribute to reduce GBV risks and improving community protection through technology driven solutions.

6. Methodology

This project will adopt the Design Science Research (DSR) methodology, which is appropriate for the systematic design, development, and evaluation of innovative technological artifacts that address real-world problems.

Technologies to be used include;

Frontend: Flutter or React Native for cross-platform mobile development.

Backend: Firebase or Node.js for real-time database and notifications.

Database: Cloud-based storage for reports, user information, and evidence.

Other tools: Google Maps API for location tagging, and push notification services.

7. System Requirements

Software Requirements:

Operating System: Android/iOS

Development Tools: Visual Studio Code / Android Studio

Database: Firebase / MySQL

Supporting Libraries: Google Maps API, notification libraries

Hardware Requirements:

Mobile device with Android 8.0+ or iOS 13+

Camera for capturing evidence

Internet connectivity for report submission and real-time notifications

8. Literature review

Literature review indicates that mobile application support real-time GBV crisis response through emergency alerts, location sharing, and rapid access to support services. Effective solutions must prioritize survival centered design, privacy, and data security while incorporating digital self-defense features.

However, limited evaluation and integration gaps highlight the need for well-designed and context-appropriate GBV response applications.

9. Expected output.

A functional mobile application that allows users to,

- i. Send real-time emergency alerts (panic button)
- ii. Share their location with trusted contacts or responders.
- iii. Capture and securely store evidence (photos, audio or video) safely
- iv. Access information and guidance on digital self-defense and personal safety.

- v. Use interface and experience, that is simple, intuitive and survivor-centered, ensuring easy access even in a stressful situation.

10. Conclusion

11. This project proposes an academically grounded and socially relevant technological solution to address critical gaps in GBV emergency response in Tanzania. The successful design and evaluation of the Mlinzi-Connect prototype will contribute to academic knowledge in mobile health and safety systems, while also providing a practical, scalable framework for NGOs, policymakers, and future developers seeking to enhance survivor safety, access to justice, and coordinated GBV response mechanisms.