

Instrumented Ankle-foot Orthosis

A orthotic medical device that utilizes sensors to detect patient data regarding resistive forces applied to the joint.

Inventors at Georgia Tech have created an orthotic device and corresponding method for use. Various forms of this invention relate to passive orthosis, which is an orthotic device where no external power source is employed to stimulate joint movement. The proposed orthosis aims to enhance a user's existing limb or joint, including ankles, wrists, knees, shoulders, elbows, and hips. Sensors in this device can collect data indicative of a user's response to a variety of resistive forces applied to the joint. These sensors can be configured to collect data at multiple times during a movement, including pressures on various parts of the calf and foot.

Summary Bullets

- **User friendly** – fully wearable and portable
- **Objective data** – enhances patient outcomes

Solution Advantages

- **User friendly** – fully wearable and portable
- **Objective data** – enhances patient outcomes

Potential Commercial Applications

- Orthotics

Background and More Information

Orthoses are wearable devices used to control joint motion and provide corrective support for impaired limbs and joints. Among all orthoses, Ankle-Foot Orthoses (AFO) are the most commonly prescribed. These orthoses provide the necessary stability for walking and standing to maximize functional mobility for users. Current orthoses products fail to observe and quantify various parameters of gait in the clinic in order to identify an optimal set of orthosis properties for each user, which may depend on the degree of paresis, paralysis, spasticity of the lower limb and his or her capacity for recovery. There is a growing need for more affordable, effective, and personalized home use-orthoses to improve user mobility and safety.

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