



Dual Mode Tactile and Proximity Sensor

IP Status: Issued US Patent; **Application #:** 11/655,356

Dual mode capacitance sensor

A new tactile sensor system measures not only contact force (tactile information) but also the approach of an object before it touches the sensor (proximity information). The sensor consists of two layers of an electrode array crossed to make a capacitor cell. Dielectric materials sandwiched between the two electrode layers form a capacitor array at the crossing points. The dielectric material between the electrodes deforms due to contact force, inducing a capacitance change between the upper and lower electrodes. Scanning this capacitance change captures contact force distribution, and by using the fringe capacitance in the upper electrodes, the sensor can sense the approach of an object (proximity) before it touches the sensor.

Technology ID

z07113

Category

Engineering & Physical
Sciences/Instrumentation,
Sensors & Controls
Engineering & Physical
Sciences/Robotics

Learn more



MN-IP Try and Buy

Try

- Trial period is up to 18 months
- Trial fee is \$5,000 for eighteen months
- Trial fee is waived for MN companies or if sponsoring \$50,000+ research with the University
- No US patent expenses during trial period

Buy

- \$15,000 conversion fee (TRY to BUY)
- Royalty rate of 3% (2% for MN company)
- Royalty free for first \$1M in sales

Both tactile and proximity sensing in a single platform

Existing sensors can either operate as a tactile sensor by detecting the contact pressure or as a proximity sensor to detect an approaching object. Tactile and proximity sensors are needed in systems such as robots. When two individual sensors are used on a robot, a large area and volume is required. This technology is the first ever to implement a tactile sensor with proximity sensing capability in a single platform.

Phase of Development

- Proof of concept. Prototype built and tested.

Benefits

- Eliminates the need for two separate sensors
- Simpler to implement. Less space and volume required

Features

- Tactile sensor with proximity sensing capability
- Single platform
- Capacitance sensor

Applications

- Artificial tactile skin for robots
- Robots
- Machine interface
- Interface for mobile devices
- Tactile sensor
- Proximity sensor

Interested in Licensing?

The University relies on industry partners to further develop and ultimately commercialize this technology. The license is for the sale, manufacture or use of products claimed by the patents. Please contact us to share your business needs and licensing and technical interests in this technology.

Researchers:

Euisik Yoon, PhD Professor, Electrical Engineering and Computer Science