

## **Abstract**

Wireless sensor network is a collected of sensor nodes organized into cooperative network to detect events, perform local data processing, and transmit data. Power consumption in sensor network can be divided into three domain: sensing, data processing, and communication. Among these three, sensor node expends the most energy consumption for wireless communication.

Due to limited energy of sensor nodes, it is very challenging to establish energy-efficient routing protocol for WSN. Hierarchical routing protocol (HRP) is one of concept to perform energy-efficient routing in WSN. In this final project purposed to simulate and analyze of comparison the energy-efficient parameter and network lifetime of LEACH (cluster-based HRP) and PEGASIS (chain-based HRP).

After the simulation and testing result by using Network Simulator-2, it was shows that PEGASIS routing protocol perform more energy-efficient than LEACH protocol, and PEGASIS have longer network lifetime than LEACH.

**Keyword : WSN, routing protokol, LEACH, PEGASIS**