ABSTRACT

The condition of fatigue is a condition in which the reduced capacity of the muscles to release the ability they have. But there is no tool that is able to measure the level of someone's slowness other than subjectivity, namely asking the person directly. It is necessary to build a prototype to detect fatigue in someone who has never been made before. With the making of this prototype will make it easier to know the level of fatigue of a person without having that person experience fatigue first. In the research conducted will focus on the body parts of the leg namely the muscles of the Vastus Laterlis and Rectus Femoris. The sensor used is the myoware muscle sensor for the classification of K-Nearest Neighbor (KNN) algorithm and Support Vector Machine (SVM). This final project aims to find the algorithm with the best level of accuracy, precision, and sensitivity using a dataset that has been processed with a device that consists of ESP32 microcontroller with myoware muscle sensor (AT-04-001). The activity that will be tested on the subject is squatting. Data generated from the tool will then be classified and processed to recognize the subject's condition of fatigue or not. The results obtained from this study are the SVM algorithm to be the best algorithm on the accuracy and sensitivity parameters with values of 85.91% and 85.91%. Whereas the KNN algorithm becomes the best algorithm on precision parameters with a value of 96.33%.

Keywords : *EMG, KNN, SVM, myoware muscle sensor*