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(57) Abstract :

The invention discloses a smart biosensor for real-time blood glucose monitoring, comprising a microfluidic inlet (101), electrochemical sensing electrode (105), signal processing unit (102), wireless communication module (103), and power management unit (104). The biosensor enables continuous, accurate, and minimally invasive glucose measurement. Enhanced with nanostructured electrodes for sensitivity and wireless connectivity for real-time data visualization, it provides patients with predictive healthcare, instant alerts, and seamless integration with smartphones and wearables.

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