ABSTRACT

Accidents related to LPG gas leaks often cause major losses, including the risk of fire and explosion which endanger life and property. To overcome this problem, this research introduces an automatic device design that uses Arduino Uno as the controller core, the MQ2 Gas sensor as a gas detector, and a buzzer as an audio warning. A system designed to detect leaks in the surrounding environment and provide fast and accurate warnings to users.

The MQ2 Gas Sensor is sensitive to LPG gas to detect gas concentrations that exceed the specified limits. Arduino Uno as the main brain of the device receives information from sensors and processes it. When the sensor detects a dangerous LPG gas leak, Arduino will give a signal to activate the buzzer as an audio warning to the user. Additionally, the system can also be configured to provide visual warnings or activate other solutions appropriate to the situation.

The test was carried out by simulating an LPG gas leak, and the system showed a fast and accurate response in detecting and providing notifications to users. Evaluations are also carried out to ensure system reliability in various leak scenarios.

The research results show that the designed tool can effectively detect leaks with a high level of accuracy. This system promises to be an efficient and reliable solution to increase user safety against the potential dangers of LPG gas leaks in household and industrial environments.

Keywords: Arduino Uno, MQ2 Sensor, LPG Gas Leak, Automatic Detection System, User Safety