



Inventors

Dr. Oliver Graudejus

*Research Professor
Chemistry & Biochemistry*

Dr. Jame Abbas

*Associate Professor
School of Biological & Health
Systems Engineering*

Intellectual Property

Status:

Patent Pending

Contact

Bill Loux

Director of Business
Development, Physical
Sciences

Arizona Technology
Enterprises, LLC (AzTE)

P: 480.884.1992

F: 480.884.1984

BLoux@AZTE.COM

TECHNOLOGYVENTURES@AZTE.COM

A Biomimetic Pressure Sensor

AzTE Case # M13-187P

Background

Various medical conditions can cause the loss of feeling in the fingers or extremities, resulting in the inability to sense touch. These conditions include stroke, peripheral neuropathy caused by diabetes, Parkinson's disease, multiple sclerosis, or cerebral palsy. Accidents can also cause neurological damage resulting in the patient's inability to feel objects. Lack of normal sensory capability reduces the normal quality of life. Patients who lack the ability to sense touch can injure themselves accidentally and may be unaware of the injury.

Invention Description

Researchers at Arizona State University have developed a sensor substitution sensor that allows individuals who have feeling loss to benefit from or receive neuromotor assistance. The device can be manufactured in two versions. The body-worn version is a sensing array that can measure forces and pressures acting on the skin, thus providing sensory substitution which may prevent or reduce secondary complications due to loss of sensation. The implanted version allows for measurements of strain on internal tissue such as bladder movement or cardiac contractions.

Potential Applications

- Medical rehabilitation.
- Internal biomechanical monitoring.
- Robotics.

Benefits and Advantages

- **Accuracy** – Precisely measures normal pressures and shear forces.
- **Life Like** – Sensor is soft, composed of a skin-like silicone based material.
- **Durable** – Device is capable of taking repeated, reliable measurements.