香港城市大學
City University of Hong Kong

BlackBoard-based Online Laboratory System. Part I: Shake Table Experiment

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Abstract:

Laboratory work is one important component in the learning of science and engineering principles. The OBTL framework arouses new teaching and learning solutions that can promote effective teaching and learning. With the increased availability in broadband internet and remote desktop technologies, this proposal puts forward an online laboratory system that leverages on the BlackBoard system at CityU as a convenient platform. The basic idea is to allow students to remotely control laboratory equipment that is connected to the laboratory server through a web-browser. In contrast with flash-based animation, this project proposes performing real experiments with physical equipment in the laboratory. The competitive advantage of this approach is that students can carry out experiments at anytime and anywhere through an internet-ready computer while maintaining the real-life nature of the experiment that always involves errors and uncertainties inherent in the instrumented environment. The idea is innovative and allows efficient assimilation of theory and practice. It can also alleviate the demand in laboratory sessions that are already under high pressure from timetabling to space allocation. In Part I of this project, a series of shake table related experiments is employed as a test-bed for implementing and showcasing the online laboratory system, which shall be incorporated into engineering dynamics related courses, such as BC2625, BC4643 and BC8010.