

ABSTRAK

Wireless Sensor Network adalah suatu jaringan yang terdiri dari beberapa *node* yang memiliki sifat dinamis. Teknologi ini dapat digunakan untuk menyelesaikan masalah yang ada pada *routing*. Contohnya adalah *routing* SPIN. Pada penelitian ini penulis mencoba menganalisis *routing* SPIN-BC dan SPIN-RL, yang mana *routing* SPIN-BC dan SPIN-RL dapat menanggulangi antrian lalu lintas pada pengiriman data dan dapat berkomunikasi lebih dari satu *node* (*broadcast*). Penelitian ini bertujuan untuk mengetahui performa *routing* SPIN-BC dan SPIN-RL. Untuk mengetahui performa dari kedua *routing* dilakukan pengujian dengan beberapa parameter. Parameter tersebut adalah rata-rata *Latency*, *Number data pakets forwarded*, *Tx Power*, *Number Tx Frames* dan *Memori Node*. Pada pengujian yang telah dilakukan *routing* SPIN-BC dan SPIN-RL dengan node sebanyak 4,8,12,16, dan 20 memiliki nilai rata-rata latency 0.01856 ms, sedangkan pada *routing* SPIN-RL nilai rata-rata nya 0.83633 ms. Pada pengujian *NB Packet Data Forward* pada *routing* SPIN-BC rata-rata yang didapat 1.605 ms dan SPIN-RL rata-ratanya 7.88917 ms. Untuk nilai rata-rata yang diperoleh TX Power pada pengujian *routing* SPIN-BC dan SPIN-RL adalah 0,63292 mw. Selanjutnya hasil rata-rata yang diperoleh dari parameter Nb Tx Frame pada *routing* SPIN-BC adalah 1,7 ms dan pada SPIN-RL rata-ratanya 7,9 ms. Kemudian pengujian dari memori *node* pada SPIN-BC 7,56 MB sedangkan SPIN-RL 34,454 MB. Berdasarkan dari hasil rata-rata diatas dapat disimpulkan bahwa SPIN-RL memiliki performa yang lebih baik di bandingkan dengan SPIN-BC, karena SPIN-RL dapat menanggulangi kesalahan transmisi perintah yang disebabkan oleh *data loss*.

Kata Kunci: routing, wireless sensor network, SPIN-BC, SPIN-RL

ABSTRACT

Wireless Sensor Network is a network consisting of several nodes that have dynamic properties. This technology can be used to solve existing problems on routing. An example is SPIN routing. In this research the writer tries to analyze SPIN-BC and SPIN-RL routing, which SPIN-BC and SPIN-RL routing can overcome traffic queue on data delivery and can communicate more than one node (broadcast). The research aimed at determining the performance of SPIN-BC and SPIN-RL. routing anymore and the performance of both routing that were done by testing with some parameters. These parameters were *Average Latency, Number Data Packets Forwarded, Tx Power, Number Tx.Frames and Memory Node*. In the test that had been done by SPIN-BC and SPIN-RL routing with nodes of 4,8,12,16, and 20 had latency mean value of 0.01856 ms, while the SPIN-RL routing had an average value of 0.83633 ms. The average test of NB Packet Data Forward on SPIN-BC routing was obtained averaged of 1.605 ms and SPIN-RL was obtained average of 7.88917 ms. The average value that was obtained by TX Power on SPIN-BC and SPIN-RL routing testing was 0.63292 mw. Furthermore, the average result that was obtained from Nb Tx Frame parameter on SPIN-BC routing was 1.7 ms, while SPIN-RL was obtained average of 7.9 ms. Then the test of the average result from the memory node was on SPIN-BC 7,56 MB, and SPIN-RL 34,454 MB. Based on the average results above, it can be concluded that SPIN-RL had better performance compared with SPIN-BC, because SPIN-RL can cope with command transmission error that was caused by data loss.

Keywords: routing, wireless sensor network, SPIN-BC, SPIN-RL