

## Acquisition system for brain, heart or muscle activities

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Expected number of students: 3 – 5 students

Category: In-house

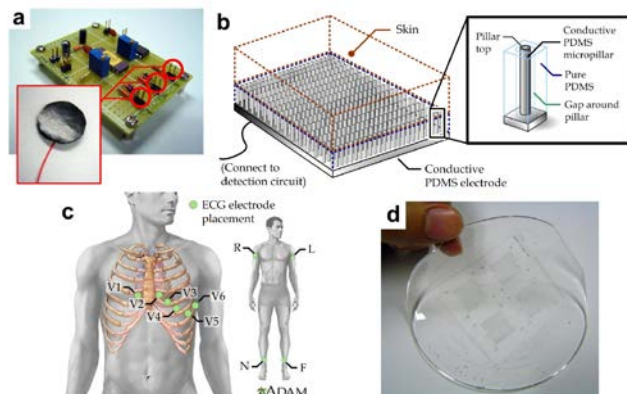
### Project description

This project aims at development of data acquisition systems for biopotentials, *e.g.* electrocardiogram (ECG), electroencephalogram (EEG) and electromyography (EMG). This project involved first learning the technology developed by the supervisor's research group on an ECG jacket (**Fig. 1**), which capture the full 12-lead ECG with medical relevance. This ECG jacket has been reported by local news including 3 TV news, 2 magazine reports, and ~20 newspapers; and highlighted by CityU multiple times. The supervisor wishes to nurture BIE graduates to be more capable to integrate and extend knowledge acquired previously from the courses. At the end of this final year project, students are expected to be able to build a broad range of biomedical systems, especially the biopotential acquisition systems; and such capability will definitely be important for BIE graduates for your future bioengineering career. The exact interested system can be finalized later with the supervisor. There are some examples:

1. ECG acquisition system
2. EEG acquisition system
3. EMG acquisition system

#### Note:

1. This project is not restricted to signal acquisition. Systems such as for muscle stimulation are also welcome.
2. Currently, the supervisor has related projects with biomedical companies and medical doctors. It is also possible to join these projects for new technology establishment and any further developments, *e.g.* technology patent application or preparation of company startup.



**Figure 1.** Core technology components for the ECG jacket.

**Students are welcome to contact the supervisor for details of the project.**