

***Furling Control Mechanism Design for
Horizontal Wind Turbine 500 Watt***

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ABSTRACT

Indonesia has the potential to develop renewable energy, where its availability is very large. One of them is wind energy. As a renewable energy source, the study and development of wind energy utilization technology is very necessary. Wind turbines are one of the uses of wind energy. In its application, wind turbines are required to face the direction of the wind to get optimal energy, but besides that, wind turbines must also be protected from excessive wind speed which can cause damage to wind turbine components. One of the protection systems in wind turbines is the furling control mechanism. The furling control mechanism is a simple wind turbine protection control system, by utilizing the wind thrust and the earth's gravity. In this study, the furling control mechanism design was obtained with details of the pivot length of 10 cm and rod length of 78 cm. The dimensions of the tail vane use a length of 43 cm and a width of 57 cm with a trapezoidal tail fin shape with an acute angle at the end. The test results in this study found that the Yawing Angle starts to form at a wind speed of 7.1 m/s and began to increase as the wind speed increased, resulting in a decrease in the resulting voltage, while the Furling angle starts to form at wind speeds above 10.5 m/s up to 10.88 m/s.

Keywords : Wind turbine, protection system, Yawing, Furling