IIT creates wearable patch to track health

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Bhubaneswar: Scientists of IIT Bhubaneswar have created a flexible and wearable sensing system that uses light to take precise readings of human health.

People can keep this wearable patch on any part of the body. It can read temperature, pulse rate, bending or stretching measurements of the body. The team is working on adding a blood pressure check-up feature.

"Wearable electronics devices have advanced significantly, but their accuracy and longevity have been largely limited. Alternatively, flexible and wearable optical sensing systems hold the potential to overcome such challenges while satisfying the user needs," said Rajan Jha, physics professor of IIT Bhubaneswar.

"We are introducing a fully bendable and wearable sensor that is capable of measuring body temperature, joint bending in different directions, and tracking limb activities, facial motions, respiration and pulse rate," said Jha, who is heading the work in IIT Bhubaneswar at Nanophotonics and Plasmonics Laboratory in School of Basic Sciences.

As the measurements are based on changes in the light

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parameters rather than current as in electronic devices, he said, such a wearable device is very sensitive and accurate. Another advantage of this technology is the ability to measure multiple parameters at the same time, he added.

"We are currently extending our technology's capabilities to detect multiple physical properties over wider range by changing factors such as the structure of the optical fiber, the coating on the probe area, and using biodegradable/biocompatible materials to make the system environment-friendly and sustainable," said researchers Pratik Mishra, Subrat Sahu and Kalipada Chatterjee. The team published its research in an international journal, "Advanced Materials Technologies" last week.

IIT Bhubaneswar director Virendra Kumar Tewari said these promising wearable optical devices hold scope for revolutionising healthcare services.