Student Name   : Talon Garikayi [16917278]

Supervisors   : Dr. D. van den Heever and Dr. S. Matope

Title: Development of a robust myoelectric control architecture for lower limb robotic prosthetic applications

50 Words

The use of a passive foot with a fixed ankle has negative effects which include asymmetric gait. The study utilised electromyography and inertial signals to restore amputee gait through the implementation of intelligent control architecture to intuitively control a robotic prosthetic powered ankle to restore symmetric gait.

100 Words

The use of a passive foot with a fixed ankle has negative effects which include asymmetric gait, osteoporosis and musculoskeletal problems. The research aimed at alleviating these problems by developing a myoelectric robust control architecture for lower limb robotic prosthetic applications. Initially, muscles at the residual amputated stump were characterised along with anatomical and orientation angles of the amputee during normal gait. An intelligent control architecture was developed based on Linear Support Vector Machines. The developed biomechatronic robotic prosthetic ankle achieved a classification accuracy of 99.25% and has the capability to restore a symmetrical amputee's gait; thereby, improving amputee lifestyle.

Supervisor

Dr D van den Heever