

**Project Title**

Development of Wearable Circuits for Passive and Non-Invasive Healthcare Monitoring Devices

**Problem Statement**

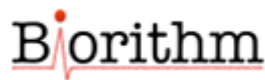
Most of the current foetal heart rate monitoring devices are fabricated with hard materials that often discomfort the users. Furthermore, due to its rigid and bulky nature, it cannot be used for a long period of monitoring, nor can it conform to users of various sizes.

**Objective**

- To examine soft biocompatible materials for the substrate, electrodes, and circuit.
- To develop a 3D printing wearable circuit which can effectively connect the electronic components.
- To fabricate a functional prototype of the proposed wearable device.

**Outcomes/Benefits**

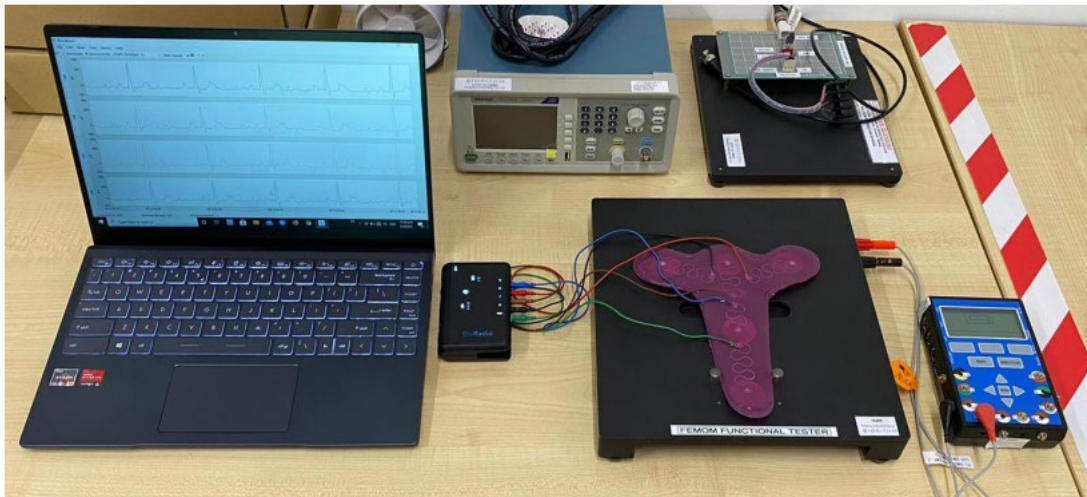
- The team fabricated a 5-point electrode system for the foetal heart rate monitoring device.
- The interconnects are piezo printed with silver ink. The substrate is printed with silicon using the direct ink writing technology.
- Clinical trial showed promising results. The patch fabricated can pick up clean foetal ECG signals.

**Collaborator****Contact Person**

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## Image Gallery



Foetal heart rate functional test using the printed patch with casted electrodes.