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EMBEDDED SYSTEM BASED INDUSTRIAL MACHINE CONTROL PANEL

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ABSTRACT

Today we use to control the industrial equipment's by manual operation. Hence it is to be updated step by step manually. It is overcome by a new mode of communication which is used to control all those equipment's through a single message from anywhere. GSM is the most popular mobile phone system in the world which could be used for this controlling operation from anywhere else. This project is designed to interface temperature sensor to ARM based microcontroller for industrial machine. The temperature data is displayed on LCD. Thermocouple is used to sense the temperature. According to the variation in temperature automatically the load gets turned ON/OFF. Using relays and contactors various equipment's can be controlled. By using GSM/GPRS module data can be logged on web server and using web server machine can also be controlled remotely.

Keywords: ARM, GSM/GPRS, RELAY, THERMOCOUPLE

I. INTRODUCTION

Remote monitoring and control of data usually large in number present in a plant is conventionally done using structured cables running between the field devices and the control room. The control room makes use of custom made programs to perform the necessary man-machine-interface. Now-a-days new devices appear (Mobile phones supporting wireless application protocols) offering the possibility to be instantly and more efficiently informed the instantaneous changes occurring in the critical parameters of the plant. In the present work an integrated prototype wireless remote monitoring and control system is developed to replace manual control and supervision in the plant. The proposed system presents how cellular telephony technologies like the GSM-GPRS(General packet radio service) may be implemented effectively to assist the control and monitoring of a process plant.

The objective of the present work is to equip the plant decision makers with all the possible plant information as quick as possible in pocket-sized devices and also eliminate the need for wires. The work enables the technical and maintenance personnel supervision and control of machinery and process from a single mobile phone. The process work can be implemented in real time process plant. Online data was successfully transferred to the mobile devices of the expert people at regular time intervals. The operational range of the plant is expected to improve significantly with these new emerging data transfer techniques.

The main idea, therefore, is to monitor and control any parameters in the industries by using GSM technology. The proposed system was tested for its effectiveness of remote monitoring and control of temperature, this can

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be customized to suit any other industrial requirement related to monitoring and controlling provided industrial sensors are in use. The developed system accomplishes the objective of good performance, low-cost, secure ubiquitously accessible, auto-configurable, remotely controlled solution for automation of process industries using the GSM - GPRS based system satisfying user needs and requirements.

II. HEADINGS

1. Introduction
2. Headings
3. Figures And Tables

3.1 Block Diagram

3.2 Web Page

3.3 When input is 000

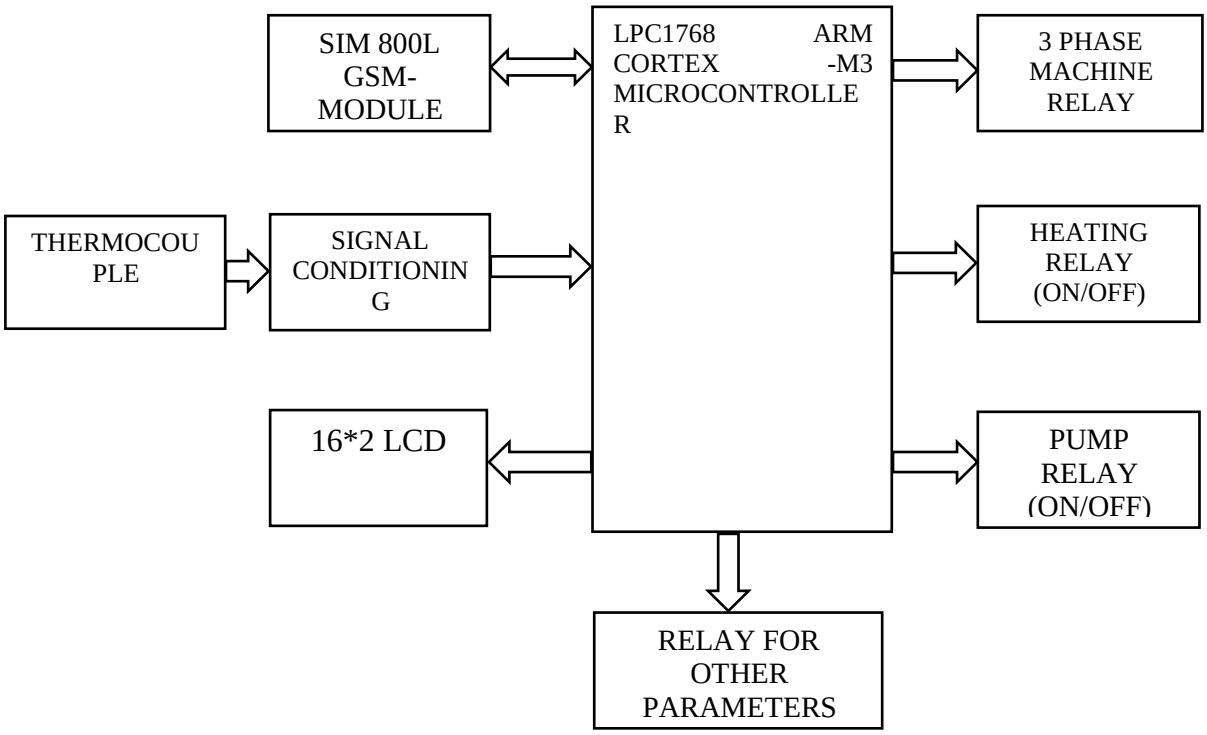
3.4 When input is 101

4. Conclusion

5. Acknowledgement

III. FIGURES AND TABLES

3.1 Block Diagram



Proposed block diagram of the system is shown in the figure consists of LPC 1768, SIM 800L GSM/GPRS Module, Thermocouple and signal conditioning MAX 6675 IC, 16*2 LCD, Relays.First the data web page and thermocouple is collected and then LPC 1768 microcontroller processes the data and turn on and off relays accordingly.

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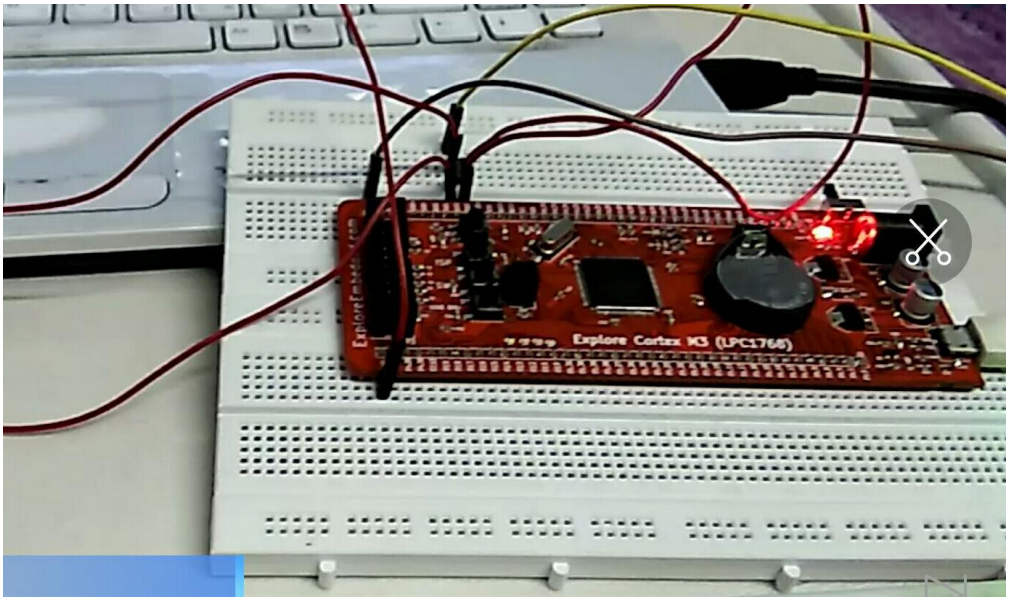
3.2 Web Page

This page allows user to provide its input and the data is stored in SQL server. HTML is used for making web page and PHP language is used for SQL server programing.

3.3 In normal state 000 INPUT



User has provided 000 input from the web page and therefore microcontroller turns off all the LED's.

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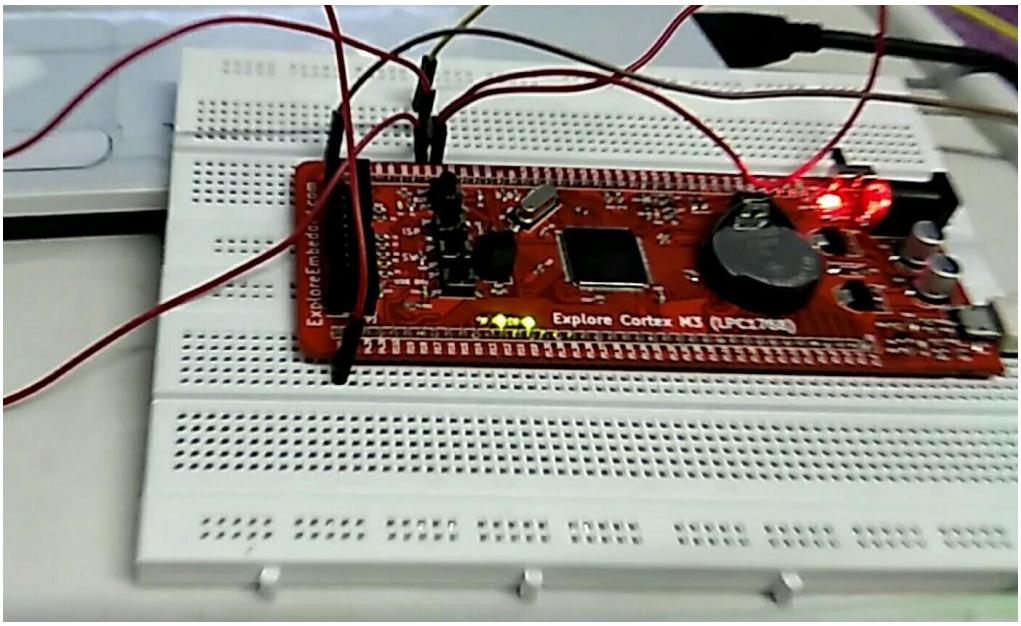
3.4 When input is 101



User has provided 101 input from the web page and therefore microcontroller turns off2nd LED only.

IV. CONCLUTION

This project is designed to interface temperature sensor to ARM based microcontroller for industrial machine. The temperature data is displayed on LCD. Thermocouple is used to sense the temperature. According to the variation in temperature automatically the load gets turned ON/OFF. Using relays and contactors various equipment's can be controlled. By using GSM/GPRS module data can be logged on web server and using web server machine can also be controlled remotely.

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