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Cooperation in heterogeneous sensor network systems

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There exist a wide range of applications, including military, surveillance, environment monitoring, and healthcare has been proposed in the literature on wireless sensor networks. The lifetime of a sensor network is an important issue since it exhibits how well an area is monitored and under control. However, the number and the energy of sensor nodes in the monitored area are limited. The monitored events can be sent to the sinks when the energy of sensors is sufficient, and the sensor network is available. When some sensors are unavailable due to the lack of energy, the lifetime of the network ends. If there exist energy supporting in some area, employing the partial energy supporting to charge the entire sensors in the environment is considered. We propose cooperating different kinds of sensors, heterogeneous sensors, to monitor the environment efficiently and extend the monitoring lifetime. In our mechanism, the abilities of sensors may be static sensing only, static sensing with energy transmitting, or mobile sensing with energy transmitting. We also simulate proposed mechanism in different environment having different deployment of sensors. The simulation results show that our cooperative mechanism improves the sensors usage and extend the monitoring lifetime efficiently.

Biography

Li Ling Hung has received the PhD degree in Computer Science and Information Engineering from the National Taiwan University of Science and Technology, Taipei, Taiwan, in 2008. She is currently an Associate Professor with the Department of Computer Science and Information Engineering, Aletheia University, New Taipei, Taiwan. Her research interests include vehicular ad hoc networks, wireless sensor networks, underwater wireless sensor networks, ad hoc wireless networks, and cyber-physical systems.

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