Skysong Innovations
Advancing the Arizona State University Knowledge Enterprise

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Electrochemical Pressure Sensor

Pressure/force sensors and transducers have wide utility in mechanical, medical and industrial applications, with each industry striving for increased performance. Three key features determine how successful a pressure sensor may be: sensitivity, durability, and cost. Because of their robust and inexpensive nature, transformative electrochemical pressure/force sensors could become an attractive option for many industries.

Researchers at Arizona State University have developed novel flexible/paintable electrochemical pressure/force sensors that can be supplied in unlimited size and configuration. These sensors can monitor multiple forces/pressures over their entire area, determine the location of the interaction, and transduce these interactions into electrical signals. These sensors can be screen printed to fit almost any size or need. They are highly sensitive, durable yet flexible, and economical to manufacture, giving them a high potential for success.

These unique electrochemical pressure/force sensors, with their highly configurable nature and exceptional sensitivity, represent an advancement that holds great promise for a new generation of pressure/force sensor applications.

Potential Applications

- Mechanical - automotive, aerospace or marine sensors
- Medical - prosthetics, surgical aids (forceps/scalpel force measurements
- Sports/Military - lining of helmets for TBI sensing
- Industrial - oil & gas sensors, HVAC sensors
- Electronics - Haptic/touch sensing devices
- Personal - shoe-based health monitoring sensors

Benefits and Advantages

- Extreme sensitivity, which may be extended over the range of 10-5 N to 100 N
- Flexibility; can utilize screen printed materials for sensor fabrication along various surfaces (simple and complex curves, linear, rigid, non-rigid, etc.)
- Biocompatible
- Inexpensive

For more information about the inventor(s) and their research, please see Dr. La

Belle's laboratory webpage