Dedicated to my mother,

Father,

Family and friends

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PLC Based Automation for Industrial Operation

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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 plastic industry, where the PLC an automated industry sequential operations.

المتحكم المنطقي المبرمج **(PLC) االقائم علي التشغيل الالي في العمليات الصناعيه**

رانيا محمد عيد برسي

ماجستير هندسه حاسوب, 2008

كليه الهندسه والتكنولوجيا

تجريد

الاتوماتيكيه أَو التحكم العددي هو إستعمالُ لنظامِ التحكم مثل الحاسباتِ للتحكم على الماكينات والعملياتِ الصناعيةِ، يَحلُّ 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 دورَ مهمَ جداً في الإقتصادِ العالميِ وفي التجربةِ اليوميةِ. يُجاهدُ المهندسونُ لدَمْج الأدواتِ الآليةِ بالأدواتِ الرياضيةِ والتنظيميةِ لخَلْق أنظمةِ معقّدةِ لمدى سريع التوسّع مِنْ التطبيقاتِ والنشاطات البشرية.

في هذا البحث تم استخدام تقنبه التحكم الالي باستخدام جهاز Programmable Logic Control(PLC) ،للتحكم في كل العمليات الصناعيه الخاصه بصناعه البلاستيك.

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List of Abbreviation

CPU	Central Processing Unit
EEPROM	Erasable Electronically Programmable Read Only Memory
EPROM	Programmable &Erasable Read Only Memory
FBD	Function Block Diagram
LAD	Ladder Logic Diagram
LD	Load
LDI	Load Inverse
NC	Normal Close
NO	Normal Open
PC	Personal Computer
PLC	Programmable Logic Controller
PT	Preset Time
RAM	Random Access Memory
ROM	Read Only Memory
STL	Statement List
TOF	Off-Delay Timer
TON	on –Delay Timer