

PUPS: Pressure Ulcer Prevention System (#7541)

A sensor-based device integrated into fabrics called PUPS (pressure ulcer prevention system) that will detect and assist in the prevention of pressure ulcers

Inventors at Georgia Tech have created a sensor-based fabric called PUPS (pressure ulcer prevention system) that will detect and assist in the prevention pressure ulcers. This device will monitor the parameters of pressure and wetness at the contact surface points of the patients. PUPS can alert caregivers in healthcare settings to intervene and serve as an easy-to-use platform for acquiring data on conditions relating to pressure ulcers, which can then be mined to understand and better address the problem through Big Data analytics. PUPS can operate in two modes: one in which the caregiver will be alerted through a smartphone app or through a light on the patient's bed when intervention is needed, and a second mode in which the system will have built-in automated interventions. This sensing fabric will also have the potential to be scaled up to address patients of all ages and sizes.

Benefits/Advantages

- **Enhanced quality of care:** Patients are less likely to develop a hospital-acquired infection
- **Lower cost:** Minimizes costs from “never events” such as pressure ulcers

Potential Commercial Applications

- Hospitals
- Long-term nursing homes
- Wheel chair pads

Background/Context for This Invention

Patients that are confined to a bed or wheelchair are at high risk of developing pressure ulcers. Pressure ulcers are a high-cost infection across the spectrum of healthcare settings and populations including pediatric care. Pressure ulcers can lead to wounds and/or infections and may impact the recovery of the patient from the primary illness requiring their admission to the clinic. There is a critical need for a cost effective intervention that will address a significant issue affecting the quality of care for people and infants thereby reduce healthcare costs.

Dr. Sundaresan Jayaraman

Professor - Georgia Tech School of Materials Science and Engineering

Sungmee Park

Principal Research Scientist - Georgia Tech School of Materials Science and Engineering

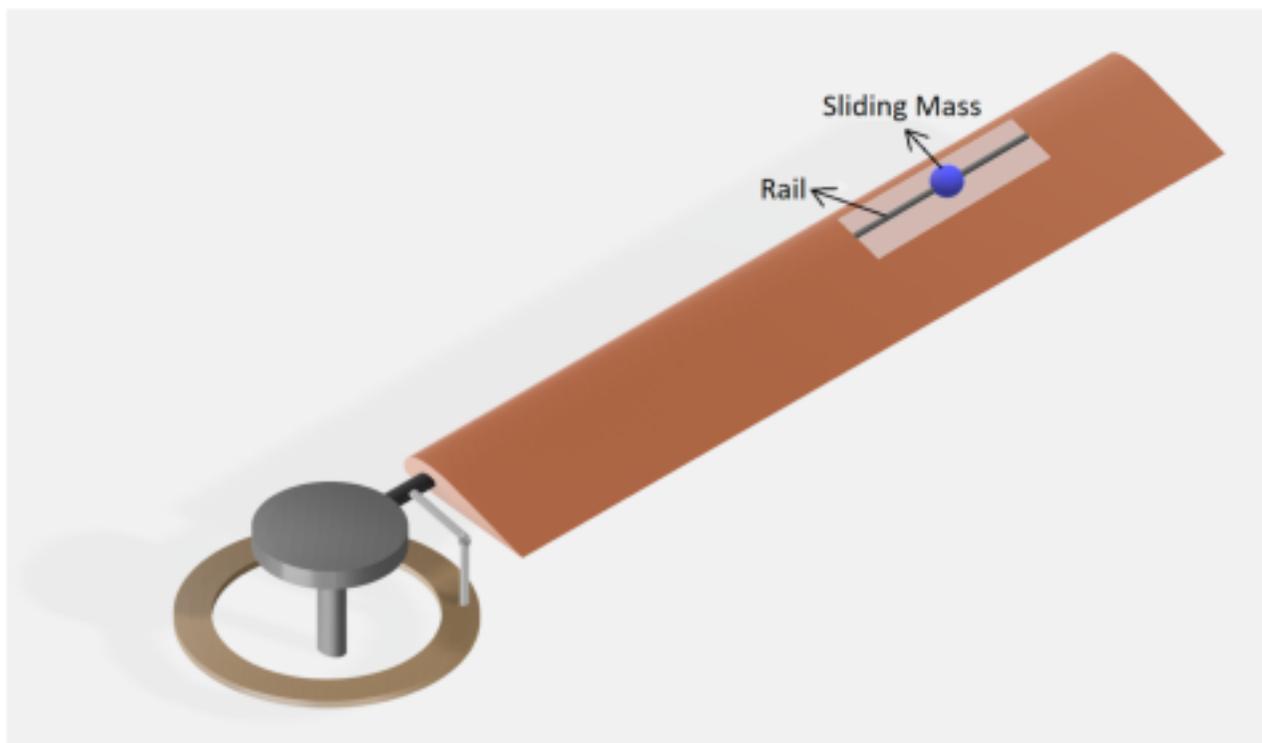
More Information

Publications

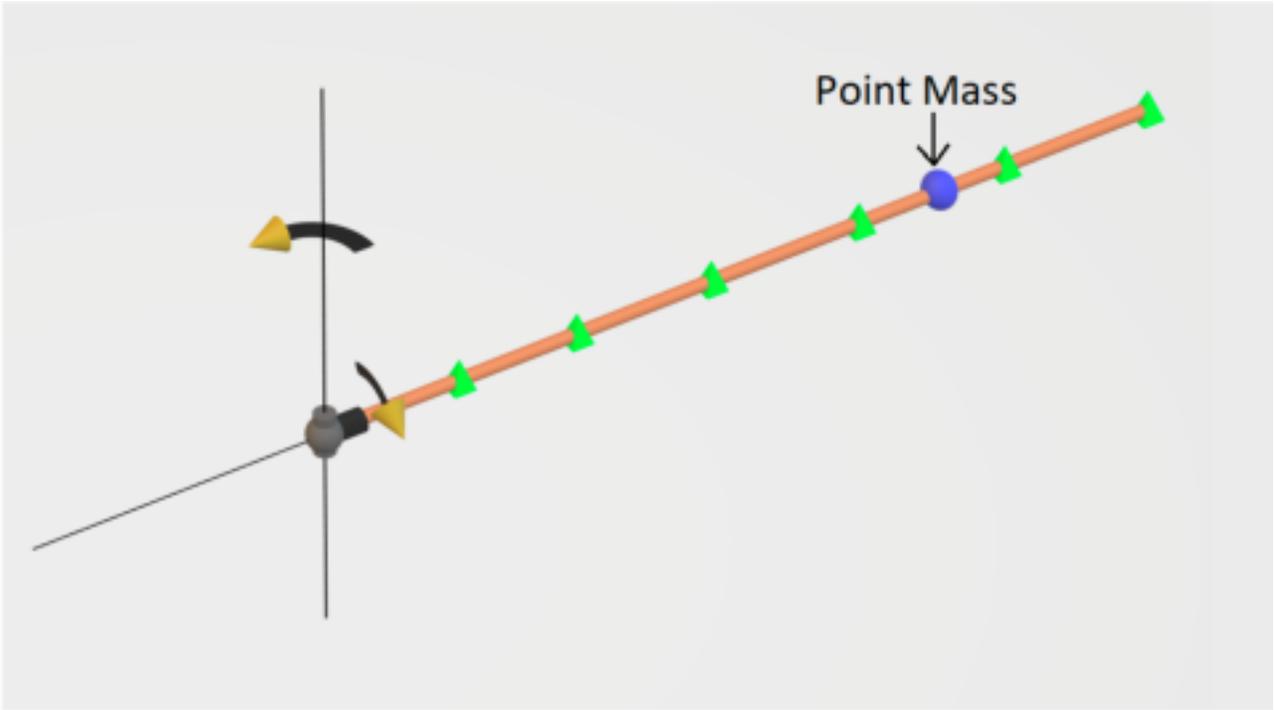
For more information about this technology, please visit:

<https://licensing.research.gatech.edu/technology/pups-pressure-ulcer-prevention-system>

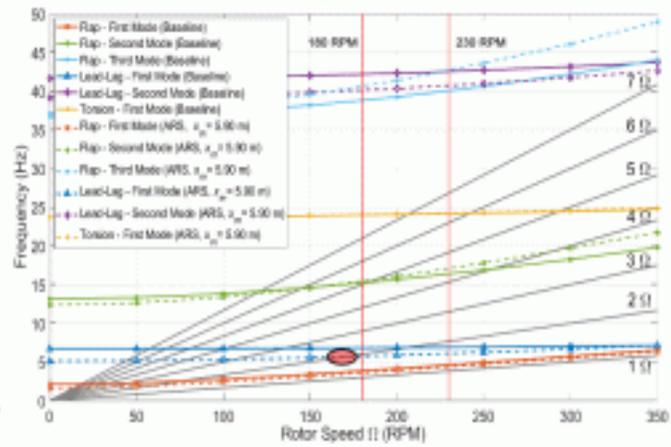
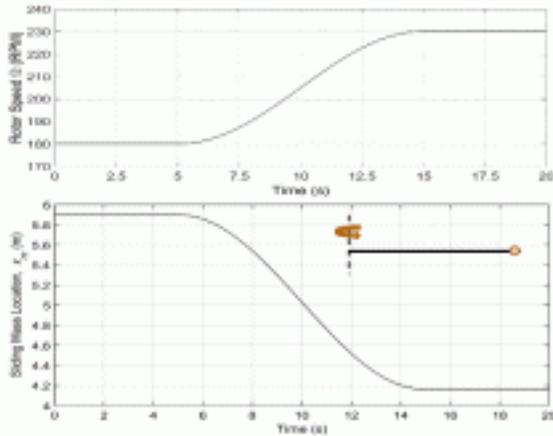
Images:



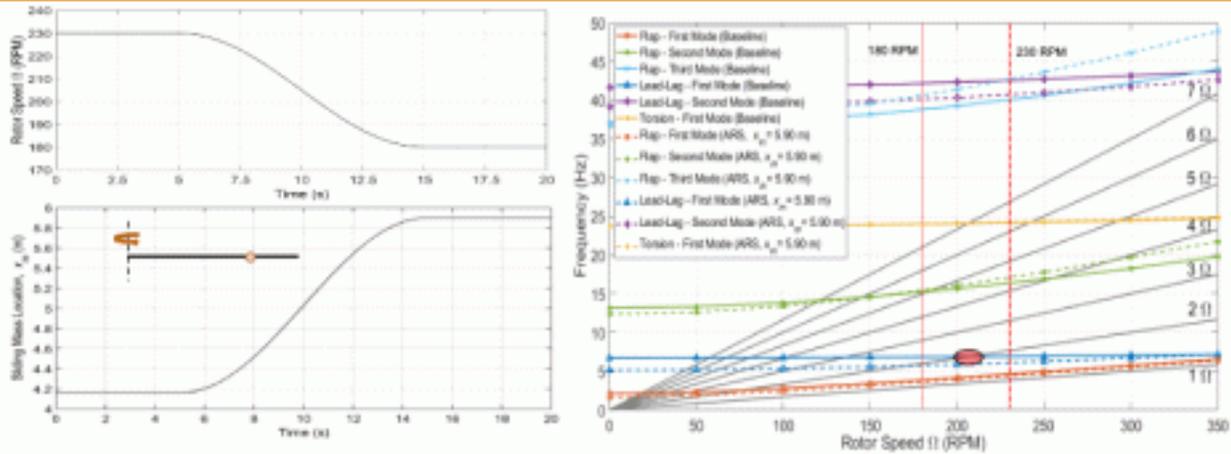
Hingeless blade with a sliding mass



Blade model with sliding point mass



- The mass is moved inwards
- The resonance point moves back to its original location; always stays behind the operating Ω



- The mass is moved towards the tip of the blade; x_m is changed smoothly
- The resonance point is moved below 180 RPM