

ABSTRACT

Weight lifting for hands becomes a routine activity for some people. However, some people don't care about the activity portion and do exceed lifted weight causes overtraining. As a result, this condition can create an injury to the muscle. To avoid it, a monitoring device that can provide information when the person still can continue his training with the current portion (including the option to increase portion) or when someone needs to reduce the portion of training is required. One of the routine muscle training that usually does is bicep muscle contraction exercises. This study is going to perform a prototype device to monitor a bicep muscle strength used in routine training activity using Electromyograph muscle v3 and ESP8266 as the microcontroller. The monitored user category is based on the age and the level of muscle strength (as Analog Data Converter (ADC) value). The methods used are statistics and fuzzy logic. The output value of the prototype is a percentage of muscle strength, from the weak category (the value is from 0 to 16%) until the strong category (the value is above 32%). With the prototype device and the built methods, the user can know whether the exercise routinely still can be continued with the current portion (or with the option the portion is increased) or the portion of the exercise needs to be minimized to avoid the occurrence of injury to the bicep.

Keywords: Weight Lifting, Biceps Muscle Training, Electromyograph, Fuzzy logic