Abstract

This thesis is about controlling a brushless DC motor with PID and fuzzy logic controllers. Brushless DC motors are used in many applications such as household appliances. Thus, they will be subject to control systems. Fuzzy logic has been chosen as one of the control systems because it is a less known control system that still has an interesting way of operating. The goal is to see which control system is best to control a brushless DC motor and at the same time bring attention to fuzzy logic.

For comparison purposes, a wind tunnel was created containing an airflow sensor that will measure the generated air flow speed and convert it into a voltage. This voltage is sent to the Arduino which will perform the calculations and control the motor. The Arduino platform is ideal for this thesis because it is inexpensive and contains software that allows us to program the controllers.

In the end, it was found that both regulators can successfully regulate the motor. Of course, there are differences such as that the fuzzy logic controller stabilizes faster but will put more load on the motor. So the best control technique depends on the desired utilization.