ABSTRAK

Perkembangan teknologi industri saat ini sudah mulai bergeser kepada otomatisasi sistem kontrol yang semakin canggih, sehingga campur tangan manusia dalam sistem pengontrolan sangat kecil. Pada proses perindustrian khususnya pada pengangkutan material atau benda menggunakan *belt conveyor*, diperlukan optimasi baik dari kinerja dan hasil produksinya, sehingga diperoleh efisiensi kerja yang maksimal.

Metodelogi yang digunakan pada tugas akhir ini adalah perancangan sistem kontrol pada *Tripper Car Conveyor* yang berada pada *Coal Storage* di PT Pupuk Sriwidjaja Palembang dengan secara *local mode* dengan *Control Panel* dan secara *remote* dengan *Programmable Logic Control* (PLC). Pada keadaan sebelumnya kontrol sistem kerja *Tripper Car Conveyor* hanya dikendalikan manual oleh *Local Panel* yang dioperasikan oleh operator yang berada di atas *Tripper Car* sehingga tumpukan yang dihasilkan dari curahan *chute Tripper Car* berbeda-beda. Selain itu, proses pengisian batubara dilakukan mutlak oleh operator. Melalui perancangan sistem pada tugas akhir ini, dirancang sebuah sistem kontrol yang mampu menjalankan sistem kerja *Tripper Car Conveyor* yang otomatis. Perancangan dilakukan dengan penambahan dua buah *Control Panel* yang diletakkan di atas *Tripper Car* dan di *ground level Coal Storage* sebagai kontrol *Tripper Car.* Selain itu, dilakukan pula penambahan beberapa sensor yang masing-masing sensor memiliki fungsi seperti pengatur ketinggian curahan material batubara, sensor sebagai pengendali titik curahan material, *safety device* pemantau kesejajaran *belt conveyor* dan pemantau tumpukan material pada *chute tripper car*.

Kata Kunci: Sistem Kontrol, *Tripper Car Conveyor*, *Control Panel*, *Local*, *Remote*, *Programmable Logic Control*, *Relay*, Sensor.

UNIVERSITAS
MERCU BUANA

https://lib.mercubuana.ac.id

ABSTRACT

The development of industrial technology has now begun to shift to the increasingly sophisticated automation control system, so that human intervention in the control system is very small. In the industrial process, especially on the transportation of materials or objects using belt conveyor, required good optimization of the performance and results of its production, so that obtained maximum work efficiency.

The methodology used in this thesis is the design of control system on Tripper Car Conveyor located in Coal Storage at PT Pupuk Sriwidjaja Palembang with local mode with Control Panel and remotely with Programmable Logic Control (PLC). In previous circumstances the control of the work system of the Tripper Car Conveyor is only controlled manually by the Local Panel operated by the operator on the Tripper Car so that the stacks generated from the tripper car chute vary. In addition, the process of charging coal is done absolute by the operator. Through system design in this thesis, designed a control system that able to run work system Automatic Tripper Car Conveyor. The design is done by adding two Control Panel which is placed on Tripper Car and in ground level Coal Storage as Tripper Car control. In addition, the addition of several sensors that each sensor has a function such as the regulator of the height of the coal material, the sensor as the control of the material point of the material, conveyor belt conveyor safety monitor and monitor material stack on the chute tripper car.

Keywords: Control System, Tripper Car Conveyor, Control Panel, Local, Remote, Programmable Logic Control, Relay, Sensor.

UNIVERSITAS
MERCU BUANA

https://lib.mercubuana.ac.id