ABSTRACT

To keep the quality of the product , a company needs automatic control system without much human intervention. Implementation, this study designed a machine laboratory -scale production of tea water. Each production requires optimal process in terms of time, volume, and flow in order to run an efficient production process and taste are close to the specified standards.

The design of the system consists of six tanks, ie storage tanks, mixing tanks tea, water tank tea seeds, sugar mixing tank, tank liquid sugar, and product storage tanks. Actuators required of them, solenoid valves, pumps, relays, DC motor. The control system used in this study using ATMEGA16 microcontroller based. Parameters flavor and color than standard linear programming approach using graphical method.

From this study, obtained optimal results with TP1 work for 23.22 seconds and 12.8 seconds for TV1 work. TV2 on 2 tank working for TV3 39.14 seconds and 20.78 seconds for work. Then , these parameters are used as parameters to run the tea production process. From the results of the optimization demonstrate the value of 22 ADC for turbidity and 7.6 % for sugar content. The optimal value is used for subsequent production processes.

Keywords : tea water production machine , ATMEGA16 microcontroller , graphic methods, optimization.