University of Sri Jayewardenepura

Faculty of Applied Sciences

Project Proposal

Disaster Relief and Donation Management System

Group 12- AS20240395, AS20240577, AS20240404, AS20240427, AS20240546, AS20240538, AS20240559

CSC 1042 Database Management Systems
Lecturer in charge- Dr. Surani Tissera
Date of submission- 20-12-2025

1. Introduction

The proposed Disaster Relief and Donation Management System is a real-time database application designed to streamline donor contributions, inventory tracking and aid distribution. This system ensures that relief items are managed efficiently and reach beneficiaries quickly and fairly during emergencies, by centralizing information.

2. Problem Statement

Sri Lanka experiences regular natural disasters such as seasonal flooding and landslides, which affect many communities each year. Recently, extreme weather events have highlighted serious challenges in coordinating disaster relief activities. Large numbers of people require urgent assistance in the form of food, water, clothing, shelter and medical supplies during such situations.

Although individuals and organizations are willing to donate, there is no centralized system to properly track donations, manage inventory or monitor distribution. This often result in delays, duplication of aid, shortages in some areas and inefficient distribution.

This project aims to develop a Database Management System for Disaster Relief and Donation Management that automates donation tracking, manages inventory efficiently and supports fair and transparent distribution to beneficiaries during disaster situations.

3. Objectives

- Design a database system to track donors, donations, inventory, beneficiaries and distribution.
- Implement a back-end operations using MySQL via phpMyAdmin.
- Provide a user-friendly interface for entering data and generating reports.
- Ensure accuracy, traceability and overall efficiency in disaster relief operations.

4. Requirement Identification

a. Functional Requirements

i. **Centralized Donation Database:** A unified database to store donor information, donation records, inventory items and beneficiary details allowing instant search by donor name, item type or beneficiary ID.

ii. **Real Time Donation Entry:** As soon as a donor contributes, the donation record is immediately updated in the system, ensuring transparency and eliminating delays in manual tracking.

iii. **Inventory Management:** Digital tracking of all relief items with real-time updates on availability and stock levels.

iv. **Distribution Tracking:** A module to record when and where items are distributed, ensuring fair allocation to beneficiaries and preventing duplication.
v. **Beneficiary Registration:** A system to register affected individuals or families before aid distribution, ensuring accurate records of who receives support.

b. Database and Non-Functional Requirements

i. **Data Integrity and Normalization:** The database schema must be normalized to avoid redundancy with strict foreign key constrains ensuring accurate links between donors, donations, inventory and beneficiaries.
ii. **Search Performance:** Each donor, item and beneficiary will be assigned a unique ID (Primary Key) to allow swift retrieval of records during emergencies.
iii. **Simultaneous Access:** The system must handle multiple users entering or retrieving data at the same time without creating duplicate entries or inconsistencies.
iv. **Data Security:** Role-Based Access Control will ensure that sensitive information (such as donor contacts or beneficiary details) is only accessible to authorized personnel.
v. **Scalability and Reliability:** The system should be able to handle large volumes of data during major disasters while maintaining consistent performance.

5. Conclusion

The transition from a paper based, manual disaster relief process to a real-time donation management system is vital in ensuring timely and effective support during emergencies. This project addresses critical challenges such as duplication of aid, delays in distribution and lack of centralized tracking. By leveraging database technology, the system improves the efficiency and transparency of relief operations. Ultimately, the proposed solution ensures that donor contributions are accurately recorded, inventory is properly managed and aid reaches beneficiaries quickly and fairly, leading to more organized and lifesaving disaster response efforts.