EXPERIMENTAL STUDY OF EFFECT OF SPEED CHANGES ON POWER EFFICIENCY AND CRITICAL SHAFT ON MINI WIND CATCHER

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Abstract

Utilization of wind power as alternative energy source has long been used. The issue of global warming and energy crisis that began to be discussed at the end of the era of the ’70s led to begin the development of various kinds of alternative energy, one of which is wind power. Wind energy is environmentally friendly renewable energy so as not to cause pollution. Utilization of wind energy into electrical energy used in many developed countries because of their energy needs are very large, but nevertheless developing countries started to use wind power because the issue of energy crisis and global warming become more frequent.

The focus of this final project is to design a mini power plant that uses wind energy to electrical energy. Electrical energy was used to fill the battery or batteries which can then be used to meet the electricity needs of equipment - portable electronic devices. In this research, 3 stages of testing, testing to determine the effect of changes in wind speed to power generated, tests to determine if the mini wind catcher are made secure in his lap and attempted to find out the position on a motorcycle who Paing optimal wind energy capture. For the first phase, carried out data acquisition of voltage and current generated by flow of winds at a speed of 15, 25, 35, 45, 55 and 65 km / h later compared with the input power of arrest to determine efficiency. The second phase of testing done by give voltage and electric current on the mini wind catcher to reach the round of 2600 rpm. Once it is done observing
whether the critical speed is reached on the rotation of the tool is working. The last stage of testing is to determine the optimum position of wind energy capture at the point - a point that has been predetermined. Vehicles driven at a speed of 20 km/h later recorded wind speeds were then compared to determine the placement position of the right tools.

The results of this research is the efficiency of the mini wind catcher at 0.15 to 0.35 seemakin high wind speed, efficiency on the downside, other than that of the test result is known that the critical speed is not reached in this round of work tools. On testing the placement position mini wind catcher there is no significant difference in wind speed.

**Keywords:** energy crisis, mini wind catcher.