

## ***ABSTRACT***

*Electronic motors are widely used today, different applications of DC motors needs different motor power. On design phase of mechanic-electronic device that utilize DC motor, precision is crucial to make sure the device will be works. One of the common problems is if the motor used in the design is not came with data sheet or specification, such as the power (Watt), nominal rotation speed ( $RPM_{nominal}$ ), maximum current ( $I_{max}$ ) and maximum torque.*

*In order to use unspecified motor in a project, test and measurements of the motor is required, especially if the motor is to be used in high precision devices. Test and measurements are required to determine input power and output power of the motor, which is will be matched to the project requirements.*

*Torque is a product of force vector which is perpendicular to rotational axis, and rotation radius. The measurement device designed in this final project will be using electromagnetic brake and microcontroller to control measured parameters (RPM and current changes).*

*Motor used in the torque measurement will be coupled with braking system that consists of solenoid so the current used in the braking process can be controlled by microcontroller unit. Motor characteristic then can be determined by monitoring RPM changes and current changes which is related to certain amount of braking force.*

**Keyword :** *Torque, Magnetic Brake, Microcontroller*