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Industrial Automation Using Labview Webservice

Senthil Kumar R[1], Ajay Elavarasan M.V[2,] JeevanJ[3], KamleshKanna G[4], Kalaiyarasan P[5].

[1]assistant professor Electronics and Communication Engineering, SSM Institute of engineering and technology, Dindigul – 624002,[2345]UG Scholar, Department of Electronics and Communication Engineering, SSM Institute of Engineering and Technology, Dindigul – 624002

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ABSTRACT: Our Proposed System to Monitoring and Control System for Multiple Unit of Textiles Mill's Temperature, Humidity, Fan Load, Light Load Etc…By Using the Labview Platform. This project presents the implementation of a remotely accessible and monitoring the industrial load for determining electrical. However, since the previous experiments include complex instrumentation control and monitoring, there are some factors which need to be considered when deciding which solution is more reliable.

I. INTRODUCTION

Remote connectivity between the client PC and the experiment host server can be achieved via various existing technologies. Specialty literature presents educational applications which are using the LabVIEW Remote Panels, Web Services together with custom made thin client interfaces, Web Sockets, Shared Variables or Remote Desktop Services. The LabVIEW Remote Panels and the LabVIEW Web Services are the two technologies that have been considered for remote user interaction.

The LabVIEW Professional Development System allows creating stand-alone executables and the resultant executable can be distributed an unlimited number of times. The run-time engine and its libraries can be provided freely along with the executable. A benefit of the LabVIEW environment is the platform independent nature of the G-code, which is (with the exception of a few platform-specific functions) portable between the different LabVIEW systems for different operating systems (Windows, MacOS and Linux). National Instruments is increasingly focusing on the capability of deploying LabVIEW code onto an increasing number of 6 targets including devices like Phar Lap OS based LabVIEW real-time controllers, Pocket PCs, PDAs, Field Point modules and into FPGAs on special boards. There is a low-cost LabVIEW Student Edition aimed at educational institutions for learning purposes. There is also an active community of LabVIEW users who communicate through several e-mail groups and Internet forums.

One benefit of LabVIEW over other development environments is the extensive support for accessing instrumentation hardware. Drivers and abstraction layers for many different types of instruments and buses are included or are available for inclusion. These presents themselves as graphical nodes. The abstraction layers offer standard software interfaces to communicate with hardware devices. The provided driver interfaces save program development time. The sales pitch of National Instruments is, therefore, that even people with limited coding experience can write 5 programs and deploy test solutions in a reduced time frame when compared to more conventional or competing systems.

II. RELATED WORK

Thomas E. Murphy, "Introduction to the Arduino Microcontroller, " Hands-on Research in Complex Systems, June 17 –29, 2012.

Researches had been carried out to replace the large control panels using different microcontrollers. The project is implemented using Arduino platform which is highly efficient. In the present days interfacing with the LabVIEW and monitoring the process is not available. In the proposed project the same is implemented using LabVIEW. Various authors have discussed about the sensors and the Arduino platform.

Suberin A. Meha, Beenak Hazira, Loreta N. Gashing, "Controlling DC motor speed using PWM from C# Windows application"

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The principle of dataflow, in which functions execute only after receiving the necessary data, governs execution in a straightforward manner. The LabVIEW 2012 provides a simple interface between temperature sensor and Arduino Uno to read output voltage where LabVIEW further plots the measured temperature data obtained in real time in the graphical form.

M. O. Sharma; P. M. Son wane propose android based support system

That is, automatic which adjusts the quantity of current based on sensor data. Monitoring and control of electricity flow and level detector with HTML is being proposed in dissertation work with different control schemes and monitoring methods implemented using the micro-controller 89S52 and Arduino board.

Arduino kit can be interfaced with LabVIEW for a large number of applications. In this article, a project based on temperature sensor using Arduino Uno and LabVIEW is implemented. We have used LM35 temperature sensor whose output voltage varies in linear proportion to the temperature in centigrade. Thus, providing us an advantage over other sensors to measure the temperature conveniently in degree Celsius. The

III. PROPOSED SYSTEM

Remote connectivity between the client PC and the experiment host server can be achieved via various existing technologies.Remote connectivity between the client pc and the experiment host server can be achieved via various existing technologies. Specialty literature presents educational applications which are using the LabVIEW Remote Panels,

Web Services together with custom made thin client interfaces, Web Sockets, Shared Variables or Remote Desktop Service.

The LabVIEW Remote Panels and the LabVIEW Web Services are the two technologies that have been considered for remote user interaction. The Remote Monitoring Technologies, Our Proposed System to Monitoring and Control System for Multiple Unit of Textiles Mill's Temperature, Humidity, Fan Load, Light Load Etc.… Two Remote communication technologies have been used for the LabVIEW Web Services**.** However, since the previous experiments include complex instrumentation control and monitoring, there are some factors which need to be considered when deciding which solution is more reliable.

LabVIEW 2012 provides a simple interface between temperature sensor and Arduino Uno to read output voltage where LabVIEW further plots the measured temperature data obtained in real time in the graphical form.

Design and Prototype Implementation of Long-Range Self-poweredWireless IoT Devices:In this project we present the design and prototype implementation of long range self-powered wireless IoT devices using nRF52840 based on energy harvesting. The test-bed is setup in both star and multi-hop configurations with optimized custom protocols. In both network configurations, nodes consume less power than what is harvested in an indoor light environment using a small0.36W rated monocrystalline solar panel. The average power by which the battery was charged during the test was 941.94µW in an indoor environment. Nodes are able to operate for 12 months using a fully charged 120mAh rated rechargeable coin cell battery with 55s transmission interval. Based on measurements, a line-of-sight range of 1.8km is obtained using coded transmissions. Sensors of temperature, relative humidity and visible light is integrated into the nodes.

Figure 1: proposed system

Remote Panels can take a LabVIEW program and transform it into a remote laboratory with a few simple mouse clicks. There is no longer any need for additional programming to enable your laboratory for the Web, and the control of the LabVIEW remote laboratory exactly the same as it would be on the local server.

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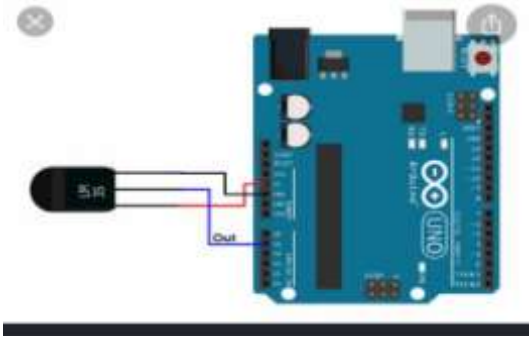
IV. HARDWARE AND SOFTWARE

Figure 2: Arduino board

Arduino UNO is a low-cost, flexible, and easy-to-use programmable open-source microcontroller board that can be integrated into a variety of electronic projects. This board can be interfaced with other Arduino boards, Arduino shields, Raspberry Pi boards and can control relays, LEDs, servos, and motors as an output.



We will connect the **TMP 36** temperature sensor with the Arduino UNO R3 board. The sensor detects the surrounding temperature and converts it into volts, to Celsius to Fahrenheit, and displays Fahrenheit temperature on the LCDscreen.

Figure 3: LABview webhosting

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

V. RESULT & DISCUSSION

It consists of a power cable which provides 230v power supply to a step-down transformer which converts 230v to 12v ac power supply. the rectifier unit consist of a bridge rectifier which converts 12v ac power supply to 5v dc supply which is required by the Arduino board buzzer and fan load the capacitor in the rectifier is to filter the supply the rectifier unit also contains a 12v regulator ic. The switch mode power supply at the center has the input of 230v and output of 5v it provides the necessary supply for sensor units i.e. temperature and humidity sensor ,gas detector sensor ,Arduino controller and relay driver, the light load is connected to relay driver if the Arduino sends input signal to the relay driver it will move to on state, relays are nothing but electronic switches if the relay gets the loads will be moved to on state the gas sensor has three inputs +5v -5v and output voltage ,the output moves to the Arduino controller ,the output of the Arduino is given as the input for the relay drive the gas sensor has analog input and temperature sensor has digital input.

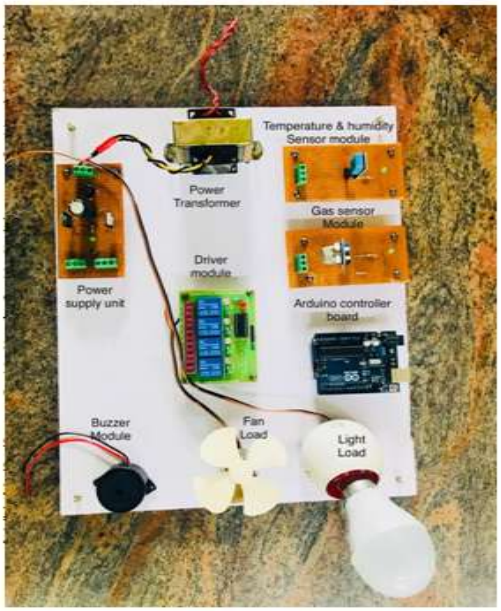


Figure: hardware compl

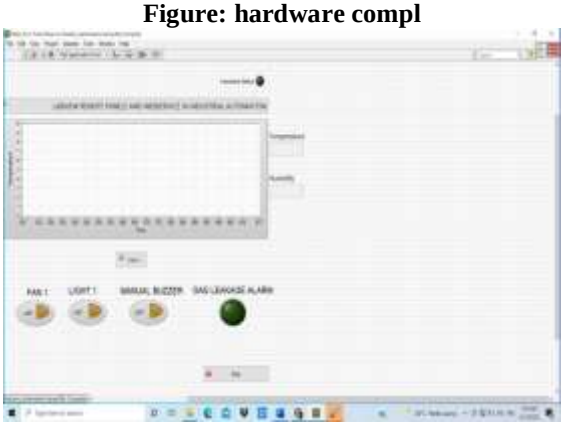


Figure 4: front panel

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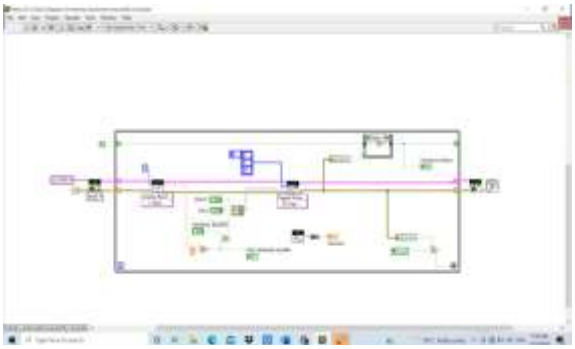

Figure 5: block diagram

VI. CONCLUSION

LabVIEW now has a revolutionary new technology that makes the creation, implementation, and administration of a remote laboratory very simple. Remote Panels can take a LabVIEW program and transform it into a remote laboratory with a few simple mouse clicks. There is no longer any need for additional programming to enable your laboratory for the Web, and the control of the LabVIEW remote laboratory is exactly the same as it would be on the local server.

LabVIEW also contains all the necessary administration and security tools to create a complete LabVIEW-based distance-learning remote laboratory solution. A remote laboratory is defined as a computer-controlled laboratory that can be accessed and controlled externally over some communication medium.

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