THE DESIGN AND CONSTRUCTION OF AN ARDUINO BASED CO_2 CONTROLLER

By

HENDRO SUSANTO
1-1501-123

BACHELOR'S DEGREE
in

MECHANICAL ENGINEERING - MECHATRONICS CONCENTRATION

FACULTY OF ENGINEERING & INFORMATION TECHNOLOGY

SWISS GERMAN UNIVERSITY
EduTown BSD City
Tangerang 15339
Indonesia

JANUARY 2017

Revision after the Thesis Defense on 13 February 2017

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, or material which to a substantial extent has been accepted for the award of any other degree or Bachelor's at any educational institution, except where due acknowledgement is made in the thesis.

HENDRO SUSANTO

Student _____ Date _____

Approved by:

Dr. DEDY LOEBIS ST. MBA. MSc.

Thesis Advisor _____ Date _____

Dr. Ir. GEMBONG BASKORO MSc

Thesis Co-Advisor _____ Date _____

Dr. Ir. GEMBONG BASKORO MSc

Dean _____ Date _____

ABSTRACT

THE DESIGN AND CONSTRUCTION OF AN ARDUINO BASED CO_2 CONTROLLER

By

Hendro Susanto

SWISS GERMAN UNIVERSITY

Dangerous gas detection devices such as gas CO, CO_2 and NOx are usually found on the public roads, because there are many sources of air pollution such as smoke in motor vehicles can damage the health. But not only the public street alone, there were dangerous gases such as CO gas, CO_2 and NOx. In the halls of the house or office, there are cases that would endanger the residents of the house or office workers.

Human when breathes will breathing the carbon gas and various microorganisms in the form of gas, germs or particle. The CO_2 gas will not cause health disorders until achieving high level in the room which contains many people and indicated that this room is polluted. To help getting a solution for excess CO_2 levels required a ventilation system as air circulation in the room. This research is the prototype of the automatic ventilation system which allocated a MG-811 gas sensor as CO_2 detector. This detector system integrated with LCD display as the levels of CO_2 and the van as air ventilation. There are three levels of CO_2 are processed on this research. That is the level of 350 to 600 ppm in normal air, level 600 to 800ppm for bit dirty air, and a level above 800 ppm for dirty air. LCD will display the ppm level of CO_2 with remakes of air quality in the room. The LCD will display the levels of ppm of CO_2, along with a description of indoor air quality. If air quality, including dirty, then the fan will rotate for circulated the air in order to return to normal. This research is still in the system less stable, due to the sensor being used is not only affected by changes in the levels of CO_2, but is also affected by temperature changes.

Key words: carbon dioxide, LCD, fan, Sensor MG-811, Arduino Uno.

DEDICATION

I dedicate this research for the future of ATMI Solo and ATMI Cikarang as my place of study and work

ACKNOWLEDGEMENTS

I would like to thank my advisor Mr. DEDY LOEBIS ST. MBA. MSc.
And Mr. Dr. Ir. GEMBONG BASKORO MSc. for his guidance, ideas, suggestion and helping both in and out of the classroom throughout the thesis.
I would also like to thank Swiss German Univesity and the faculty of engineering & Information for providing a good study environment and lab equipment which make me possible to complete this work.
Lastly, I would like to thanks my friend in my class for their encouragement.
Finally, but most importantly, I would like to thank my wife Fransiska Dwi Sariasmara for her love and care through this time.
Thank You All.

TABLE OF CONTENTS

Page