

Dedication

This research is lovingly dedicated to my respective parents who have been my constant source of inspiration. They have given me the drive and discipline to tackle any task with enthusiasm and determination without their love and support this project would not have been made possible.

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First of all I have thank A'llah for the

accomplishment of planned objectives.

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Abstract

Traditionally, the auto plants had to be shut down for up to a month at model changeover time. The hardwired planes were very time consuming to wire, debug and change, for these reasons used in this project Programmable Logic Controller (PLC). The PLC keyboard reprogramming procedure replaced the rewiring of a panel full of wires, relays, timers, and other components. The new PLCs helped reduce changeover time to a matter of a few days.

Programmable Logic Controller (PLC) is specialized computer used to control machine and process, The PLC performs the logic functions of relays, timers, counters and sequencers.

In this project design Hydraulic pump using PLC has Proportional Integral Derivation Controller (PID) control faster what are able to accomplish process control effectively using ladder diagram.

The reason for used the PID to provide the stability and less error for many times because, the characteristics of the elements or components may change following the time eclipse and the controlling process may be affected by the change of loading or external disturbances. The simulation results show that the performance of the hydraulic pump is good.

المستخلص

قديمًا لتصميم اي دائره كهربائيه كان يستخدم الاسلاك وادوات المستخدمه في المعمل الا ان هذه الطريقه ناخذ الكثير من الوقت وزياده في التكلفة واذا وجد اي خطأ في الدائره توجب تغيير توصيل كل الاسلاك لهذا السبب تم استبدلت هذه الطريقه بالتصميم عن طريق البرمجه بالحاسوب والتحقق من صحة البرنامج فقط بالكمبيوتر داخل المعمل ومن ثم توصيله بحقل العمل.

المتحكم المنطقي المبرمج (PLC) هو عبارته عن نوع خاص من الكمبيوتر يستخدم في التحكم بالاتو المعالجات. وهو يؤدي معالجات الزمن و relay.

ولقد استخدمنا هذه التقنيه في هذا المشروع وذلك بالتحكم في نظام مضخه هايدروليكيه والحصول على نظام سريع الاستجابته واكثر استقرارا وذلك بادخال تقنيه PID.

والسبب في استخدام نظام التحكم الغلق المستمر PID هو الحفاظ على النظام المراد التحكم به في حاله استقرار وبأقل نسبة خطأ لمدته طويله، لانه بعد مرور من لن يكون النظام بنفس مواصفاته او حدوث عوامل جارجيه غير متوقعه. نتائج لمحاكاة المتحصل عليها بتبين ان أداء المضخه الهايدروليكيه جيد.

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List of Abbreviation

PLCs	Programmable Logic Controllers
PID	Proportional Integral Derivation
μCs	Microcontrollers
OEMs	Original Equipment Manufactures
LCD	liquid Crystal Display
I/O	Input/ Output

ROM	Read Only Memory
RAM	Random Access Memory
LED	Light Emitted Diode
CRT	Cathode Ray Tube
CPU	Central Processor Unit
P	Proportional
PI	Proportional Integral
PD	Proportional Derivative
PM	Program/Monitor
NO	Normally Open
NC	Normally Closed
RLO	Result of Logic Operation
Grafact	Graphe Fonctionnel de Commande Étape Transition
psi	pounds per square inch
GPM	Gallons Per Minute
SP	State Point
PV	Process Value
IN	Integer value
OUT	Output