

**UNIVERSITI TEKNOLOGI MARA
CAWANGAN PULAU PINANG**

**UPGRADING THE VIRTUAL
INSTRUMENTATION OF HIGH
VOLTAGE AC AND IMPULSE TEST
USING LABVIEW**

**MOHAMAD HAFIZUDDIN BIN MOHD
SUHAIMI**

Faculty of Electrical Engineering

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ABSTRACT

Virtual Instrumentation has become an advancement application for the interface monitor and control electrical instrument system. This paper describes the significant of upgrading the Virtual Instrument of high voltage AC and impulse generator by designing the support analysis tool (external data storages) with the use of LabVIEW software. Impulse test unit had been supplied with a support virtual instrumentation, which is used a standard command program instrument C++ programming. Unfortunately, the virtual instrument is not applicable due to the command language used, which is in Japanese. As for the consequences, the users will collect the data manually for analysis process. In order for future usage high voltage lab for research and study the computer support program was upgraded by replacing the existing system with the Virtual instrumentation (VI). LabVIEW software is one of the platform that used in graphical programming that will ease the users. In addition, LabVIEW software provides a supports tool that simplified the method for interfacing instruments. Designs of virtual oscilloscope have been proposed as the analysis tool, which is use a direct USB interconnect and LabVIEW Plug and Play Instrument drivers. The virtual instrumentation designs have been justify by comparing the signal acquire with the actual oscilloscope. Furthermore the virtual instrumentation was simulated in real time for display and acquires signal waveform.

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CHAPTER 1

INTRODUCTION

1.0 RESEARCH BACKGROUND

In this rapid development of technology in computer and information, mechanical and electrical industry has reformed greatly. One of the changes is that instruments were controlled automatically by computers instead of manual operation. Even though the latest instruments provide with automated monitor and control system with highly extent, they cannot meet the practical requirement of the measurement[1]. This is because of fixed function of traditional instrument and poor extensibility of the hardware function. By using the virtual instrumentation programming interface the test task can be completed according to the requirement without additional hardware. Besides, that it gave flexibility to user in designing the virtual instrumentation that suit their needs.

Virtual Instrumentation is defined as the combination between software and measurement hardware in order to create complete virtual measurement system. The stand-alone existing instrumentation hardware's are very expensive and were designed to perform specific task follow by the vendor. Besides, these systems are more limited in their approach and usability than virtual instrument. However, by calling the standard command for programmable instrumentation (SCPI) and combining the traditional instruments with the virtual instrument, the test system capability can be improved. The figure 1.1 shows the example of virtual instrumentation software design.