

# WiSAT

## Wheelchair In-Seat Activity Tracker

### EXECUTIVE SUMMARY

#### TEAM

Stephen Sprigle, PhD, PT  
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#### FUNDING

**\$132K** Rick Hansen Institute  
**\$1M** DOD Grant  
**\$1.2M** NIH Grant

#### INTELLECTUAL PROPERTY

Patent Pending  
Technology available for licensing and partnership

#### STATUS

Proof of Concept Completed  
Clinical testing in process

**WiSAT** is an activity tracker that encourages in-seat movement.

**In the U.S. alone, 2.2M people use wheelchairs** for daily tasks and mobility.

As a result of prolonged sitting, these individuals are susceptible to pressure ulcer formation. Once formed, pressure ulcers (PrU) can lead to severe complications such as sepsis, infections, and in some cases, death.

On average, it costs the healthcare system **an estimated \$124,327 to heal a single stage IV ulcer**, which is the most severe form of PrU. Outside of the financial ramifications, these ulcers can have critical effects in all aspects of life and lead to reduced mobility, unemployment, increased risk for future ulcers, and reduction in quality of life.

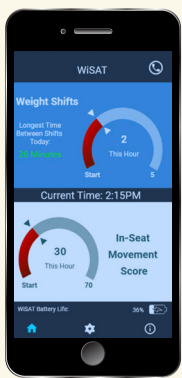
**Weight shifting regimens: highly recommended, rarely followed**

One strategy for pressure ulcer prevention is periodic weight shifting. Wheelchair users are taught to shift their weight every 15 - 30 minutes for 30 - 60 seconds to offload the load-bearing tissues of the buttocks. In the presence of a pressure ulcer, wheelchair users are advised to weight shift more often. Despite education and evidence supporting the efficacy of weight shifting, wheelchair users show poor compliance with weight shifting regimens.

## WiSAT is designed to encourage healthy behaviors.

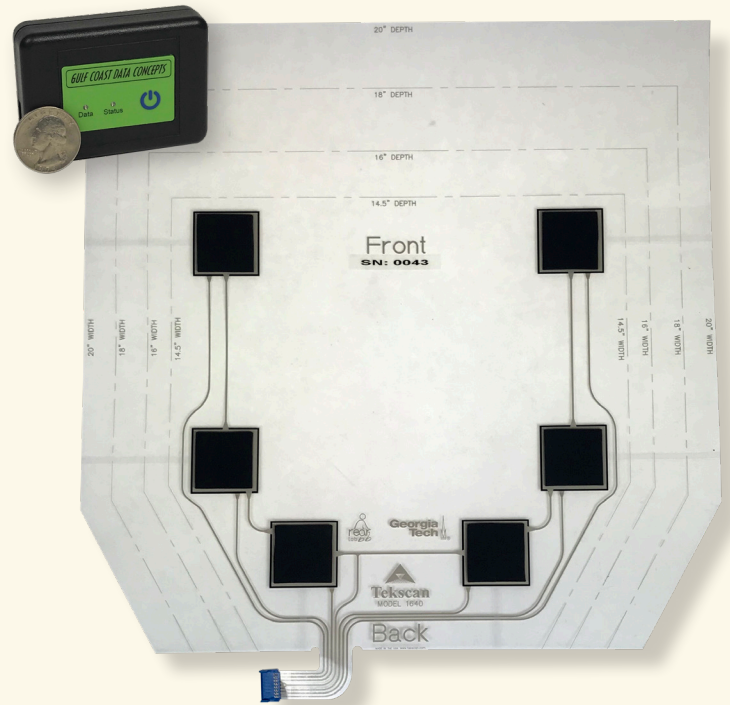
The technology is a combination of hardware, software, and algorithm components capable of monitoring and communicating the everyday sitting behavior of its user.

A **force sensing mat** housed underneath the wheelchair cushion measures seated posture. Proprietary algorithms then identify both weight shifts (longer duration movements) and more transient in-seat activities. This information is integrated into a **user-friendly app** that provides feedback to users.



The app is designed to reinforce movement through reminders, reports, and goal setting features.

**The WiSAT algorithms and app will be powered by a clinical study that will encourage in-seat movement.**



### Technology status

WiSAT is being developed out of the Georgia Institute of Technology's REARLab, which specializes in developing products for individuals with disabilities. To date, functional prototypes of the hardware, software, and algorithm have been created. The WiSAT is currently being used in a one week usability trial. Results from the trial will be used to refine the design for implementation in a four month clinical trial that will launch this summer.

### WiSAT Benefits/Advantages

- The application provides regular user feedback
- The technology supports behavior change for in-seat movement
- WiSAT does not interfere with functionality of the wheelchair cushion

#### FOR MORE INFORMATION ON THIS TECHNOLOGY, CONTACT:

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