

**MEASUREMENT AUTOMATION USING DIGITAL OSCILLOSCOPE  
(SOFTWARE DEVELOPMENT)**

Thesis presented in partial fulfilment for the award of the  
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## **ABSTRACT**

As we know research and manufacturing engineers are being pressured to improve productivity while reducing cost. Testing and measurement must be accomplished in the shortest possible time and in the most repeatable manner.

The main purpose of this project is to write a program by using the HP54600A commands in QuickBASIC format to automate measurement in the higher form of synchronization stability without crash or hanging between the computer, General Purpose Interface (GPIB) and Oscilloscope.

The HP-54600A is a precision Digital Oscilloscope designed for general purpose measurement for laboratory and industrial application. In addition to standard measurement functions, it has also a microcomputer that allows an intelligent General Purpose interface Bus (GPIB) between the instrument and an external PC.

The AutoLAB Software Development System is a custom designed software development tool to enable rapid application software development on the HP-54600A using a standard IBM PC or equivalent and the AutoLAB ALG-232 GPIB controller. By using this tool, instruction leaflet and the operation manual supplied with the oscilloscope makes the completion of this project easier.

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## 1.0 INTRODUCTION

In present scenario, the automation of measurement is become increasingly important. Automation allows on line transmission of data, give more accurate and precise results in the shortest possible time and reduces overall costs. Plant and laboratory performance can be increased by the automation. Above all, with automation, a test can be lead to a high quality testing.

In automation, use of the computer becomes more significant. Using the computer system requires a controller to enable the communication between the computer and the end receiver. In this project, general purpose interface bus (GPIB) controller is adopted, allowing easy access to the computer. The controller is then connected to the end receiver, an oscilloscope for the purpose of this project as shown in Figure 1.1.

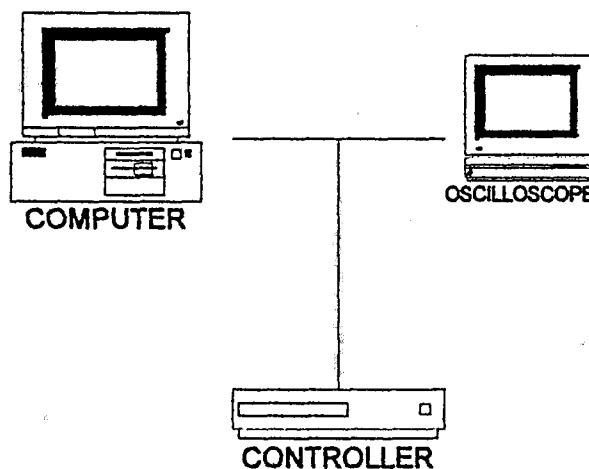


FIGURE 1.1 : A connection between a computer and an oscilloscope via a controller.