Research on an Area Coverage Algorithm in the Monitoring System of Metro Transportation based on Wireless Sensor Network

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Abstract. The application of wireless sensor network (WSN) in metro transportation has been developed fully. However, a very important associated issue is how to realize the most reliable Internet system with the lowest cost. With the aim of contributing to complete coverage of the problems of WSN and the real situations of emergency monitoring in metro stations, we have proposed an approximation algorithm of minimum cover set based on a greedy algorithm. In the process of constructing cover sets, this algorithm adds in priority effective nodes with the largest extended area to cover sets. Simulation experiments showed that this algorithm is better than current algorithms. Less sensor nodes are used to cover the whole place in the same monitoring area, thereby lowering the cost of the system and possibly making the system more secure.

Keywords: greedy algorithm, metro monitoring, WSN, area coverage

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