Rancang Bangun Sistem Pengendalian Waktu Pencucian Pada Alat Mesin Cuci Sederhana Berbasisi *Fuzzy Logic*

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ABSTRACT

A washing machine is an electronic machine designed to clean clothes and textiles such as cotton, clothes, pants, and the like. The washing machine's function is to help ease household chores in terms of washing clothes in everyday life. The Fuzzy Mamdani method is used to conclude a problem in fuzzy logic washing machine processing that humans easily understand based on the set of washing machine input and output variables. The data tested in this research is the load and the turbidity level of the water. This study's results produce a washing time on a washing machine based on the parameter set of load variables and water turbidity levels using the Fuzzy Mamdani Method according to the setpoint rule. The microcontroller used as a control on the system, namely the Arduino Mega 2560, is used to implement the fuzzy system into the programming language accepted by simple washing machine hardware using fuzzy logic. The data from the load cell sensor results in an average error of 1.01%. The turbidity sensor readings have a range between 0.5 to 30 NTU. The results are that the higher the water turbidity level, the lower the output voltage read by the turbidity sensor, and the overall accuracy of the system 96.9%. This study's conclusion indicates that the Mamdani logic method can be applied to a simple washing machine's time controlling system design.

Keywords: *Washing machine, Fuzzy Mamdani, Arduino Mega 2560*