

ABSTRACT

Nowadays, LPG (Liquified Petroleum Gas) has become a necessity in daily life, especially for cooking. This kind of fuel has a negative effect, if it evaporates to atmosphere gage, it will turn into layer due to condensation. The layer is combustible, so it is very dangerous if there is accumulation in enclosed room and potentially cause a fire. Fire due to LPG cylinder leakage often derived from negligence of gas appliances installation and poor handling so that the spark ignite the layer and the flames or explosions out. The frequent of fire in houses or industries area that use LPG often bring a huge loss, both material losses and fatalities. Therefore, a tool is designed to facilitate detection of LPG cylinder leakage and expedite the handling process.

This final project presents an implementation of LPG leak detection prototype system using Wireless Sensor Network technology. LPG leak detection system used an Arduino Uno microcontroller as data processor from sensors. Sensor MQ-6 is used to detect the existence of methane gas in the air. Data which is obtained from sensor will be sent to the coordinator node to be displayed in GUI and show the warning on it. Each sensor will be interconnected and configurate a cluster-tree topology. The ZigBee communication system use the module of RF transceiver XBee Series 2. The system is divided into two clusters to split the load of router nodes. Hopefully, this detection system can capture the data accurately and real.

Keyword : *Wireless Sensor Network, LPG, Microcontroller, Arduino UNO, MQ-6, GUI, Cluster-Tree, Xbee Series 2*