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RESEARCH ARTICLE

Reduce Energy Consumption by Improving the LEACH Protocol

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Abstract —The wireless sensor networks suffer from the problem of energy consumption, so it has been used several protocols to avoid this problem, the best of these protocols is a LEACH protocol which works to reduce the energy consumption of the network. On the other hand, LEACH protocol suffers from the problems of accelerated the dead nodes as well as the short duration of the network lifetime. In the present work, an improvement is added to the original LEACH protocol via the use of the SPIN protocol idea. That result a new protocol call (S-LEACH). Since the protocol SPIN uses so-called meta-data (which is very small in size) before receiving packets full advantage of this feature so that there is no identical or similar packets. The improved LEACH protocol is simulated using matlab software. The simulation results shows that the improved protocol gives better performance than the original one in the following aspects:

- 1- Increasing the number of rounds.
- 2- Delayed the first node dies.
- 3- Deceleration in the death of nodes.
- 4- More remaining nodes.
- 5- Extended lifetime network.

Keywords: sensor network; WSN; CH; lifetime; LEACH; S-LEACH; dead node.

Full Text: <http://www.ijcsmc.com/docs/papers/January2014/V3I1201405.pdf>