

ABSTRACT

The indoor swimming pool is a means of health and entertainment so that there are more variations to increase the comfort of the swimming pool, to increase the comfort of the indoor swimming pool, the parameters that must be achieved are water, energy and materials. In the indoor swimming pool, Telkom University Tokong Nanas Building has a water temperature of 22 C, while the indoor pool temperature is set by FINA 25–28 C. Therefore, the water temperature must be controlled so that the water is not too cold, by developing a spa pool temperature of 30-40 C which can be used for health for cardiovascular disease, a continuous water heating control system is designed on a laboratory scale, with experimental methods so that it can be realized in real form of indoor swimming pool. The design of a laboratory-scale swimming pool water heater at a scale of 1:25 (1 meter x 0.5 meter x 0.3 meter) to the Tokong Nanas Building, Telkom University will use a control system with the fuzzy logic method, the water heater will be controlled on a water tank with a size of (0.25 meters x 0.18 meters x 0.3 meters) then transfers the heat to the research pond. The controller that will be used is a microcontroller with the fuzzy logic method according to Mamdani, so the results to be obtained are a constant temperature at 35 with an average heating time of 11 minutes 08 seconds, a water emptying time of 4 minutes 11 seconds and a heating time of the research pool of 5 minutes 14 seconds. Furthermore, the average heat required for the research pond is 1706.54 Joules and the heat required for tank 1 is 2145.13 Joules.

Keywords: *Temperature Control, Fuzzy Logic, Indoor Swimming Pool*