

عنوان مقاله:

Landslide Monitoring For Wireless Sensor Network Using NSGA-IIAlgorithm

محل انتشار:

دومین کنفرانس بین المللی یافته های نوین پژوهشی در مهندسی برق و علوم کامپیوتر (سال: 1395)

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خلاصه مقاله:

Landslides are triggered by rain duration, amount of rain and violence factors that must be known. Wireless sensor networks (WSN) located in Remote Sensing-based on landslide early warning systems which have great importance for landslide prediction. WSN is used in various applications. They are capable of collecting data with low-energy from a specific area and low-cost nodes are used in their networks. Localization is one of the important issue for these networks. In this study, an optimum WSN design is proposed for real-time landslide monitoring systems. The location of sensors used in real-time landslide monitoring systems are detected with GPS (Global positioning system) and localization techniques. For the transmission of sensed alerts, other sensors must be clustered. Additionally, the network structure via routing methods must be determined. The simulation studies are performed via MATLAB. The Multi-Objective NSGA-II (Non Dominated Sorting Genetic Algorithm-II) algorithm was used for efficient routing and optimal cluster head selection. With this proposed method, both clustering and determination of the optimal cluster head selection was carried out. This issue is a part of NP-hard combinatorial problems category. Simulation results show that this study provides an improvement for network life and energy efficiency.

کلمات کلیدی:

wireless sensor networks, localization, multi-objective optimization algorithms, remote sensing, landslide prediction

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