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## DEVELOPMENT OF VIRCEL: A VIRTUAL COMMUNICATION ENGINEERING LABORATORY

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Abstract:

Access to quality hands-on experience is an essential part of engineering instruction. The laboratory experience is a very vital part of engineering education. Availability of this required access is however not always given. Through laboratory hands-on experiments, students are able to develop practical skills such as real-world problem solving, design, communication, teamwork, independent thinking and creativity, while working in the laboratories. These laboratories with physical presence of students at the experimental rigs are referred to as the hands-on or traditional laboratories in most of the literature. But with the advances in ICT during the last three decades, the simulated and virtual environments have opened up some very innovative techniques in teaching. Such environments have been explored to meet the objectives of laboratory work. This has given rise to the development of laboratories referred to as virtual laboratories. These class of laboratories are essential and come with various advantages, the least

of which is not the ability of learners to study at their own convenience in time and space. This paper presents a step-wise methodology for the development of one of such virtual laboratories for communication engineering on the LabVIEW™ platform.

Keywords:

VLE, Virtual Laboratory, LabVIEW, Flipped classroom, GUI, BSD, DLL.