

Free essay on automated wheel assembly system



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In most automotive assembly lines, wheel loading is usually done to the end of the production line just before the test drive. Though mounting of wheels can be done with a human being, an automated process is more preferred due to the improved efficiency. The use of Programmable Logic Controllers (PLCs) allow for complex control of automated processes and easy troubleshooting when issues arise in the system. (Vosough and Vosough, 41).

The desired automated wheel assembly system involve a robot whose work is pick up a wheel from the wheel station, approach the conveyor on which the car placed; upon identifying the car, the robot attaches itself to it while moving at the conveyors' speed. The robot will then align the wheel to the wheel hub, push it into the bolts and screw it into place. Upon completion, the robot will detach itself from the conveyor belt and retreat to repeat the process (Dilipsingh et al., 589)

Input and Output Interfaces

The robot controller of the automated wheel assembly system will receive digital signals from the vision and force controllers (Dilipsingh et al., 590). Upon processing of the visual signals, commands will be relayed analogously to the force controller to grip and pick up the wheel and for the robot to attach and detach itself to and from the car respectively (591).

Language

Ladder logic and BASIC programming languages would be applicable in implementing these automated wheel assembly system. Ladder logic will aid in handling of the digital input and output. Basic programming, on the other hand, will assist in data processing.

Power Supply

AC power supply from the factory will be used in operating the robot used in the wheel assembly system. Converter will be used to deliver DC to the visual and force controllers.

Works Cited

Dilipsingh, J., Jeyanthi, S. & Jagadeesh, R. S. " Automated Wheel Assembly System Using PLC"

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