ABSTRACT

People have different kinds of activities in their daily life. Different kinds of organ systems are provided to support our body doing the activities. Sometimes, there are pain and uncomfortable feelings while doing mobile activities, especially in the heel, called heel pain. Many factors can affect the heel pain such as the kinds of the work or the types of the foot posture. Image processing generally used for predicting the location and diagnosing heel pain. In this research, muscle signal processing (electromyography / EMG) is carried out as an alternative method for predicting the heel pain location.

Machine learning with the Support Vector Machine (SVM) method is performed in this research for predicting the location of heel pain. 4-channels-EMG signal is recorded on the posterior, plantar, medial, and lateral parts of feet. Then, the acquired EMG signals from the research subject are going to the pre-processing step. Feature extraction is done after the pre-processing step and the prediction is performed by SVM.

The designed system could predict the location of dominant heel pain. The prediction is performed by SVM using Python programming and scikit-learn as open-source toolkits for machine learning. Obtained accuracy for the prediction is 85 % using *poly* kernel.

Keywords : *heel pain, machine learning, SVM, prediction, EMG*