DESIGNING, CONSTRUCTING, AND IMPLEMENTING MOUSE POINTER CONTROL USING PUPIL TRACKER FOR VIRTUAL KEYBOARD AND MONITORING CAMERA

By

Dipo Dirgantara
1-1111-015

BACHELOR'S DEGREE
in

MECHANICAL ENGINEERING – MECHATRONICS CONCENTRATION
FACULTY OF ENGINEERING AND INFORMATION TECHNOLOGY

SWISS GERMAN UNIVERSITY
EduTown BSD City
Tangerang 15339
Indonesia

August 2015
Revision after the Thesis Defense on August 12th 2015

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, nor 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.

Dipo Dirgantara

_____

Student Date

Revision after the Thesis Defense on August 12th 2015

Approved by:

Erikson F. Sinaga, ST., M.Kom.

_____

Thesis Advisor Date

Dr. Rusman Rusyadi, B.Eng., M.Sc

_____ Date

Thesis Co-Advisor

Dr. Ir. Gembong Baskoro, M.Sc.

_____

Dean Date

ABSTRACT

DESIGNING, CONSTRUCTING, AND IMPLEMENTING MOUSE POINTER CONTROL USING PUPIL TRACKER FOR VIRTUAL KEYBOARD AND MONITORING CAMERA

By

Dipo Dirgantara

Erikson F. Sinaga, ST., M.Kom, Thesis Advisor
Dr. Ir. Rusman Rusyadi, M.Sc., Co-Advisor

SWISS GERMAN UNIVERSITY

The objective of this thesis work is to develop a software to control mouse pointer with pupil tracking to communicate and control device through pupil movement. The pupil tracking is taken from PS3 eye device, which is connected to a personal computer. The pupil tracking is processed using open CV implementation in C++ language in Code Blocks open framework. The result is sent serially to ATMEGA 2560 wrapped in arduino AT MEGA 2560 board. A serial port program from personal computer is used to transmit the signal to a servo motor which is connected to ATMEGA 2560 wrapped in arduino board. The arduino then connected to the monitoring camera, which move, according to the result from the pupil tracker process.

Keywords: Arduino, Codeblocks, Pupil tracker, Pointer Controller, OpenFramework, Monitoring Camera.

DEDICATION

I dedicate this thesis to God, my girlfriend, my parents, my lecturer and my friends

ACKNOWLEDGMENTS

The author wishes to thank God for the chance to do and finish the thesis, and the autor also wishes to thank Erikson F. Sinaga, ST., M.Kom, for his advice and guidance in electrical, and all of the system in thesis, Dr. Rusman Rusyadi, B.Eng., M.Sc. for his advice and guidance especially in giving extra advice about camera controller. Mochammad Rizky Diprasetya for his help in some programming issues.

The author also wishses to thank his parents for supporting his education, his girlfriend for giving motivation, and all of his friends in mechatronics department especially “The Animals”, while their presence makes it fun to fulfil the mechatronics engineering education.

The author wishes to thank all of the lecturer for they are the one who instil the meaning of engineer to author.

TABLE OF CONTENTS