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22 APR, THU, 10 AM (SINGAPORE)

## Wearable system design with capacitive-based sensor for infection monitoring

Wearable battery-free devices have broad applications for continuous healthcare sensing. Advances in materials and fabrication further enable sensors that can respond to biological stimuli, such as bacterial infection, which are challenging to detect with conventional approaches. However, such sensors demand new techniques for wireless system design because of their unique technical requirements. Here, we propose a hydrogel-based capacitive sensor with an LC sensing circuit that operates using near-field communication (NFC) at 13.56 MHz. Using this architecture, the sensor can be directly powered from the NFC transceiver of a smartphone, which can minimise the system size and complexity.



**Sippanat Achavananthadith** is currently a PhD student in the Department of Electrical and Computer Engineering at the National University of Singapore, supervised by Asst Prof John S.Y. Ho. His research interest focuses on the development of a wearable battery-less platform for healthcare applications.

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