

## **ABSTRACT**

Mixer is a multipurpose electro-mechanical tool used as a stirrer of food raw materials, certain substances, and various other types of raw materials. The use of this tool certainly can not be separated from the control system. But now this mixer used by the community sold in the market has not been a control of feedback. This causes the user mixer requires more time and energy.

Control system in this final project using a control system with fuzzy logic method. This method consists of three processes: fuzzyfication, fuzzy inference, and defuzzyfication. The microcontroller used as the controlling base is Arduino Uno. The use of fuzzy logic, limit switch and sensor encoder in this mixer aims to make the stirrer rotate in accordance with the readings from the sensor. Movement of rotary speed of stirrer assisted by AC motor and TRIAC circuit designed as controller.

In this final project, the mixer tool designed by the writer is a small scale mixer with maximum weight of 3 Kg. The rotational speed of the designed mixer is at a constant speed of 153 rps. When testing the load of 4 kg of flour, obtained time 206 seconds to reach the settling time with a value of 136.5 rps. The heavier the load of the mixed material, the longer the system response reaches the set point.

**Keywords :** Mixer, TRIAC Circuit, AC Motor, Fuzzy Logic, Encoder