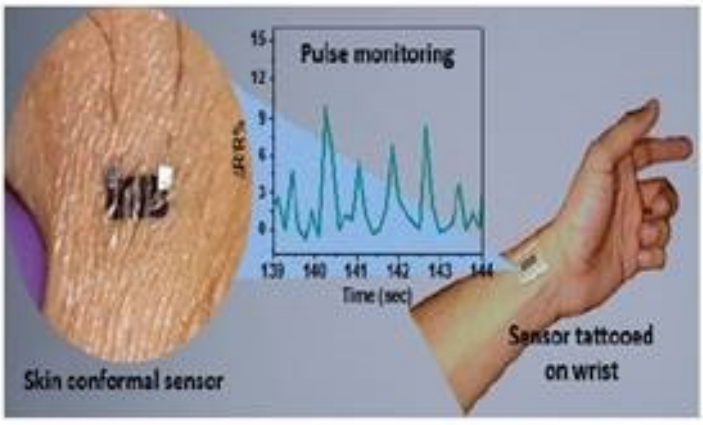
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CeNSE develops tattoo sensor for monitoring health

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The skin conformal sensor has the ability to perform non-invasive and continuous monitoring of vital health parameters.



Dr Saurabh Kumar from Centre for Nanoscience and Engineering (CeNSE) at Indian Institute of Science, Bengaluru, a recipient of the INSPIRE faculty fellowship instituted by the Department of Science & Technology, Govt. of India is currently working on wearable sensors that can retract information from human body using its largest organ, the skin.

In his recent work published in the journal ACS Sensors, his group has fabricated a skin conformal tattoo sensor about 20?m thick. The sensor promises inconspicuous and continuous monitoring of vital health parameters of an individual, like pulse rate, respiration rate, and surface electromyography. The sensor serves as a single conduit for sensing respiration rate and pulse, dispensing with the need of mounting multiple sensors. Its remarkably high sensitivity with a gauge factor (GF) has been ascribed to the development of nano-cracks and their propagation through the film upon application of strain. The fast response and highly repeatable sensor follow easy fabrication steps and can be patterned into any shape and size using a laser.

The Skin conformal sensor has the ability to perform non-invasive and continuous monitoring of vital health parameters. Further, it has the potential to replace rigid and bulky health monitoring devices. These sensors do not interfere with the daily activities of the user, thus enabling continuous monitoring of vital signs like pulse rate, respiration rate, UV rays exposure, skin hydration level, glucose monitoring, and so on.