ABSTRACT

The increasing use of liquefied petroleum gas (LPG) in household needs in the community is a big scourge of unwanted things such as leaks in LPG gas cylinders and fires. For this reason, this project is carrying out the manufacture of gas leak and fire detectors using intelligent system technology.

This tool has the main components, namely the MQ-2 gas sensor, and the Flame Module. This tool is also supported by components such as Arduino Uno, Buzzer, 800L SIM module, LED lights, 12×6 LCD, 11.1V battery and *Step Down*. The MQ-2 gas sensor is set to a PPM value of 300 according to the MQ-2 specification to detect the content of LPG gas. The working system of this tool is if the MQ-2 sensor detects LPG gas, the 800L SIM module will send an SMS message to the cell phone and if the Flame Module detects a fire this tool will call the user's cell phone. This tool can also notify users who are in a place with a buzzer emitting a sound, orange LED (gas leaking), red LED (fire) and LCD displaying conditions around the device. Testing the MQ-2 gas sensor was carried out 3 times with a distance of 10cm, 20cm and 30cm, as well as delaying SMS messages to the user's cell phone. The Flame Module fire sensor test is carried out until the sensor distance does not detect a fire.

The results of the research on the MQ-2 gas sensor can detect when the PPM value exceeds 300, the speed of the detecting tool has an average time of seconds. A distance of 10cm has an average detection speed of 7.6 seconds because the place where the equipment is placed is not far from the LPG gas leak. If the placement of the tool is further away, the speed of the tool in detecting gas leaks will be longer. Sending SMS notifications to the user's cell phone will experience a delay of SMS messages for 15 seconds. The Flame sensor of the Flame Module can detect a distance of up to 121 cm according to specifications and component testing. Setup makes a 5 second phone call to the user's phone.

Keywords: LPG Gas, Tool, Sensor