

Prosthesis and Orthosis Slip Detection Sensor

Researchers at the University of South Florida have invented a new device to measure slip between a limb and prosthesis or orthosis.

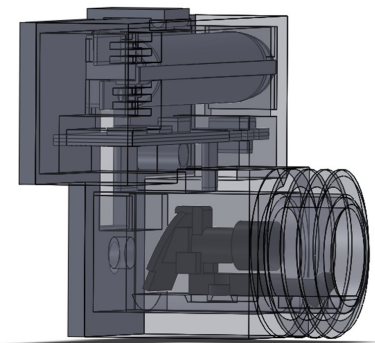
A common problem many patients experience with prosthetic and orthotic devices is poor or improper fit. Fit issues associated with prosthetic and orthotic devices can cause patients severe discomfort, circulation problems, and skin irritation. Some patients may suffer with poor fitting devices for years, which can substantially impact their quality of life. Current research focusing on the prosthetic socket interface is limited by the difficulty of quantifying the relative movement between the limb surface and prosthetic socket. Typically, a prosthetist visually inspects the fit using a clear check socket, looking for signs of movement, but this is still very much an art form and hard to quantify.

Motivated by the desire to improve device fit and patient quality of life, researchers at USF have invented a prosthesis slip detection sensor to measure and record movement between the limb surface and prosthetic socket or orthotic device. The ability to measure this type of movement enables faster and more accurate fit of prosthetic and orthotic devices for both upper and lower limbs. This invention can be used as an evaluation tool to compare various socket designs or to assist the prosthetist during socket fabrication stages by providing quantitative feedback. The sensor may also be used in the development of a smart socket interface to monitor the amount of movement and adjust socket settings accordingly. This device will open new research possibilities for internal socket dynamics.

ADVANTAGES:

- Improved patient quality of life
- Fast and efficient fitting of new devices
- Enables development of a smart socket interface

Novel Sensor to Measure and Record Movement Between the Limb Surface and Prosthetic Socket



Computer Generated Image of the Slip Detection Sensor Device

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