

Nanskin - Novel electronic skin for robotics application.

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Nanskin is a novel sensing technology that can detect the magnitude and direction of an applied force which is fabricated into an electronic-skin form for use in robotics applications. Currently, robots lack the ability to feel objects in the same way as humans do, which makes them unable to handle delicate objects or tell their consistencies. Although robots rely on various sensors to sense their surroundings and the objects they interact with, none are able to measure pressure/force as precisely as human skin. Skin is an immensely complex organ, but the ability to sense touch comes from its nerve endings, which are extremely sensitive and numerous. So far attempts to create a commercial e-Skin that would give robots a human-like sense of 'touch' have been unsuccessful. Netrologix Ltd has invented a novel piezoelectric nanocomposite sensing material called Nanflx. This is being used to create a highly sensitive, flexible, and mass-producible e-Skin called Nanskin to address this problem. Currently, Nanskin is able to generate a piezoresistive response which allows it to detect forces as low as 0.01 N while being completely compliant.

One market where this will be especially useful is online grocery retail, where robots are not able to distinguish between ripe and unripe fruits and vegetables yet. We have since then acquired our first customer who is the world's largest and most high-tech online grocer, Ocado, to manufacture and integrate Nanskin into Ocado's robots. Following from Ocado, we have expanded into other British and international companies who would want to integrate Nanskin into their robotics. Nanskin has enabled robots to perform dexterous jobs which otherwise wouldn't have been possible. The market we are targeting are all industries which utilise robotics such as manufacturing and assembly companies. Future applications for Nanskin includes prosthetics, in tyre pressure monitoring etc.