

Resource Management in Wireless Sensor Networks

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In every area of life there is an opportunity for research and improvement with the idea of “Going Green” in mind. When it comes to the technical fields, one area that needs improvement is utilizing the resources distributed in *wireless sensor networks* (WSNs) efficiently versus replacing the network by another deployment or at least extending the lifetime so replacement is needed less often.

A WSN consists of many small sensor devices that operate autonomously to gather, process, and communicate information about their environments. Applications of WSNs range from environmental monitoring, to surveillance and target detection. Sensors cannot get recharged or replaced after they are deployed. Applications of WSNs often face the problem of resource deficit especially when some sensors are disabled from the collaboration by their failures and misbehaviors. Because the sensors are usually tiny devices, the computation resource in each one is critically limited. The resource management in WSNs resorts to a distributed solution in which the acts can be limited in a local area. We are to answer: “how can we, in a distributed manner, quickly locate enough extra support around a resource hole that we can use to fix it?”

By enabling everyone to be aware of the occurrence of resource deficits in the neighborhood and to reach out neighbors in the deficit repairing process, this method can also be extended to other areas, including what is done in the home or at work. For instance, we can improve the resource distribution in our disaster-recovery systems.

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