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LANDSLIDE SURVEILLANCE USING A WIRELESS MEASUREMENT GRID

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Abstract

This paper presents a wireless landslide measurement grid based on new type of transducers. Magnetic strain gauges are used as sensitive element for the transducer. Measurements regarding landslide displacement and orientation were done using strain gauges based on amorphous magnetic microwires (MAW). In order to identify small changes in the monitoring area, a grid of multiple measurement points is placed. Measurement nodes acquire modulus and direction of displacement vector reporting the data through serial communication to the central unit coordinator. A complex system that collects data from multiple locations is developed. Data is collected wirelessly by a central server. Evaluating the landslide acquired information, we have established a relationship between the system readings and the landslide movement.

Keywords: amorphous magnetic microwires, landslide displacement, strain sensor, wireless sensor network

Received: December, 2013; *Revised final:* July, 2014; *Accepted:* July, 2014; *Published in final edited form:* January 2018

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