

Conducting Polymer Based Pressure Sensors for smart Skin Applications

Human skin is the largest sensory organ in our bodies allowing us to safely maneuver within our surrounding environment. This physical barrier which enables us to interact with our physical world comprises several sense receptors through which information from a physical contact transduces into electrical signals. An artificial skin, also referred to as smart skin or electronic skin (e-skin), with human-like sensory capabilities can make a significant impact on the autonomous artificial intelligence as well as surgical tools. This can be achieved by providing a sensory perception even better than their organic counterparts. In addition to force sensing as the primary function of human skin, other functionalities such as mechanical/electrical self-healing along with flexibility/stretchability are of great importance to be considered in an e-skin. The project will investigate the design and fabrication of a pressure sensor mimicking the main characteristics of natural skin, potential of using conducting polymers as piezoresistive sensors for electronic skin applications.