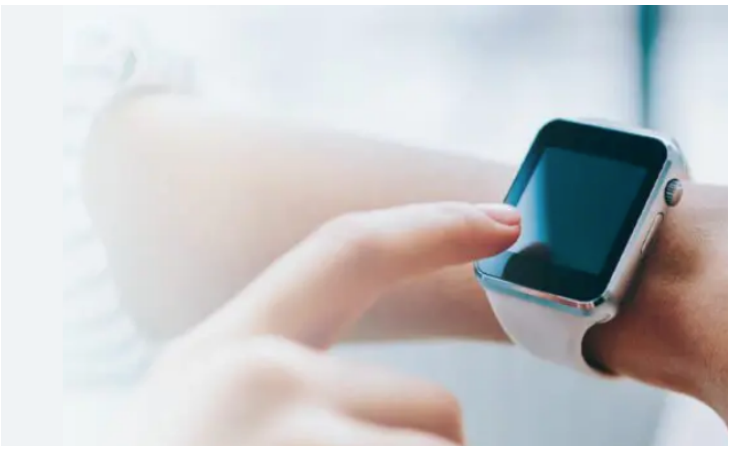
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Korea designs highly-sensitive blood pressure sensing wearable device

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Commercialisation of the watch and patch-type sensor in progress



A research team from Korea Advanced Institute of Science and Technology (KAIST) has developed a highly sensitive, wearable piezoelectric blood pressure sensor.

Recently, there has been a growing interest in healthcare devices for continuous blood pressure monitoring. Although smart watches using LED-based photoplethysmography (PPG) technology have been in market, these devices have been limited by the accuracy constraints of optical sensors, making it hard to meet the international standards of automatic sphygmomanometers.

The research team at KAIST has developed the wearable piezoelectric blood pressure sensor by transferring a highly sensitive, inorganic piezoelectric membrane from bulk sapphire substrates to flexible substrates. Ultrathin piezoelectric sensors with a thickness of several micrometers (one hundredth of the human hair) exhibit conformal contact with the skin to successfully collect accurate blood pressure from the subtle pulsation of the blood vessels.

Clinical trial at the St. Mary's Hospital of the Catholic University validated the accuracy of blood pressure sensor at par with international standard with errors within ±5 mmHg and a standard deviation under 8 mmHg for both systolic and diastolic blood pressure. In addition, the research team successfully embedded the sensor on a watch-type product to enable continuous monitoring of blood pressure.

The team plans to develop a comfortable patch-type sensor to monitor blood pressure during sleep and have a startup company commercialise these watch and patch-type products soon.