Location Based Reminder and Emergency Alert System for Landslides Using IoT

Pranathi C Gowda[1], Shanmukha[2], Suhani M[3], Varshitha T S[4], Prof. Rudresh M D[5]

Students, Department of EC&E[1]

Associate Professor, Department of EC&E[2-5]

Kalpataru Institute of Technology, Tiptur, India

Abstract: *This project presents an IoT-based Location-Based Reminder and Emergency Alert System designed to enhance safety in landslide-prone regions. The system employs soil moisture, vibration, and rainfall sensors integrated with an ESP8266 microcontroller and GPS module to continuously monitor environmental conditions. Sensor data is transmitted to Adafruit IO, which serves as the cloud platform for real-time data visualization, analysis, and remote monitoring. When the collected parameters exceed predefined thresholds, the system automatically identifies the user's location and sends instant alerts via SMS or mobile notifications to nearby individuals and authorities, enabling timely preventive action. Salient features of the system include real-time multi-parameter monitoring, GPS-based location tracking, automated cloud-connected alerting, user-friendly Adafruit IO dashboards, continuous data logging, and high scalability. The results demonstrate that the integration of IoT sensing, cloud analytics, and location-based notifications significantly improves early detection and response to landslide risks. This cost-effective and adaptable framework can be extended to other natural disaster warning applications as well.*

Keywords: Internet of Things (IoT), Landslide Detection, Location-Based Alert System, Emergency Warning System, Real-Time Monitoring, Disaster Management, ESP8266 microcontroller, Adafruit IO, GPS-based location tracking, IoT sensing, Hardware Verification