

ABSTRACT

Current technological developments are increasingly rapid. This is demonstrated by various developments in increasingly sophisticated industrial equipment. Telkom University produces charcoal briquettes on campus. Currently the number of charcoal briquettes produced is 945 pieces. Telkom University has a hammer mill machine which is used as a production tool. In the production process, an obstacle was found, namely that the operator did not carry out the stages in stages, which resulted in failure during the machine operation process. Then the hammer mill machine currently does not have a system for monitoring machine performance results. This has an impact on determining production prices so that until now charcoal briquettes have not been sold on the market. The solution to the problem in this final assignment is to create an automation system design that is implemented directly through a control panel that is integrated with equipment such as Programmable Logic Control and a virtual control screen, namely the Human Machine Interface. The design was carried out using the waterfall method. The waterfall method is a method used to develop a system that is carried out systematically. Based on the design that has been carried out, now the system can carry out a monitoring process on machine performance results, the operating process becomes easier because there is a feature in the form of a control screen on the machine panel. The power released by the hammer mill machine is 5554 watts at a frequency of 35, then on the bucket conveyor it is known that the power consumption released is 558 watts at a frequency of 20. Then we get the results of reducing the time during operation of the hammer mill machine from the original 26,49 seconds to 14 seconds with an increase in productivity time of 47%. It is hoped that implementing the automation system design on the hammer mill machine will be beneficial for Telkom University.

Keywords - charcoal briquettes, hammer mill, conveyor bucket, programmable logic control, human machine interface.