

Abstract

DisasterResponseAI: Smart Relief Platform

DisasterResponseAI: Smart Relief Platform is an advanced, AI-driven solution designed to transform disaster response and recovery efforts. This innovative platform integrates cutting-edge automation and artificial intelligence to enhance the effectiveness, transparency, and efficiency of relief operations. It provides timely and targeted support to affected individuals and communities through a range of sophisticated features.

The platform supports diverse user types—including victims, donors, volunteers, rescue teams, blood donors, and breast milk donors—through a comprehensive registration and verification process. Victims and donors can create detailed profiles to share stories, track contributions, and facilitate connections. The system manages monetary and item donations with real-time fund collection targets and financial transparency.

Crowdsourcing and crowdfunding capabilities enable victims to launch fundraising campaigns, while automated disaster registration and incident mapping offer dynamic updates and visualization of affected areas. A resource directory provides essential services and support, including psychological help and donation facilitation.

AI-driven features include automated matching of needs with resources, dynamic fund allocation based on real-time data, and machine learning-based task assignment and scheduling for volunteers and rescue teams. The platform also leverages AI to detect new disasters from social media and sensor networks, automatically updating incident maps.

Real-time alerts and automated impact reports ensure stakeholders are informed and financial utilization is transparent. Community engagement is fostered through forums, chats, and events, and a mobile app ensures accessibility and offline information access.

Technologies utilized include React.js for the frontend, Node.js with Express for backend services, MongoDB or PostgreSQL for data storage, and TensorFlow or PyTorch for AI capabilities. The platform is supported by Google Maps API for mapping, React Native or Flutter for mobile development, and WebRTC or Socket.io for real-time communication.

Overall, **DisasterResponseAI** aims to revolutionize disaster relief efforts by providing a smart, efficient, and transparent system for managing and delivering aid in times of crisis.