ABSTRACT

The lungs are the most important organs used for breathing. The lungs have a minimum volume as the normal volume of a healthy lung. Lung volume is an indication that someone has healthy lungs or not. A measuring instrument to check the work of the lungs by looking at the volume of the lungs is called a spirometer. The spirometer can measure how long and how strong the maximum gust is given by the user. In this study, the spirometer uses a flow sensor. The sensor will detect blowing based on the detected pulse frequency. The blow detected by the flow sensor will be converted from the voltage value to the volume unit value. The conversion processing takes place in the Arduino Nano microcontroller and will be displayed on the screen. In this spirometer, the measured value is the ratio of the value of FVC (Forced Vital Capacity) and FEV1 (Forced Expiration Volume in the first second). This spirometer is designed to calculate the FEV1 / FVC value with the parameters of gender, age, and height. Testing was carried out 5 times for each participant. The final result of the test, 3 participants got a normal FEV1 / FVC comparison status, while in one of the participants there was a normal FEV1 / FVC comparison status in the first of the 5 tests.

Keywords*: FEV1, Flow Sensor, FVC, lung, Spirometer*