A REVIEW ON DEVELOPMENT OF LabVIEW BASED REMOTE MONITORING SYSTEM

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Abstract :- **In recent year's researcher and research scholars are working on different project in workroom or the laboratories. There are many instruments and industry setup need to study for better understanding of the system but which is not feasible to set as a test bed for study purpose only. Every time it is also not possible for taking research scholars for industry visit to gain the in depth working result and experience. Solution to this issue can be solved using the remote administration and the monitoring scheme using network medium of any type like wired or wireless. LabVIEW, SCADA like tools and platform provides a support for remote controlling and the monitoring of equipment.**

Keywords: **LabVIEW; Remote Laboratoty; LabVIEW Client.**

I. INTRODUCTION

In the last few years Laboratories, which are found in all engineering and science programs, are an essential part of the education experience. Not only do laboratories demonstrate course concepts and ideas, but they also bring the course theory alive so students can see how unexpected events and natural phenomena affect real-world measurements and control algorithms. However, equipping a laboratory is a major expense and its maintenance can be difficult. Teaching assistants are required to set up the laboratory, instruct in the laboratory, and grade laboratory reports. These time-consuming and costly tasks result in relatively low laboratory equipment usage, especially considering that laboratories are available only when equipment and teaching assistants are both available.

A remote laboratory is defined as a computer-controlled laboratory that can be accessed and controlled externally over some communication medium. A remote laboratory is an experiment, demonstration, or process running locally on a LabVIEW platform but with the ability to be monitored and controlled over the Internet from within a Web browser.

The remote laboratory server can be an experiment connected to a computer through a standard interface (DAQ, GPIB, serial, parallel, etc) and with the host computer connected to the Internet. The client can be any computer connected to the Internet running a simple browser. Once connected, the client will see the same front panel as the local host and also have the same program functionality.

Apart from the new LabVIEW Remote Panels tool, National Instruments had previously developed tools to provide Internet-based measurement and automation solutions, and our technologies have been used extensively to create innovative remote laboratories very successfully. These laboratories – on the cutting edge of remote laboratories – highlight some of the vast possibilities achievable with the incorporation of National Instruments Internet technologies.

The implementations with FPGA real time environment and their real time motion control with brushless DC motor. and their setup with remote experiment is shown in paper [1]. A remote laboratory may be used for instructional purposes

in a variety of educational laboratory and remote control domains; for example, in control engineering courses. Remote laboratories have been developed for motion control in mechatronics, and control of DC motors. are also developed for remote laboratory and remote experimentation.[8].

II. RELATED WORK

As a development of remote laboratory need to design a system to work as a middle ware between laboratory and PC LabVIEW client system which can be utilized at different application of laboratory.

Paper [1] presents the concepts of user interface and the structure of remote laboratory for the various motion control has been presented. Their are two technologies for remote connection of the web-client and control of the experimental workbench are proven feasible to be realized. LabVIEW web services and remote front panels.

Also In this paper the multi-panel GUI consists of three panels which provide the functionality for setting up ,execution and diagnostics of the control experiments.

Paper [2] shows the hardware components use to construct a universal test bench for motion control. To manipulate many applications for their precise control in industry, the motorized linear stage is used in laboratory test bench. This paper shows the novel comprehensive flexible motion platform for remote experimentations with brushless DC/Permanent Magnet Synchronous motors and drivers, single/multiple axes flexible mechanical system. In this paper the novels software tools for communication diagnostics ,control and data acquisition based on LabVIEW virtual instruments, have been also described.

Paper [3] shows the concepts of remote laboratory system and discusses the advance enhancements of the system. This remote laboratory, exposes a set of physical plants for

recent use, with the only requirement at the client side being a computer and an internet browser. This laboratory environment gives the remote users to control a real world physical plant. The first version of remote laboratory is used to control three electromechanical systems. The system consists of seven servers that means it consists various type of server like log in server, webcam server etc..

Paper [4] shows the concept of hand's on laboratories terms such as e-learning ,distance learning, web based lab etc. The main aim of this paper is that it focus on the remote prototype laboratory for frequency response of a temperature control system is designed successfully. For the teaching and the learning process of the control system. the most point of web based lab is that it has more suitability. for that reason the remote user can access the host from anywhere in the local area network. the result obtained from the experiment do not give the satisfactory results in terms of accuracy. So from bode diagram it can possible to compare the accuracy between remote and the conventional lab.

Paper [5] shows the concept of NetLab for advance interaction with real equipment over the internet. This remote laboratory is not same as that of earlier it shows the advance example in south Australia. also it showcase an better way designed GUI which take at the starting of NetLab development. It is an interactive multiuser learning environment. NetLab has its own server which is connected on unique side to the Internet allowing users to access the remote laboratory .

NetLab GUI is the most actively part of this RL. From the beginning of its development it has been designed with the aim of giving students the feeling of working in a real laboratory .A well designed GUI is an most important contributor to the quality of learning experience in remote laboratories.

III. PROPOSED WORK

Proposed system is aimed at design and development of remote laboratory activities monitoring and controlling system. For the proof of concept proposed system will be having a prototype industry or laboratory setup and web based control unit where user can communicate with the remote laboratory setup and can monitor the activities through capturing devices.

IV. CONCLUSION

The different web based and advance enhancement of remote laboratories are reviewed through this paper .after reviewing the different technique which are used in the industry and automation system for remote laboratories .from referred paper a hand's on experiment has the wide scope in future.

V. REFERENCES

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