ABSTRACT

Foot movements that are not optimal due to injury, hurt, or other causes certainly hinder dynamic activities. One of the causes of injury in activities for everyone is the influence of foot posture, so by knowing the type of foot posture, the optimization of foot movement can be done. So far, the assessment of foot posture generally uses the manual method, namely through eye observations from experts (doctors) and conventional measuring instruments such as rulers and goniometers based on the Foot Posture Index (FPI-6) method. Therefore, we need an application that can provide an assessment of foot posture with the FPI-6 method automatically.

The system in this foot posture assessment application uses two data sources acquired from the camera sensor and the flex sensor. This final project focuses on measuring two criteria from 6 assessment criteria in FPI-6, namely criterion-1 (talar head palpation) and criterion-4 (bulging in talonavicular joint) using a flex sensor. As for the other four criteria were assessed using the FPI-6 method based on image processing with Otsu's Thresholding segmentation from previous research conducted at the Biospin Laboratory of Telkom University.. The results of image processing and data from the two methods are then quantized for each criterion so that the value can be determined. The results of the assessments for all these criteria are then added together to obtain the total FPI-6 value which is used to classify the type of foot posture. This scoring system study obtained an accuracy of 80% from classifying the six criteria of FPI-6. With the development of an application for assessing the type of foot posture based on the flex sensor, it is hoped that the results of the assessment of the type of foot posture in each individual can be obtained from complete data (ie 6 criteria automatically) which is more accurate and efficient.

Keywords*: foot posture, flex sensor, FPI-6, talar head palpation, bulging in talonavicular joint.*