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Sudan University for Science &Technology
College Of Graduate Studies

Automation By Using Programmable Logic Controller (PLC) Application on Metal Spinning Machine at YIC

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A Thesis Submitted In Partial Fulfillment To The Requirement For Degree Of Master Of Science In Electrical Engineering(Control)

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Dedication

To My Parents, Wife, Children &Friends. to YIC engineers.
To all those who do their best to know the new technology,

Acknowledgements

I would like to express my deep gratitude to my supervisor Dr. Abed Elrasoul Gabar for his kind help, close supervision, special thanks to YIC for great help On this research.

Abstract

This research is to find an approach to how PLC automation control system can implemented, In designing anew PLC control automation replacing an old automation in metal spinning machine, which is composed of contactors (5) &a lot of pieces of electro-mechanical relays.(37).In this old automation a lot of difficulties in trouble shooting in repairing of .wiring connections, which add cost to production process

By using programmable logic controllers (PLC) for hydraulic metal spinning machine at YIC ,machine process gain many advantages compared to the old automation type such as reducing in space ,energy saving, product cost, working labors& losses in time due maintenance. Beside that increasing productivity, greater reliability & effectively in totally eliminating the possibilities of human errors.

New PLC automation give convenient, quick readjustment & functional parameters upon work pieces changes &precise cycle repeating which lead to high quality products &decreasing of waste.

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MP	**Microprocessor**
YIC	**Yarmouk industrial complex**
PCI	**Personal computer interface**
PLC	**Programmable logic Controllers**
DCS	**Distributed Control Systems**
SCADA	**Supervisory control and data acquisition**
HCS	**Hybrid Control Automation Systems**
MP	**Microprocessor systems**
MCS	**Microcontroller systems**
I/O	**Input/Output**
MB	**Mega Byte**
Kb	**Kilo Byte**
CPU	**Central processing unit**
DC	**Direct current/voltage**
AC	**Alternating current/voltage**
LCD	**liquid crystal display**
LED	**light emitting diode**
ADC	**Analogue-To-Digital Converter**
LAD	**Ladder Programming**
STL	**Logic Statements**
SFC	**System Flow Chart Programming**
CTD	**Count down**
CTU	**Count up**
CV	**Count value**
CTD/U	**Count down/UP**
T xx	**Timer**
DAC	**Digital to analog Converter**
ASCII	**USA Code for Information**