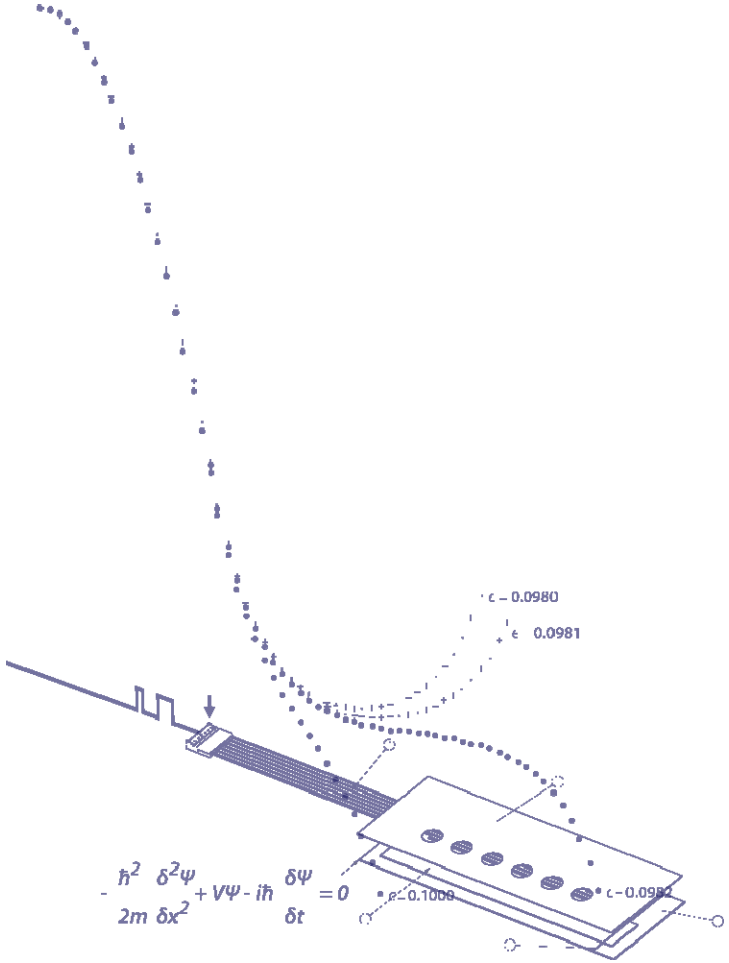
24 April 2008

Touchy-Feely Composites

for Robonauts, Astronauts and Snowboarders



Presenter: David Lussey

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Quantum Tunnelling Composite (QTC)

QTC is a nano-material, it is a sensitive metal/polymer composite with:

- Proportional response to pressure
- Exponential change in electrical resistance
- Current handling capability

Science Papers:
UK IoP.org/JPhysD/38/2851
US AIP APL88,102103 (2006)

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QTC Response

QTC is sensitive to extremely small inputs from external stimuli such as:

- Pressure
- Temperature
- VOCs (gases, vapours & aerosols)
- Sound and Vibration
- Voltage
- Electromagnetic Radiation

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Peratech Limited

QTC was discovered in 1995 and Peratech was started in 1997 to commercialize the technology.

QTC technology:

Used by NASA to give touch sensitivity to the Robonaut hand

Used by ILC Dover to provide textile switches on astronauts' suits and gloves

Used by Burton on jackets as textile controls for I-pod operation

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“Peratech, we have a problem !”

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“Robonaut needs a hand”

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Astronauts also need a little help: textile switches to control the lights !

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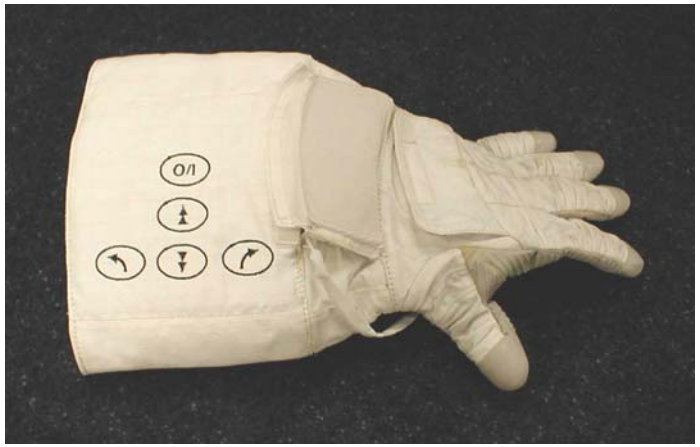
Astronauts’ gloves with a textile remote control



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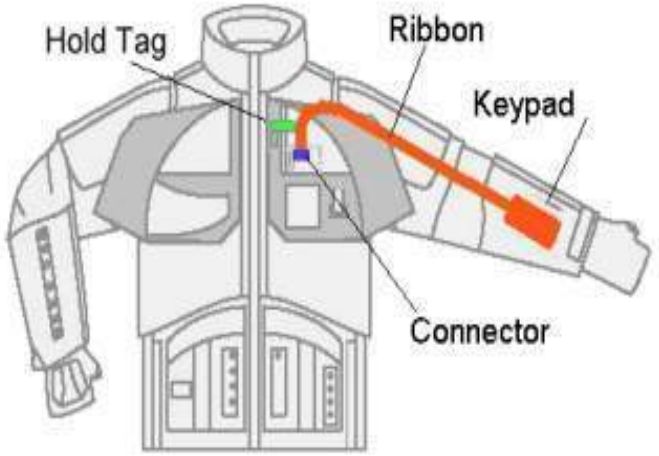
Softswitch^{tm} QTC technology

Textile benefits

- Washable, dry-cleanable
- Soft, lightweight
- Tough

Uses

- Switches & Keypads
- Pressure sensing & mapping
- Protective sensing



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Present Uses of QTC

- Textile switches and controls
- Whiteboard and keypad pressure sensors
- Robot skin-pressure sensors
- Ultra-thin switches and pressure sensors

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PERATECH FORCE PRESSURE TOUCH Sensing Solutions qtc

SOFTswitch™

eLeksen a peratech company

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