Stretchable and Transparent Keypad for Artificial Skin Application

Status: Available

Group Members: TBD

Sponsor(s):

Supervisor(s): Woo Soo Kim, PhD, PEng, Assistant Professor, Mechatronics Systems Engineering

Project Description

In this project, nano-manufacturing of stretchable electrode will be investigated. Specially, a stretchable, thin, transparent pressure sensitive keypad will be fabricated by printing of metallic nano ink on stretchable silicone thin film. Applying pressure to the surface of the elastomer deforms the cross-section of underlying metallic pattern and changes the electrical resistance across the affected keypad. Perpendicular conductive lines form a network within an elastomeric matrix that registers the location, intensity and duration of applied pressure. Pressing intersections of the keypad triggers one of twelve keys, allowing the user to write any combination of alphabetic letters. It will be studied that approximated pressure to be necessary to produce a slight change in voltage across a conductive pattern that is less than 1 micron in height. Sensitivity of the keypad can be tunable via printed feature's geometry and choice of elastomeric matrix.