

ABSTRACT

Walking, running, and standing are complex physical activities that involve coordination of the various systems of the human body. Gait analysis, or step analysis, is an essential method for understanding human step patterns and habits, which involve a variety of physical activity. Each of these activities has unique motion characteristics and can be analysed for various items such as medical diagnosis, wearable devices development, and scientific research. With the advances of sensor technology, such as accelerometers and gyroscope, data collecting on body movement becomes more accurate. The study aims to analyse and compare three different physical activities such as walking, running, and standing by the dynamic time warping method (DTW). The DTW is chosen because of its ability to measure similarities between two signals that may have differences in duration or speed, allowing more accurate analysis of the movement patterns of various activities. The results of this study are expected to contribute to the development of a more effective and accurate systems of analysis in analysing the pacing patterns of different activities.

Keywords: footsteps, step analysis, accelerometer, gyroscope, biomechanical signal, dynamic time warping