Design of Wireless Electronic Telltale System for Indication of Rock Deformation

Subhajit Indra, Subhransu Padhee and Umesh Chandra Pati
Department of Electronics and Communication Engineering
National Institute of Technology, Rourkela, Odisha

Abstract: Rock deformation analysis in an underground mine is one of the most important safety aspects in the coal mining industry. Dedicated and reliable instrumentation systems are used to get real-time information about rock deformation. Various instruments such as telltales are widely used to warn the personnel inside the mine about a possible roof fall. This letter provides a design prototype of the wireless electronic telltale system which gives visual warning of a possible roof fall. The sensing mechanism of the telltale is built using a spring-pulley mechanism. In addition to that, an efficient radio-frequency (RF) communication system has been designed which makes the developed prototype system a more effective one. The developed wireless electronic telltale is accurate, reliable and easy to configure. A prototype of the proposed wireless electronic telltale system has been developed in this paper. More in **IEEE Sensor Letters (pp. 1 - 4, vol. 2, no. 3, Sept. 2018, DOI: 10.1109/LSENS.2018.2845708).**