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**ELECTRONIC SYSTEM MONITORING DESIGN FOR
WEIGHTLIFTING USING ARDUINO**

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ABSTRACT

Weightlifting is sport which aims to increase the strength of the hand muscles. This sport is widely provided in fitness centers with customers who vary in age and ability. Therefore, in every fitness center, one or more instructors are provided to supervise their customers from injuries caused by errors in exercising. Weightlifting is one type of exercise that needs supervision. In this study a tool or system that is capable of monitoring the amount of lifting carried out by the customer is designed.

The system designed consists of Arduino Uno, Ultrasonic Sensor, Load Cell Sensor and Nextion Display. Each component has a different function, Arduino Uno is used as a data processor and then the data is displayed on the Nextion Display screen. Ultrasonic sensors will count the number of repetitions of load lifting while the Load Cell sensor will ensure the weight of the load. Simply put, the system works when the load cell sensor detects a barbell load at a predetermined position and then the repetition of the force is determined by an ultrasonic sensor.

The test results show that the system designed is able to monitor the number of forces in sports weightlifting with an error rate on the ultrasonic sensor by 10% and an error rate on the load cell sensor by 5%.

Keywords: Weightlifting, Arduino Uno, Load Cell Sensor, Ultrasonic Sensor.