

# POSTECH researchers create LED contact lens to diagnose diabetes

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A research team from Pohang University of Science and Technology (POSTECH) has developed a smart light-emitting diode (LED) contact lens for diabetic diagnosis and retinopathy treatment.

The team, led by professor Sei Kwang Hahn, including his PhD student Geon-Hui Lee, also created a wearable medical device for diabetics.

Integrated with micro-LED and photodetector, the smart contact lens can measure glucose concentration in the conjunctival blood vessels by analysing the NIR light.

The wearable medical device is planned for commercialisation in collaboration with PHI Biomed and Stanford University.

Professor Hahn said: "We developed a smart LED contact lens that can diagnose diabetes and treat diabetic retinopathy with light for the first time in the world. We are planning to commercialise these smart contact lenses and smart wearable medical devices in collaboration with Stanford Medicine."

South Korean researchers have tested the smart LED contact lenses by placing them on rabbit eyes with diabetic retinopathy disease and irradiated light repeatedly for one month.

Usually, diabetic patients measure their blood-sugar level by drawing blood before and after a meal, which may lead to developing complications.

The technology will not only allow diabetic patients to check the blood-sugar level in real-time but also offers treatment for retinopathy from diabetic complications.

The smart contact lens can diagnose diabetes from glucose concentration in tears and to deliver drugs for treating diabetic retinopathy.

Preliminary clinical tests for the smart Contact Lens are expected to be carried out in the first half of 2020.