

## **A Low Cost and Reconfigurable Experimental Platform for Engineering Lab Education**

**Authors :** S. S. Kenny Lee, C. C. Kong, S. K. Ting

**Abstract :** Teaching engineering lab provides opportunity for students to practice theories learned through physical experiment in the laboratory. However, building laboratories to accommodate increased number of students are expensive, making it impossible for an educational institution to afford the high expenses. In this paper, we develop a low cost and remote platform to aid teaching undergraduate students. The platform is constructed where the real experiment setting up in laboratory can be reconfigure and accessed remotely, the aim is to increase student's desire to learn at which they can interact with the physical experiment using network enabled devices at anywhere in the campus. The platform is constructed with Raspberry Pi as a main control board that provides communication between computer interfaces to the actual experiment preset in the laboratory. The interface allows real-time remote viewing and triggering the physical experiment in the laboratory and also provides instructions and learning guide about the experimental.

**Keywords :** engineering lab, low cost, network, remote platform, reconfigure, real-time

**Conference Title :** ICELD 2016 : International Conference on Education, Learning and Development

**Conference Location :** Penang, Malaysia

**Conference Dates :** December 01-02, 2016