

Low-cost Sensor-based System For Landslide Monitoring And Alerts

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ABSTRACT

Present invention discloses a LOW-COST SENSOR-BASED SYSTEM FOR LANDSLIDE MONITORING AND ALERTS with sensing, decision-making, and alert generation components comprising of different MEMS-based sensors such as temperature and humidity sensor; atmospheric-pressure sensor; light-intensity sensor; rain gauge; accelerometer; soilmoisture sensor; and force sensors for sensing the on-site movement, soil, and weather properties; a master-microcontroller (MMC) unit with a communication network consisting of a global system for mobile (GSM) module; a local solid-state storage device; & a data management center (DMC) constituting of landslide modeling software application (LMSA) and raw data analysis software (RDAS) to provide intelligent back-end alerting system which generates alerts based on statistical threshold.

KEY APPLICATION AREAS

- 1.Landslide monitoring and early warning.
- 2.Disaster risk management.
- 3.Geotechnical and slope stability monitoring.
- 4.Infrastructure and transportation safety.
- 5.Environmental monitoring.
- 6.Remote terrain surveillance.

POTENTIAL USES

- 1.Real-time detection of landslide-prone conditions.
- 2.Early warning alerts for communities and authorities.
- 3.Monitoring of soil movement, moisture, rainfall, and weather.
- 4.Protection of highways, railways, and critical infrastructure.

5. Large-scale deployment in mountainous and remote regions.
6. Low-cost disaster preparedness and hazard mitigation.