ABSTRACT

In a virus outbreak that attacks human respiration, there is an increase in the need for ventilators that is not proportional to their availability. A ventilator is a device that serves to assist or replace normal ventilation functions in people who have respiratory problems.

The lungs are important organs in the respiratory system. The lungs can inflate if the atmospheric pressure is greater than the lung pressure. On the other hand, the lungs can deflate if the atmospheric pressure is less than the lung pressure. In people who have respiratory problems, the body is less able to supply the air needs of the lungs. Therefore, the pressure of the air flowing into the lungs must be controlled. In this final project, a ventilator is made with the principle of pressure difference. Atmospheric pressure is set greater than the pressure in the respiratory organs so that air enters the lungs. In contrast, atmospheric pressure is set to be less than the pressure in the respiratory organs to force air out of the lungs. The outside air pressure can be increased by providing positive pressure air from the airflow drive. With the Fuzzy Logic control method, the speed of the airflow drive is adjusted to meet the patient's needs.

Ventilators that have been designed and manufactured can provide air pressure in the pressure range of 0 to +50 cmH_2O or the equivalent of 0 – 0,711167 psi. The basic pressure at the end of the breath is set to be equal to atmospheric pressure.

Keywords: *Ventilator, Air Pressure Control, Fuzzy Logic.*