

PROTOTYPING AN ELECTRIC SCREW JACK USING A MOBILE PHONE APPLICATION CONTROL VIA BLUETOOTH

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ABSTRACT

The purpose of making an electric screw jack prototype using a mobile phone application via Bluetooth to develop a mechanical screw jack by adding a mechanical transmission sprocket system and a DC Motor, adding an Arduino uno microcontroller-based electronic control system, and controlling the process by an application installed on the cellphone. The method used in this research is a literature study, prototyping, testing to determine the performance of the prototype and test data. The working principle of the electric screw jack prototype is that the rotation and DC motor are reduced by the chain sprocket transmission and forwarded to the threaded rod on the screw jack. The screw jack control system utilizes a Bluetooth connection as a communication medium so that user can control the lifting of the electric screw jack, while the power source comes from a battery power (battery). Then the test result from the prototype can lift a maximum load of about 108 kg with a torque of 7,3528 Nm, and a power of 0,7 HP, 560 watts. The use of the Arduino uno microcontroller functions as a two-way control and the electric screw jack prototype can receive signals from the Bluetooth module with maximum distance of 10 meters.

Keywords: Screw Jack Prototype, Sprocket, DC Motor, Mobile Phone, Bluetooth