## ABSTRACT

Busy schedules make people less aware of their health. One of them, the majority of people underestimate the temperature of the water they use for bathing every day. Meanwhile, to get the bath temperature they want, they must use the manual method of measuring the temperature of the water. Bathing with appropriate water will help the body in overcoming problems in human muscles, especially muscle stiffness and pain. For that, regulating a good water temperature when bathing is highly recommended in daily needs.

In this research, the author design and build a tool that can be used by the community in meeting their daily needs, namely a "Smart Bathtub". This tool can set the water temperature desired by the user automatically. In mixing hot water with cold water, the system applies the Sugeno method of fuzzy logic in it. The system uses the DS18B20 sensor and the HC-Sr04 sensor to detect the temperature and height of the bathtub water. After the sensors are calibrated using linear regression, the system can detect the temperature of the bathtub water with an accuracy of 96.06%. And the system can display the volume of water filled in the bathtub by detecting the height of the water in the bathtub which is converted to volume using a linear regression function between the height and volume of the bathtub water. And system can release hot and normal water according to the output of data processing by fuzzy logic Sugeno with an accuracy of 98.42% hot water volume and 100% normal water volume. In the end, system can mix hot and normal water to reach the setpoint temperature with an average steady state error of 3.235% for water temperature and 0,75% for water volume. The average system time to reach stability is 342,765 seconds or 5 minutes 42 seconds.

*Keywords:* smart bathtub, bathtub, temperature, height, fuzzy logic, sugeno.