

## **Longer Network Lifetime When Using Energy Efficient GSP for Wireless Sensor Networks**

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### **Abstract**

Wireless sensor networks usually sample their environment over an extended period, and therefore require long system lifetimes. The design of long lifetime networks in turn requires efficient sensor node circuits, algorithms, and protocols. However, many protocols turn on sensor radios to listen or receive data and then make a decision whether or not to relay it. One means of conserving energy is to not listen to or receive data, when it is not necessary. Protocols such as GSP (Gossip-based Sleep Protocol) mitigate energy consumption in idle listening and receiving, by turning off the receiver circuit. This paper evaluates the lifetime of various network sizes employing GSP. The largest percentage improvement in network lifetime occurs for smaller networks. On the other hand, the larger networks provide the higher average remaining energy.