Dedication

To whom she is departed but still and will stay life inside me (my mother)…

To my father who care me when I was a child and still care me …

To my brothers and sisters who taught me the meaning of love and sacrifice …

To all who around me and supported me …

To all who I forgot to mention …

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ABSTRACT

The main purpose of this research is the studying of design services for the process of pumping petroleum, includes sensors and which operates to measure both pressure and temperature and flow rate in the pipelines, automatically in order to keep the tube from (explosions) which occur due to high pressure

In this research controllers logical programmable (PLC) was used, which play a key role in various industrial fields; that is because of the advantage of its high accuracy and speed of response next to the high performance making it well-suited to deal with signals and rapid signals of sensors, as well as applications of signal analogue which control of the rate flow of liquid.

The controllers are programmable logical the essential which are part of the formation of electrical circuits in the industry and to its ability to reduce the components of the circle, because they contain a large number of relays and counters in addition to the timers in the form of programs. They also have the ability to deal with all types of media files between man and machine screen.

There are many advantages of logical controllers can be connected to the computer where to get more accurate follow ins-up of the machines, which helps to detect faults quickly.

تجـــــــــــــــريد

الغرض الاساسي من هذا البحث هو دراسة تصميم الاجهزة لعملية ضخ البترول و يشمل اجهزة الاستشعار(الحساسات) و التى تعمل لقياس كل من الضغط و درجة الحرارة و معدل التدفق فى الانابيب اليا من اجل الحفاظ على الانبوب من (الانفجارات) التى تحدث بسبب الضغط العالى.

وفى هذا البحث استخدمت المُتحكِماتُ المَنطقية القابلة للبرمجة (PLC) و التى تلعبُ دوراً أساسياً فى مُختلف المجالات الصناعية؛ وذلك لما تمتازُ به من دقةٌ عالية وسرعةٌ إستجابة بجانب الأداء العالى مما يجعلها مناسبة تماما للتعامل مع الإشارات السريعة كإشارات المتحسسات وكذلك تطبيقات الإشارات التماثلية كالتحكم فى معدل التدفق لسائل مثلاً.

وتعتبر المتحكمات المنطقية القابلة للبرمجة جزءاً أساسياً من تكوين الدوائر الكهربائية فى الصناعة وذلك لقدرتها على تقليل مكونات الدائرة ، وذلك لأنها تحتوى على عدد كبير من المرحلات والعدادات بالإضافة للموقتات فى شكل برامج . كما لها القدرة على التعامل مع كافة أنواع الوسائط بين الإنسان والآلة كالشاشات مثلاً.

وللمتحكمات المنطقية محاسن كثيرة حيث يمكن توصيلها بالكمبيوتر للحصول على متابعة أدق اللآلا ت

مما يساعد على إكتشاف الأعطال سريعاً.

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PLC	Programmable logic Controller
PC	Personal Computer
SCADA	Supervisory Control And Data Acquisition
HMI	Human Machine Interface
MODICON	Modular Digital Controller
QA	Quality Assurance
CPU	Central Processing Unit
N.O	Normally Open Contact
N.C	Normally Closed Contact
MAP	Manufacturing Automation Protocol
PID	Proportional- Integral-Derivative
IEC	International electronic commission
ESD	Emergency Shutdown
A-B	Allen Bradly
DC	Direct Current
AC	Alternating Current
LVDT	Linear Variable Differential Transformer
STL	Statement List
SFC	Sequential Function Chart
FBD	Function Block Diagram

LED	Light Emitting Diodes
LCD	Liquid Crystal Display
NEMA	National Electrical Manufacturers Association
DTMF	Dual Tone Multi Frequency
CCITT	Consultative Committee for International Telephone and Telegraphy
MF	Multi-Frequency
dB	decibels
PWM	Pulse Width Modulation
CPLD	Complex Programmable Logic Device