ABSTRACT

The respiratory system is a respiratory system that is used in the gas exchange process. The respiratory system is one of the important respiratory systems in the body to maintain quality of life. By definition, peripheral nerve injury (PRON) can be defined as progressive neuropathy of the peripheral nerves caused by injury or inflammation of the nerve characterized by partial tearing that cannot be repaired or repaired and results in additional damage that affects the patient's quality of life. A spirometer is a tool used to measure and diagnose the condition of human lungs. The aim of this research is to develop previous research, namely by replacing the pressure sensor with a flow sensor and using the Visual Studio display on a PC. The design of this tool consists of an Arduino microcontroller and a flow sensor. The sensor is connected directly to the microcontroller as a voltage source and controller for the sensor's work which will then be displayed on the Nextion LCD and Visual Studio. with a Bluetooth connection connected to a PC with a Visual code display. Data collection will be connected to a calibrator tool using a Tube with 6X width. In making the module using the measuring parameters FVC, FEV1, VCE and VCI. From the results of the spirometer module test with a comparison tool carried out in 10 respondents with 6 repetitions found an error of 3.3% for the FVC parameter and 10.6% for the FEV1 parameter. From the results of this study it can be concluded that the flow sensor can be used to determine the volume of the lungs. Furthermore, this development can be used to check FVC, FEV1, VCE, and VCI values, the results of which can be displayed in real time on the Nextion LCD or displayed on Visual Studio to produce numbers and graphs.

Keywords: spirometer, ppok, flowsensor, visualbasic, netion, FVC, FEV1, VCI, VCE