Muscles are one of the most important parts of the human body. With the presence of muscles, humans can carry out daily activities such as eating, drinking, walking, etc. In the medical world, there are 2 methods that can be used to record and monitor human muscle activity, namely Electromyography (EMG) and Mechanomyography (MMG). In Indonesia, the dataset for muscle activity that uses MMG-based devices is still very limited, therefore a tool is created that produces a dataset that is expected to become a standard for identifying and monitoring the activity of leg muscles. To achieve this goal, this research collaborated with Swiss German University (SGU) to develop the sensor and Hasan Sadikin Hospital to find uniform subjects. The instrument was tested to measure the activity of 4 leg muscles, namely: biceps femoris long head (BFL), rectus femoris (RF), anterior tibial (TA), and gastrocnemius medial head (GM) when performing Sit-to-Stand (STS) movements. In addition, SVM one-vs-one algorithm with Radial Basis Function (RBF) kernel was created which successfully classified foot muscle activity data into 4 different muscle types, the algorithm produced an accuracy of 86% for Male datasets and 70% for female datasets.