

Part B Project Summary

Project Title:

Laboratory with no limits: AnyTime, Anywhere (Real-time Access Remote Laboratory Platform for S4-6 students)
 實驗任我行: 隨時、隨地 求證、求真 (為高中學生而設的實時遙距實驗平台)

Name of Organisation: Department of Applied Physics, The Hong Kong Polytechnic University

1) **Goals:** i) Boost the students' interest in high-level science learning and engineering design practices; ii) Enhance the learning and teaching experience in DSE physics; iii) Encourage inquiry based learning (IBL) among high school students; and iv) Develop a self-sustained and efficient utilization of education resource system among different schools.

Objectives: i) Promote an online education platform for secondary schools. This platform allows real-time access to remote controlled DSE physics experiments; ii) Encourage IBL among secondary school students based on this platform; and iii) Evaluate the effectiveness of this education platform and compare it with other teaching means.

2) **Targets:** i) Secondary S4-S6 students studying Physics or Combined Science (with Physics); ii) Physics teachers in secondary schools; and iii) Education community. **Expected number of direct beneficiaries:** i) 450 students; ii) 420 Physics teachers and iii) local as well as oversea education community.

3) **Implementation plan**

i) Duration: Two years (Sept. 2014 – Aug. 2016)

ii) Process/Schedule

Sept, 2014 to Feb, 2015	Phase I: Implementation of the three prototype remote laboratories (Light Interference, Radioactivity, & Ultrasound) together with five partner secondary schools
March, 2015 to May, 2015	Pilot-run of the three prototype remote laboratories in the partner secondary schools Analysis the feedback of the pilot-run
Jun, 2015 to Nov, 2015	Modification of the three prototype remote laboratories based on the pilot-run results; Organize 1 st workshop for secondary school teachers; Introduction of this platform to more secondary schools. Recruitment of more schools to participate in our trial run. Trial run of the three modified remote laboratories in other secondary schools
Dec, 2015 to May, 2016	Phase II: Develop Two more remote laboratories based on the feedback/suggestion obtained in the workshop and/or partner secondary schools Pilot-run of the newly developed remote laboratories in the participating secondary schools
Jun, 2016 to Aug, 2016	Organize 2 nd workshop for high school teachers Publications to disseminate project results to secondary schools

iii) Collaboration with other parties/partners: Dr. _____ (HKIEd), Dr. _____ and Prof. _____ (CUHK) and five partner secondary schools.

4) **Products/Outcomes:**

i) deliverables/Outcomes: i) A real-time access online experiment platform for secondary students and teachers; ii) two series of teacher development workshops; and iii) a website, a project booklet and/or journal papers.

ii) Dissemination of Deliverables/Outcomes: i) servicing teachers and students participants; ii) by two workshop; iii) a website; and iv) a booklet.

iii) Commercialization potential of Deliverables/Outcomes: On the basis of the developed platform for remote laboratories, the teaching materials prepared for the learning and teaching activities in this project can be scaled up for commercialization.

5) **Budget:**

Staff	\$816,000	Total Amount \$1,934,260
Service	\$112,000	
Equipment	\$936,500	
General Expenses	\$ 69,760	

6) **Evaluation:**

i) Performance indicators: a) user registration and visit logs to the platform; b) questionnaires; c) expert reviews; and d) number of publication.

ii) Outcome measurements: a) feedback from students and teachers; b) interviews; c) feedback from the education community; and d) publication in international journal in education.