

ABSTRACT

Almost all industrial processes have run automatically. With the automation of industrial processes, employee performance can be run effectively and efficiently as well as the production level of a company. Therefore, the process automation industry continue to be developed until today. But some industry tools such as the textile company, especially in the process of mixing the colors still manually using manpower. The industrialized world needs a color mixer fast-paced and right automatically.

This final project aims to create automation tools in microcontroller-based textile industry that is useful to generate new color of the primary color variations with the input switch to select the desired result of mixing colors. With linear interpolation method, this study utilizes HC-SR04 ultrasonic sensor as distance measuring liquid levels and associated servo motor on the valve serves as the opening and closing rate of fluid removed automatically. Then LCD is used as a display on the work process of the system, both measuring HC-SR04 ultrasonic sensor or servo motor rotation angle and volume readings.

Based on the results of the research showed that the tool is able to generate new colors as desired by the user by applying the principle of the color ratio Brewster. This tool is able to produce the desired volume by the user, the principle of operation is very easy, and user friendly. Based on the obtained test output volume, error average each tank of red, yellow, and blue were 4.42 %, 3.67 %, and 3.81 % and the error average of 2.64 % final volume. Error average reading HC-SR04 ultrasonic sensor for tank red, yellow, and blue are - 0.14 cm - 0.11 cm, and - 0.12 cm.

Keywords : *color mixing, microcontroller, linear interpolation, HC-SR04 ultrasonic sensor, servo motors, and the theory brewster*