ABSTRACT

One component that determines a person's quality of life is the quality of his breath. Daily activities, physical conditions, and lifestyle are related to the respiratory system. A spirometer is the device most commonly used by respiratory system monitoring devices to measure the volume of air taken into the lungs. Normal respiration, on the other hand, can indicate that a person's lungs are in good shape. If a person's respiration isn't going as expected, it can indicate that their lungs are in poor shape.

This final project will make a volume respiration monitoring device using Esp 8266, which can be accessed in real-time via the Matlab Thingspeak website using a smartphone or PC. This device will track the patient's condition even if no one is in the room. A spirometer is used to measure respiratory volume at a certain time, but the results cannot show a person's volume in real-time.

The realization of the respiratory volume monitoring system that was created resulted in a relatively small percentage error rate using a conventional respirometer as a measure of value, with an average relative error value on the flow sensor of around 0.15% to 0.96%. Meanwhile, based on the ITU-T G version of QoS standardization, QoS test results with Wireshark show packet loss values between 0.052% and 0.796%, with an average delay of 29.50 ms to 38.95 ms. This shows that this value is still in the good category.

Keywords: *Respiration Volume, WiFi, Internet, ESP 8266, Thingspeak, Flow Meter*