ABSTRACT

Wireless sensor network is a collection sensor node which has limited energi in mobile or static system with random node depending on environment changes. WSN consist of many sensor node with any function system as detection physical phenomena, there is medical care and disaster response with mobile sensor nodes.

The algorthms using HEED procotol mobile with homogeneous and heterogeneous network. HEED protocol is a part of clustering protocol and using residual energi and cost intracluster from the node. By providing heterogeneous capabilities in HEED is expected to increase the life of the network and reduce hardware cost using in the network. In this thesis will simulated energy consumption dan lifetime network between two cluster protocol based on hybrid. There are HEED and H-HEED algorithm. The network lifetime will be measured from the round which all of the nodes die with any different level energi computation such as 2H-HEED, 3H-HEED and MH-HEED for prolonging lifetime network.

The simulation results show that there is a significant influence on the scenario of changing the number of nodes, energy and speed. Where the MH-HEED protocol requires only 8.58 joules while HEED of 10.96 joules of energy consumption on a node's maximum 90 node scenario. The longest life span occurred in a 0.9 joule initial energy change scenario where MH-HEED is the longest death in round 3632 while HEED is only 1443 rounds or about 50% of MH-HEED lifetime. For percentage throughput under 1 m/s scenario the MH-HEED protocol is stable above the 80% for each protocol compared to other velocity testing scenarios.

***Keywords** : WSN, HEED, H-HEED.*