

INTEGRATION OF SENSORS FOR LAND SLIDE MONITORING

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Abstract: A sensor is a device that detects and responds to some type of input from the physical environment. The specific input could be light, heat, motion, moisture, pressure, or any one of a great number of other environmental phenomena. The output is generally a signal that is converted to human-readable display at the sensor location or transmitted electronically over a network for reading or further processing. So that, the sensor is important role play in life and used the almost of majors such as technology, medicine, industries, military...etc. In practice, the system integrated sensors solved many problems in majors, which need to high accuracy. This thesis focuses on integration of sensors for warning and monitoring landslide.

The system includes nodes (calling sensor box) and base station. *At each on-site sensor box, we implement a data acquisition board to connect external sensors to the wireless sensor nodes.* In this work, several external sensors including soil moisture, temperature and acceleration sensors were installed to collect the corresponding data that can be used for further analyses. Each sensor box consists of external sensor, a micro controller and a RF module. Carefully calibration processes are also implemented in order to ensure the reliability of the data. In the calibration process, the Allan variance is utilized to quantify the scholastic error sources. Experiments have proved that this work can be extended to develop a practical sensor box.

Keywords: sensors, integrate, landslide, monitoring.