Abstract:

The emergence of polymer-based electronic devices has gained a lot of reputation in the research community throughout the world. These types of on-skin electronic devices can be used for biomedical purposes, i.e. biophysical sensors, biochemical sensors. These sensors are usually developed with the layers of different types of materials drawn on a piece of paper that can be placed on the skin of a human body. This paper represents the development of a novel on-skin thin polymer (paper substrate) based temperature sensor. The conductor model of the sensor has been designed using graphite and copper. This sensor can detect the temperature of a human body when attached to the skin and the use of thin polymer makes it cost-efficient. The developed sensor can be easily fabricated and integrated as a smart biological data collection sensor. The paper also presents a detailed simulation of the sensor to evaluate its efficiency and performance. The work shown in this paper is the initial stage of broad-scale research and the methodology followed in this research can be used to develop different biomedical sensors using other materials.