Peningkatan Kecepatan Pendeteksian Kebocoran Gas Berbasis IoT

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Abstract

Fire is a devastating problem and is generally difficult to solve. One of the causes of fires is a gas leak but many people still don't know what causes it and how to detect it. The existing gas leak detection tools are also not functioning well enough and there are still shortcomings such as notifications still using SMS and also no testing has been done to increase the sensitivity or speed of detection.

Based on the problems above, it is necessary to develop and add more complete features so that the device can be better and gas leaks can be detected quickly. In this study, a gas leak detection system was built using a NodeMCU ESP8266 microcontroller which is connected to the MQ-2 gas sensor, DHT11 temperature sensor, and buzzer. The application used to receive notifications is Telegram because it follows technological developments. This system is faster in detecting gas and reading gas values. From the results of the study, it was found that the concentration of the leaking gas was proven to gather at the bottom. The addition of a fan is proven to speed up the detection time by 9-14 seconds, equivalent to 1.08-1.16 times faster. The addition of the number of sensors from 1 sensor to 3 sensors is proven to increase the gas detection speed by 15 seconds or 1.19 times faster. Thus the system built has succeeded in increasing the speed of detecting gas leaks. The system can be expanded by adding the number of fans and the size of the test room is close to the actual room size.

Keywords: fire, gas leak, *Internet of Things*