SIRO Elektra, the Robotic Chair

Nieves-Chaves, Miguel

This investigation was done in order to meet the special needs of people with mobility impediments. The hypothesis is that it is possible to create a robotic chair capable to mimic horizontal and vertical movements with modern technology integrated to cover all the necessities of a handicap person. A robot in the form of an electric wheelchair called SIRO Elektra was created. Today the common wheel chairs have many limitations such as vertical movement for people in need to reach certain heights, plus other needs such as communication and control of the orientation of the chair. It is common to observe how smart phones have taken over society to the point that most people have one, so it is necessary to integrate this technology into services that improve the quality of life of people. In this research work it was possible to create a robotic wheelchair capable to perform horizontal and vertical movements, to be guided by GPS, to communicate and respond to voice commands and use both electricity from a battery and solar energy. This robot responds to commands made on a smartphone. The construction of the robot was made mostly with recycled pieces of electronic equipment such as DVDs, modem and electronic boards. After completing and testing the robot the hypothesis was accepted, since it proved to be able to perform horizontal and vertical movements, orient itself, respond to voice commands and use efficiently solar energy and electricity meeting the challenges of today’s engineering and environmental applications today.

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