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ENVIRONMENT

OPTIMIZATION AND CONTROL OF
ELECTRICAL SYSTEMS- MAGNETICALLY
LEVITATED VERTICAL AXIS WIND TURBINE

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Abstract

This thesis explains the optimization of a vertical axis wind turbine (VAWT). A conventional vertical axis wind turbine will be built which normally uses a ball-bearing at its centre of rotation. It will use a Permanent Magnet Generator for converting mechanical energy to electrical energy. This vertical axis wind turbine will be made to rotate by receiving wind from a typical standing fan. The blades angle will be vary from 0 degrees to 90 degrees. The aim of this thesis is to optimize the vertical axis wind turbine by replacing the ball bearing with a two opposing magnets. This will provide magnetic levitation of the system and a comparison of the vertical axis wind turbine (VAWT) and the magnetically levitated vertical axis wind turbine will be made at different speed and their cut-in speed determined.