Acknowledgements

This work was carried out in cooperative research and development project.

Our deepest gratitude is due to my supervisor, Dr. Abdul Rasool Alzubaidi for his guidance, encouragement, and kind helpful which made this work possible.

We are very much great full to my friends and engineer Majzoub Mohammed Alamin Ali for their unlimited help.

And, of course, thanks again to all of my family for every thing to use.

Abstract

Automation or numerical control is the use of control system such as computers to control industrial machinery and processes, replacing human operators. In the scope of industrialization, it is a step beyond mechanization. Whereas mechanization provided human operators with machinery to assist them with the physical requirements of work, automation greatly reduces the need for human sensory and mental requirements as well. Processes and systems can also be automated.

Automation plays an increasingly important role in the global economy and in daily experience. Engineers strive to combine automated devices with mathematical and organizational tools to create complex systems for a rapidly expanding range of applications and human activities.

Specialized hardened computers, referred to as programmable logic controller (PLCs), and are frequently used to synchronize the flow of inputs from (physical) sensor and events with the flow of outputs to actuators and events. This leads to precisely controlled actions that permit a tight control of almost any industrial process.

This study in Iron industry, where the PLC is an automated industry sequential operations.

ملخص الدراسة

الاتوماتيكيه أو التحكم العددي هو إستعمالُ لنظامِ التحكم مثل الحاسباتِ للتحكم على الماكينات والعملياتِ الصناعيةِ، يَحْلُ محل مشغلين إنسانيينَ .في مجالِ التَصْنيعِ، هو خطوة ما بعد الماكينه. بينما الماكينه زوّدتْ مشغلين إنسانيينَ بالماكينات لمُسَاعَدَتهم بالمتطلباتِ الطبيعيةِ للعملِ، تُخفّضُ اتوماتيكيه الحاجةَ كثيراً للمتطلباتِ الحسّيةِ والعقليةِ والإنسانيةِ أيضا. تَلْعبُ الاوتوماتيكيه دوراَ مهمَ جداً في الإقتصادِ العالميِ وفي التجربةِ اليوميةِ .يُجاهدُ المهندسونُ لدَمْجِ الأدواتِ الآليةِ بالأدواتِ الرياضيةِ والتنظيميةِ لخَلْق أنظمةِ معقّدةِ لمدى سريع التوسّع مِنْ التطبيقاتِ والنشاطات البشرية.

الحاسبات المُصلَبة المُتَخَصّصة، مدعوّة باسم جهازِ سيطرة المنطقِ القابل للبرمجةِ (شركات عامة)، وكثيراً يُستَعملُ لمُزَامَنَة تدفقِ المساهماتِ مِنْ (طبيعي) محسّس وأحداث بتدفقِ النواتجِ إلى المشغلات والاحداث . هذا يؤدى الي سيطرة الاعمال المتحكم عليها بالضبط التى تسمح لقابة صارمة تقريباً لاى عملية صناعية.

فى هذا البحث تم استخدام تقنية التحكم الالي Programmable Logic Control باستخدام جهاز للتحكم في كل العمليات الصناعيه الخاصه بصناعه الحديد.

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List of Abbreviations

AC	Alternating current
BC	Before Christ
CRT	Cathode Ray Tube
CPU	Central Processing Unit
DC	Direct Current
EPROM	Erasable Programmable Read Only Memory
EEPROM	Electrically Erasable Programmable Read Only Memory
FBD	Function Block Diagram
HSLA	High-Strength Low-Alloy
I/O	Input & Output
LDI	Load Inverse
LDN	Load and Not
LED	Light Emission Diode
LCD	Liquid Crystal Display
NVRAM	Nonvolatile Random Access Memory
PLC	Programmable Logic Controller
PM	Programmer / Monitor
PT	Preset Time
ROM	Read Only Memory
RAM	Random Access Memory
STL	Statement List
TON	Time On Delay
TOF	Time Off Delay
UV	Ultraviolet