

ABSTRACT

Energy optimization is one of the global warming problems. The limitation of energy and natural resources causes many side to think a lot of ways or sistem which can effort the consumption saving of electricity energy. Nowadays, the usage of lamp in the park is not efficient because the intensity of need itself is not quite high. So that for the saving, the one way that can be used is by setting the light intensity in order to be more efficient, and the data consumption of electricity energy will be sent by utilizing the wireless sensor network.

In this research will be designed a saving energy of wireless sensor network which can control the light intensity to the lamp in the park according to the presence or the absence of the movement in coverage area. The design will use a mesh topology. The way of working of the sistem is started with the Light Dependent Resistor (LDR) Sensor which detecs the light intensity to indicate when the lamp goes on, then the Passive Infrared (PIR) sensor will detect the movement in the coverage area. Furthermore, the data will be processed in Arduino Uno R3 and the data result will be sent to Xbee coordinator that connected to PC using Xbee Series 2. The accepted data is about the electricity energy consumption in the end service and lifetime of node router. The Data will be processed and displayed in PC so that the user can be more easier in monitoring and controlling process.

With this automatic controller, it is expected to be able to hold down the consumption of the electricity energy with optimize a lifetime router node about 3.433%. Then the made network will be tested in four condition, when there is a left movement, when there is right movement, when there is two sides movement and when there is a human that do nothing movement.

Keyword : Wireless Sensor Network, LDR, PIR, Xbee Series 2.