ABSTRACT

Many methods have been used to find solutions to sanitation problems, one of which is by building a sewer that is directly connected to the septic tank. In some cases the Septic Tank itself requires regular and periodic maintenance so as not to pollute the environment. Not infrequently many work accidents occur during the maintenance or maintenance process. Therefore, one of the objectives of this research is to make a Methane Gas Monitoring device in an IoT-Based Septic Tank utilizing WiFi technology using NodeMCU which functions as a microcontroller then the MQ-4 gas sensor as a detector of methane gas in a septic tank then a 16x2 LCD Screen which functions to display the output results. data and also a buzzer as a marker that produces an output in the form of a vibration sound when the input value reaches a predetermined number. The way the system works on this device is when methane gas is detected by the MQ-4 sensor then the input is processed by the NodeMCU then forwarded to the Buzzer which will emit a vibration sound as a form of output and an LCD Screen which will display the output in the form of the value of the gas concentration contained . The data will later be stored on Firebase, which can then be accessed using an Android device. The results of the testing of this monitoring system are produced for the output value in the form of a fluctuating Ppm value of methane gas where data collection from 20 times of testing is all below 2000 Ppm which is still far below the hazard threshold with the largest value obtained at 38 Ppm and the smallest value of 6 Ppm and the average value is 19.65 Ppm. Then you can be sure the septic tank is in a safe condition. Then the QoS calculation with parameters in the form of Throughput, Delay and Packet Loss from the test data is most influenced by the performance of the WiFi Hotspot device and the quality of the provider network.
Keywords : NodeMCU, MQ-4, *Buzzer,Firebase.*