

## **ABSTRACT**

The use of wireless sensor network technology began to increase in use lately, for example, for forest monitoring. Forest monitoring is done mostly by using traditional methods, such as land patrolling, tower watching, air patrols, and so forth. But this technique has many drawbacks, such as monitoring results are dissapointing, such as forest fires can not be monitored all day, cloudiness sky and other factors that will reduce the accuracy of the position of the fire. That's why monitoring using wireless sensor network is needed.

For that, we need a protocol that can perform data transmission, for example temperature data, which need high levels of energy efficiency tinggi. That's because the location of the sensor which is usually much or even isolated. Then, in in this case, is used a protocol called SPIN (Sensor Protocol for Information via Negotiation) which is very concerned about energy and reliability of the data transmission.

In this final project, the author has done a simulation of Sensor Protocol for Information via Negotiation (SPIN). The results obtained from this thesis is the increase in the number of nodes affect the energy usage, the simulation with 5 nodes, decrease the energy for 79%, for the simulation with 10 nodes, a decline of 60%, and for 20 nodes, a decline of 32% , In addition, energy consumption decreased during the simulation, because the node that already has the data will not transmit any packet.

Keywords: wireless sensor networks, SPIN