الآية

بسم الله الرحمن الرحيم

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صدق الله العظيم

سورة الإخلاص

DEDICATION

We dedicate this project to our parents, brothers, sisters and friends, Hose has been constant source of inspiration and support for us.

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ABSTRACT

The Proportional-Integral-Derivative (PID) control is a control strategy that has been successfully used over many years. Simplicity, a wide range of applicability and near-optimal performance are some of the reasons that have made PID control so popular in the academic researches and industry applications. In this research a brief summary of PID theory is given, then some of the most used PID controller tuning methods are discussed, model of using PID to control speed of direct current motor studied with detailing because it is one of the most common actuator used in the control system. Model has been simulated by using MATLAB/SIMULINK. Simulation results have been presented

مستخلص

الحاكمة التناسبية – التفاضلية- التكاملية (PID) استراتيجية استعملت بصورة ناجحة منذ سنوات عديدة. بساطة التشكيل وسعة التطبيق والأداء المثالي جعلت هذه الحاكمة (PID) ذات انتشار واسع جداً في كثير من البحوث الأكاديمية والتطبيقات الصناعية.

هذا البحث اعطى خلاصة قصيره عن هذه الحاكمة مناقشة أكثر الطرق شيوعاً في أنظمة التحكم. النموذج تم محاكاته باستخدام MATLAB/SIMULINK ونتائج المحاكاة تم عرضها.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF SYMBOLS

Kp	Proportional gain
Ki	Integral gain
Kd	Derivative gain
Ti	Integral time
Td	Derivative time
T	Motor torque
I	Armature current
Kt	Motor torque constant
E	Electromotive force
$\dot{\theta}$	Angular velocity of the shaft
Ke	Electromotive force constant
K	Motor torque and the back emf constant
J	Moment of inertia of the rotor
B	Motor viscous friction constant
L	Electric inductance
R	Electric resistance
θ	Gear angle
Y(t)	Output of the system
r(t)	Reference value
C	Controller
P	Plant
F	Sensor

LIST OF ABBREVIATIONS

DC	Direct Current
AC	Alternating Current
Emf	electromotive force
PID	Proportional-Integral-Derivative
SISO	Single-Input-Single-Output
MIMO	Multi-Input-Multi-Output
PMDC	Permanent Magnetic Direct Current
PI	Proportional-Integral
P	Proportional
D	Derivative
I	Integral
PD	Proportional Derivative
ID	Integral Derivative