

ABSTRACT

Walking is the transfer of bodies from one point to another point by using both legs. Each person has a different gait. In the field of medicine, gait analysis is very useful to determine the best therapy for the treatment and medical rehabilitation patients. However, some people have a deficiency in terms of walking, as long as this physician medical rehabilitation patients observed gait manually and the lack of utilization of technology in the design of products in Indonesia leg prosthesis. One workable solution is to use a tool to analyze the gait analysis parameters in a walking motion of the foot that is used in prosthetic design process. Different frame method is one method of detecting motion-based video processing. This method can analyze the presence or absence of movement on the video by taking a few frames and calculate the difference. If there is a difference then it will be detected as a movement. Centroid is the position of the matrix obtained from the middle or center of gravity of an object passing through the labeling process.

To generate the gait parameters automatically and objectively recording the motion of a road, it takes a system design with a video camera which is then stored as digital images and then processed by the application of two-dimensional image of the system design. In designing an application, to analyze the parameters of each marker is attached to the object centroid analysis is used to analyze the parameters of each marker is used, then for the detected position by using the image binarization method and tracked its location by using the minimum distance method (least distance method).

This system using spatio-temporal gait parameters which results in four different parameters, namely gait cadence, stride length, cycle time and speed. The best accuracy rate in this system selected speed camera at 90 images per second. The system is applied with a long track record running at 3.8 m, and a camera distance of 4 m of running track.

Key words : gait, centroid, least distance method, foot prosthetic