Designing of Wireless Power Failure Indicator using GSM Modem and Ardunio Uno

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ABSTRACT

This Development of wireless power failure indicator design a product that could detect fault in transmission line system information back to the control center and also show in the LCD display. In the we are using Radio frequency and GSM Based system to detect and alert the person with message. In this paper, a prototype of electric fault indicator via Sms by using GSM is choose. Gsm module are best for transfer the sms because it's good to other and it's not depend on mobile devices,Gsm sim 900a and Arduino for controlling circuit were using here.

Keywords :- Ardunio, GSM module, SMS, LCD

I. INTRODUCTION

Now days detecting the any fault in any transmission line or in any circuit are too much time taking problem, the technology involving devices and parts is growing highly in both industrial and commercial platform, The development of this project typically used for Indicator. The protocol which are using in this current project includes internet based protocol, Module of Gsm light weight and easy to carry also small size digital radio with less power protocol, Selection of protocol depends on toll that which are used for Indicator the fault .In this paper a prototype of electric wireless fault Indicator with using SMS via GSM module was proposed.

The indicating of wireless power failure indicator by using GSM module is the basic idea of a easy way to find fault in any transmission line or circuit Ardunio and Gsm module regarding the indicating of wireless system to the transmission line and any circuit. Programing was the done by using multiple programmable. There are also studied that use network of circuit to indicating fault.
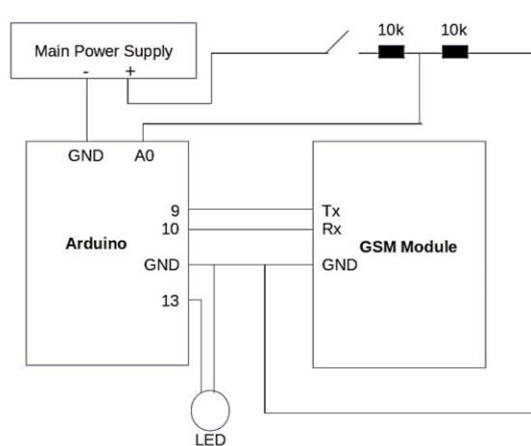

Figure 1 circuit Diagram

II. LITERATURE REVIEW

Implementation of the technology using Global System for Mobile Communication (GSM) modem to control conditional system, and via Short Message Service (SMS) text messages is presented in this paperwhich is the aim of the near future. The analysis

and the proposed research work is focused on functionality of the GSM protocol, which allows the user to control the target system away from residential using the frequency bandwidths. The concept of serial communication and AT-commands has been applied towards development of the smart GSM-based power failure system .factory or commercial owner will be able to receive feedback status of any home appliances under control whether switched on or off remotely from their mobile phones. PIC16F887 microcontroller with the integration of GSM provides the smart automated house system with the desired baud rate of 9600 bps. The proposed prototype of GSM module system was implemented and tested with maximum of four loads and shows the accuracy of ≥98%.

III. METHODS AND MATERIAL

(A) **Arduino Uno:** -ArduinoUno are one of the most used for programing. it has 14 input and 14 output digital pin were 6 pin can be used as PWM output and 6 as Analog inputs, oscillator crystal 16 MHz, One USB port with power jack also have one rest button as shown in Table and figure 1.

Table 1. Arduino Uno Characteristics

Microcontroller	ATMega 328
Operating Voltage	5V
Input Voltage	7-12 V(recommended)
Input Voltage	6-20 (limit)
I/O	14 pin digital 6 PWM pin and 6 pin for analog input only
Current	50 mA
Flash Memory	32KB
EEPROM	1 KB
Speed	16Hz

(B) **SIM 900A GPRS/ GSM Module: -**GPRS module is breakout board and minimum system of SIM900A is Dual-band GSM/GPRS module. It can communicate with command via digital command via Arduino Uno. This type module support software power on and re boot. In India dual band exists. The module conations a SIM card holder, RS232- connected serial port for the SIM and LED for status of power and signal all featured are based on industry – standard inference. That's why we are using this type 900a module and it reduces the project coast. As Table and figure shown in 2.
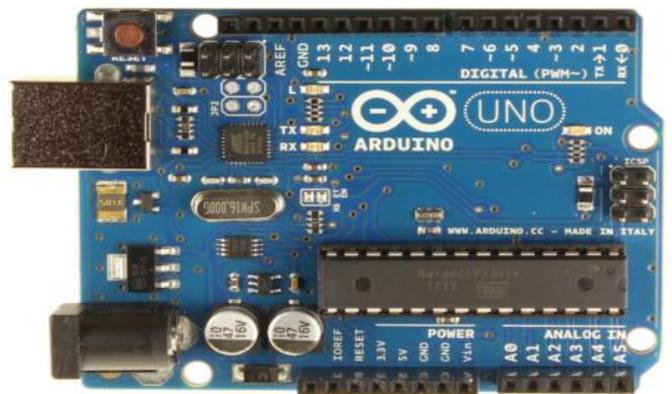

Figure 1. Arduino Uno

Figure 2. SIM 900a GPRS/GSM Module.

TABLE 2. GPRS/GSM Characteristics and Specifications.

PCB size	71.4mm*66.0mm*1.6mm			
Indicators	PWR ,status LED, net LED			
Power supply	5V			
Communication protocol	UART			
RoHs	YES			
	Min	Typical	Max.	Unit
Power voltage (v supply)	4.5	-	5.5	VDC
Input voltage VH	0.7VCC	-	5.5	V
Input voltage VL	-0.3	0	0.3VCC	V
Current consumption (Pulse)	-	-	2000	mA
Current consumption (continuous)	-	-	500	mA
Baud rate	-	115200	-	bps

(C) **16*2 LCD: -** LCD **is** an electronic display which work on liquid crystal to display the visible image. The 16*2 LCD display is normal module commonly used in any circuit. Display 16 characters per line in 2 Rows line. This type LCD displayed in 5*7 pixel matrix. Pixel box can work on both 8-bit and 4- bit mode. All character LCD'S perform the same function. The Liquid crystal library allow you to control LCD display that are. Output of the display on a 16*2 LCD. LCD D7 pin to digital pin 2. Which are shown in figure 3.

Figure 3. LCD 16*2 DISPLAY

(D) **PROTOTYPE DESIGN: - Actual** design of the circuit or prototype consists of two type stage

1. **Designing.**

2. **Programing**

The design of model and programing of wireless based circuit diagram can be seen in fig no.04. GSM Module be connected with the Arduino Uno way of pin Rx/Tx Of AT -mega 328 that used for received and send text message to programed number .Schematic SMS wireless circuit is shown in figure. 5.
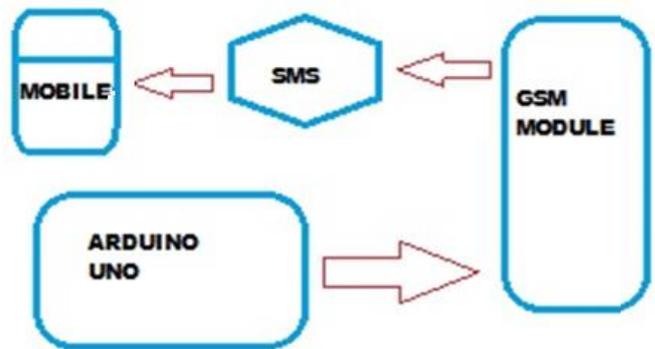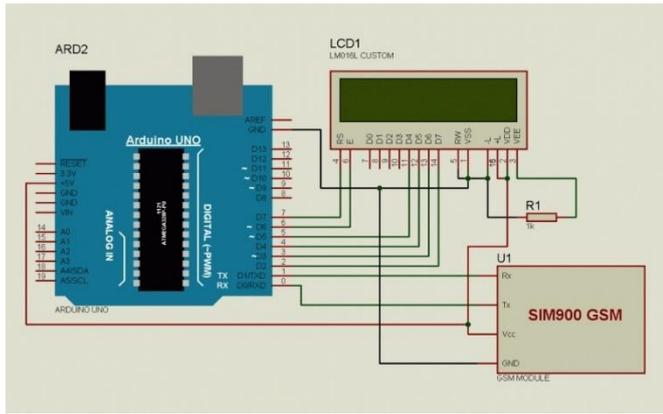

Figure 4. Block diagram of system

Figure 5. Design of the Wireless power failure SMS Prototype.

IV. RESULTS AND DISCUSSION

Thedesign and system of Arduino Uno as a controller device, SIM 900a GSM module work as SMS Gateway to output which are programed as output function. Actual working of Arduino received analog input and send the digital out of GSM module 900a for send the SMS text on register mobile number. If the power is ON text send to the register number and when power is off SMS received the resister number.Testing was done by sending a SMS to both function when power fault is occurred and as well as when power is back.

V. CONCLUSION

By using ArduinoUno and GSM Module work as it can be seen that the designed worked as expect. Arduino module controlled by SMS can be programmed. Model can also sending the message from the command given previously.

VI.ANCKNOLGEMENT

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