

# IMPLEMENTATION OF LOW RPM GENERATOR FOR WIND TURBINE

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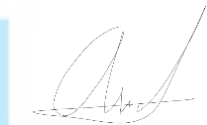
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### STATEMENT BY THE AUTHOR

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, 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

### IMPLEMENTATION OF LOW RPM GENERATOR FOR WIND TURBINE

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This research was conducted using a research and development approach or development research that produces a product. This study aims to develop a wind power plant with 50 rpm, which can produce 350 Watts at  $15V_{DC}$ . This target can be achieved in two ways: by building the permanent magnet generator itself or by using an existing generator and using a gearbox to determine the rotational speed. The generator will also be installed to drive the propeller along with its shaft and the generator will be implemented as a wind turbine together with the propeller to produce stable power output in the slow wind speed region.

The gearbox will be driven by the DC motor that controlled by PWM speed controller. The shaft speed received by the gearbox will be increased according to the ratio in the gearbox and then channelled to the generator shaft. The magnetic poles will pass through the windings placed on the stator as the rotor rotates. The movement of the magnetic poles that pass through the coil windings will cause a magnetic field between the poles and the coil windings called the air gap. It generates electric power in the form of AC power which is generated in the coil windings until the desired output. Then the AC power that produced by the generator will be converts into a DC power using rectifier.

*Keywords: Permanent Magnet, NdFeb, Low RPM Generator, Shaft, Coil Windings, Magnet Poles, Gearbox, Gear.*



## DEDICATION

I dedicate this works to ALLAH SWT that always provide me a way to finish this thesis that no human being ever could, to my family who always supported me through the process of making this thesis, my friends who always bring up positive energy to boost my mentality, to my one and only advisor, Mr. Dena Hendriana B.Sc, M.Sc. Ph.D. for always putting trust on me the whole time and keep pushing me forward, and for the future development of electric vehicle in Indonesia.



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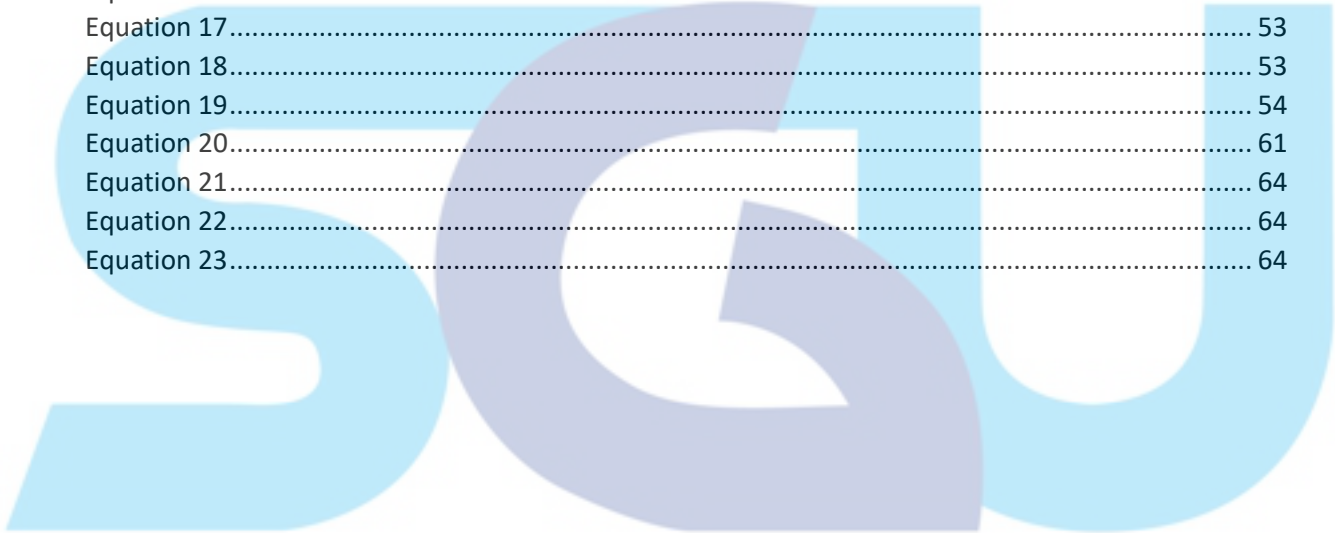
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