ABSTRACT

This research discusses the advancements in developing intelligent skin by employing Force Sensitive Resistor (FSR) sensors to imitate the sensory capabilities of human skin. The objective of this smart skin concept is to advance research on the fundamental concept of artificial skin that relies on the human sense of touch. This advancement can be implemented in several domains, such as the military and healthcare. Smart skin is an effective instrument for gathering data about the skin using RP-S40-ST and FS7548. Humans are incapable of accurately quantifying the pain induced by external pressure. By employing FSR sensors, the acquired data will be stabilized, thereby serving as a dependable reference. The smart skin is coated with an elastomeric substance that closely resembles human skin in terms of its flexibility, softness, and mechanical properties. The smart skin is capable of measuring pressure and touch. The measurement values are converted into units of N and kPa. The FSR sensor is linked to a microcontroller board called TTGO LoRa OLED, which enables the integration of data transfer for further development through the Long Range (LoRa) protocol. The AMF-500 force gauge functions as a standard for converting data obtained from analog sensors into precise force and pressure measurements.

Keywords: Skin, Microcontroller, Human Touch, Force Sensor