

## **Virtual Laboratory System for AIL Physics Units of Electricity**

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Practical experiment, an important feature of science education receives little attention in the science curriculum for several reasons. In science subjects, laboratories perform an important role in students learning enhancement, particularly in physics education. Students take more interest in learning by performing and observing the experiments in a physics laboratory which improve and consolidate their learning. Therefore, we want to recognize the need for field and laboratory exercises in school science programs as they help to promote a science, technology and innovation culture in the country. However, due to financial problems and other deficient facilities in laboratories, most of the schools cannot establish a complete physics laboratory. However, the lack of laboratory resources in schools appears to be the main reason in rural areas. Also, lack of focus on practical work, teacher shortages and variable quality of teachers were equally affected to science education at the GCE AIL. But the syllabus of the GCE AIL science subjects is competency- based, student- centered and activity- oriented and aimed to develop personal, interpersonal and higher order thinking skills of the target student group. In this paper, we describe the design and implementation of a Virtual Laboratory, which can be proven as an important educational tool that deals with the lack of practical experience in education. It also fulfills the deficiency of physical equipment which appears in the real physics laboratory environment. The aim of VPL is the simulation of physics experiments with 3D interaction in an easy way and access to educational and research material is facilitated for both students and teachers as well. In order to evaluate the VPL, we invited students of different schools in rural areas. This virtual lab consisting of tools and simulators can be effectively replaced the use of the corresponding necessary equipment and will provide equivalent services to support students. Virtual labs offer some advantages in education and can supplement physical labs.

**Keywords:** Experiment, Virtual Laboratory, 3D Interaction