DESIGNING AND DEVELOPING OF 2-STAGE 2-BLADED SAVONIUS VERTICAL AXIS WIND TURBINE UNDER LOW SPEED WIND CONDITION

By

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11301073

BACHELOR'S DEGREE

In

MECHANICAL ENGINEERING – MECHATRONICS CONCENTRATION
FACULTY OF ENGINEERING AND INFORMATION TECHNOLOGY

SWISS GERMAN UNIVERSITY

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Revision after the Thesis Defense on 19 January 2018

STATEMENT BY 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.

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ABSTRACT

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By

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Renewable energy in Indonesia has been growing recently, interest in the design of wind turbines has also been expanding. The vertical axis wind turbine is suitable to implement because of the low wind speed characteristic in Indonesia. The main objective of the project is to design 2-staged 2-bladed Savonius vertical axis wind turbine. Also, The support frame for a wind turbine is designed in this thesis project. The design of the turbine will be made in Solidworks. The results will be simulated using OpenFoam and be observed using Paraview. The optimal speed for this wind turbine is 130 rpm and the average power is 294.4 Watt based on CFD simulation.

Keywords: Vertical axis wind turbine, Savonius wind turbine, Solidworks, CFD analysis

DEDICATION

I dedicate this thesis to God, family, friends, and my country

ACKNOWLEDGEMENTS

During these thesis work journey, I'm grateful to Almighty God for everything He has done to me and I would like to convey my earnest gratitude to all people who had helped and supported me:

1. My beloved parents and sister for their never-ending support and kindness to me.
2. Mr Dena Hendriana, M.Sc., Ph.D as my Advisor, for his motivation, patience, advice, experience sharing, guidance and kindness he has given me through this thesis work.
3. Special thanks to my senior in the university, Alexander Clements, who guided me to understanding about the vertical axis wind turbine, software used and experiences.
4. My best friends in Mechatronics, Rheza, Hagen, Victor, Bagus, Al, Bagas and Richard for all the laughs, friendship and all the help they given to me during in the university.

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