

**DESIGN, IMPLEMENTATION AND ANALYSIS OF
ADAPTIVE PID CONTROLLER
IN INVERTED PENDULUM BALANCING MECHANISM**

By

Michael Henry Rustandi

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SWISS GERMAN UNIVERSITY
Edu Town BSD City
Tangerang – 15339
Island of Java, Indonesia
www.sgu.ac.id

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STATEMENT BY THE AUTHOR

I hereby declare that this submission is my own work and to the best of my knowledge, it contains no material previously published or written by another person, not material which to a substantial extent has been accepted for the award of any other degree or diploma at any educational institution, except where due acknowledgement is made in the thesis.

Michael Henry Rustandi

Date

Approved by:

Edward Boris Manurung, B.Eng., ME

Date

Chairman of the Examination Steering Committee

Date

Michael Henry Rustandi

ABSTRACT

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By

Michael Henry Rustandi

SWISS GERMAN UNIVERSITY

Bumi Serpong Damai

Edward Boris Manurung B.Eng., ME, Major Advisor

PID controllers are the most common controller used in industries because of its effective albeit it's simple algorithm. However PID controllers are only in its optimum performance when the state of the system does not differ much from when the controllers are tuned. This thesis is intended to design a PID controller which is adaptive to the change of its system's state and analyze the performance of the controller. This thesis choose an inverted pendulum to be the controlled system where its purpose is to balance a solid pendulum to stand on its pivot straight upward, similar like balancing a stick on top of the palm.

Keywords: PID, PID controller, control, control technique, adaptive, controller, inverted, pendulum.

DEDICATION

I dedicate this thesis to our Lord Father in heaven, my parents, my advisor, and to all my lecturers, friends and colleagues.



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