

Wearable Nano-Sensors for Personalised and Preventive Medicine

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Wearable technologies are networked devices equipped with microchips and sensors, capable of tracking and wirelessly communicating information on real time basis. The rapid adoption of such devices in the past decade has placed them as the most attractive innovation in the word of technology. From a fitness activity tracker to Google Glass, miniaturized wearable devices have shown great potential to be embedded in various domains including healthcare, robotic systems, prosthetics, visual realities, professional sports, as well as entertainment and arts. Here, some exciting achievements, emerging technologies, and standing challenges for the development of non-invasive personalized and preventive medicine devices will be discussed. The engineering of wire- and power-less ultra-thin sensors on wearable biocompatible materials that can be placed on the skin, pupil, and teeth will be reviewed, focusing on common solutions and current limitations.

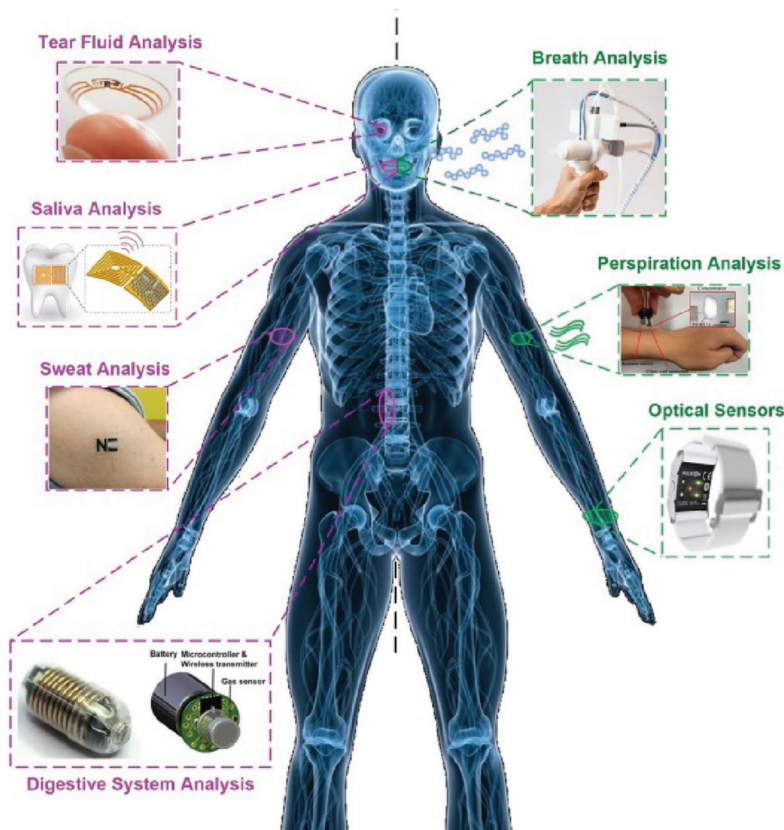


Figure1: Schematic summary of some emerging sensing technologies for personalized and preventive medicine. A major distinction can be made between contact and contactless technologies, such as tear, saliva analysis, sweat, digestive system and optical, breath and perspiration analysis [1].