Smart Sock: The Research of Tensoresistive Sensors' Operating and Usage in Innovative Technologies

Grants, Zane

Gods-Romanovska, Daniela

Textiles have been a part of our life for centuries. In the last decade whole new generation of textile is making its road to victory. This is the so-called conductive fabrics, which will soon be widely found. All over the world, conductive fabrics are intensely researched to adapt them to human use in everyday life, however, there has not been any detailed study about tensoresistive sensors in the textile and their operational accuracy. Therefore, the main objective of the scientific research is to study the operation of the tensoresistive sensors and to create a module for foot position analysis program in the fixed and dynamic motions. The empirical part analyses experimental sock’s tensoresistive sensor resistance dependence on the foot positions. Using the resulting graphs with fixed resistance dependence on the angle of the foot, it was determined which motions were possible to identify. The author has concluded that it is possible to distinguish fixed and dynamic movements, therefore, it is achievable to simulate a foot location in the room. It is planned to develop an interface of a foot location analysis program’s prototype of the fixed and dynamic motions. The findings of the theoretical and practical parts can be useful in rehabilitation, physiotherapy as well as in training result analysis.

Awards Won: