DESIGN OF WIRELESS SENSOR NETWORKS FOR MONITORING AT CONSTRUCTION SITES

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ABSTRACT—An integrated hardware and software system for a three dimensional wireless sensor networks is designed and developed for construction monitoring system. Compared to traditional monitoring system, the construction monitoring system based on wireless sensor networks has many advantages. In this paper, we discuss the design and evaluation of the three dimensional wireless sensor networks for construction monitoring system. We proposed the ensemble structure of the system. We proposed the topological structure of the three dimensional wireless sensor networks. The sensor node is designed, developed, and calibrated to meet the requirements for construction monitoring wireless sensor networks. Software components have been implemented within the TinyOS operating system to provide a flexible software platform and scalable performance for construction monitoring applications. We also proposed the deployment of three dimensional wireless sensor networks for construction monitoring system.