



**DEVELOPMENT OF WIND TURBINE MAIN ROTOR SHAFT TORQUE  
MEASUREMENT DEVICE**

**AHMAD SAFUAN BIN MOHD YUSOFF  
(2006689101)**

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**Faculty of Mechanical Engineering  
Universiti Teknologi MARA (UiTM)**

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## **ABSTRACT**

Wind turbines are used to generate electricity from the kinetic power of the wind. Rotating shaft of wind turbine will produce torque. Torque defined as is the tendency of a force to rotate an object about an axis. Then, the torque is transferred to the generator by gearing system. The generator will convert kinetic energy of rotating shaft to electrical energy.

There is one method that can be used to measure torque which is named as Prony brake. The main components of prony brake are brake pad and torque arm. Brake pad is used to brake the revolving shaft while torque arm is applied at force sensor (to determine the amount of force). Based on that concept, prony brake is fabricated.

The experiment will be conducted in the wind tunnel. This device is able to measure torque at speed of wind ranging between 0 to 15m/s in the wind tunnel in our faculty. The objective of this project is to design a compact torque measurement device which is portable that can measure torque accurately and precisely.

The data obtained from the experiment done will be used in calculation and analysis to determine the torque of a wind turbine. From these result, several graphs will be plotted and discussed. Lastly, the recommendation to improve this project and future research are jotted down together with conclusion.

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