How can we conduct Hands-on training under COVID 19?

- Hands-on skills are essential learning outcomes of engineering courses.
- Students used to gaining their hands-on skills in the real lab with kinds of facilities and lab kits.
- COVID 19 prevents students from labs.
- Online demonstration cannot provide an effective way for hands-on training.

Key Features of Flipped Online Laboratory

- Key feature 1: Use remote control technique and Arduino-based programming for robot developing.
- Key feature 2: Generate micro-modules and implement flipped lab.

Feedback from students

Do not know
Disagree
Agree
The micro-modules provide me useful information before my experiments.

Agree
Do not know
Overall, I like the teaching pedagogy of flipped online laboratory.

Disagree
Do not know
The flipped online lab helps me to understand the basic concepts of robots.

Agree
I still cannot believe that I built a robotic arm by using the online lab.

Thanks to the online lab, I can enjoy the process of controlling a robotic arm online effectively.

I found it is really interesting to control a robotic arm online.

Acknowledgement

This project is supported by TDLEG Special Funding Scheme for Online Learning from the Chinese University of Hong Kong. We appreciate the help and active participation from all students of UGE2303 Robots in Action in term 2, 2019-2020.