PROFESSIONAL INSTITUTION AUTOMATION AND SECURITY SYSTEM USING ARDUINO

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Abstract: Professional Institution are running through number of laboratories, class rooms , offices, residential areas, street and open spaces, transformers, cooling towers, etc. . Sometimes due to inadequate security systems and lack of skill persons ,more number of manpower is required to control the distribution of electrical systems, closing and opening the doors and windows, cleaning of each in time ,doing preventive maintenance at regular intervals etc. , which causes maximum power loss, accidents due to short circuits and other related issues. This paper put forwards the design of automation for Professional colleges and security system for electrical equipments using Arduino. The hardware interface and the software communication with the Arduino microcontroller functioning as a micro web server and the interface for all the hardware modules. All communication and controls in this system pass through the microcontroller to the electronic device used to achieve the switching on and off action. The mobile or intra net connection has been found to be control the total system effectively for regulating the total electrical system, system affected through sudden fire, unwanted sound etc. of the organization through Arduino.

Keywords: Arduino, Microcontroller, technical hazards

I.INTRODUCTION

The professional institutions have various parameters to run the institute effectively .The class rooms, laboratories, offices, common room, R and D section, other areas needs variety of electrical fittings, materials, chemicals, laboratories with heavy equipments , computers with sophisticated soft and hardwires. All the above areas requires time to time maintenance and care to prevent accidents due to electrical failure, chemical reactions, manual hazards, technical hazards etc. Time and again the role and action of Arduino has been implemented with proper design

II. MODULES USED IN SYSTEM

Arduino UNO development board : Arduino/Genuino Uno is a microcontroller board based on the ATmega328P (datasheet). It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz quartz crystal, a USB connection, a power jack, an ICSP header and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started. The Uno board and version 1.0 of Arduino Software (IDE) were the reference versions of Arduino, now evolved to newer releases. The Uno board is the first in a series of USB Arduino boards, and the reference model for the Arduino platform; for an extensive list of current, past or outdated boards see the Arduino index of boards.

GSM Module : GSM MODEM is a class of wireless MODEM devices that are designed for communication of a computer with the GSM and GPRS network. It requires a SIM (Subscriber Identity Module) card just like mobile phones to activate communication with the network. Also they have IMEI (International Mobile Equipment Identity) number similar to mobile phones for their identification. A GSM/GPRS MODEM can perform the following operations:

1. Receive, send or delete SMS messages in a SIM.
2. Read, add, search phonebook entries of the SIM.
3. Make, Receive, or reject a voice call.

Fig.1 : Arduino UNO Board   Fig 2. GSM board of SIM 800

III .PROPOSED MODEL BOLCK DIAGRAM:

Interfacing with Arduino :
1. Different types of rooms are considered like classroom, labs, research & development cell, store, administrative offices etc.
2. In each type of rooms different type of fault may arise like electrical fault, gas or fire fault or unwanted noise fault.
3. All these faults are sensed through different sensors and a message signal is sent to the ARDUNIO board.
4. The Arduino board will pair itself with the phone via Bluetooth, cloud or intranet.
5. Again through proper pairing with other systems like computer, GSM phone a message will be received that a fault has occurred in a particular room.
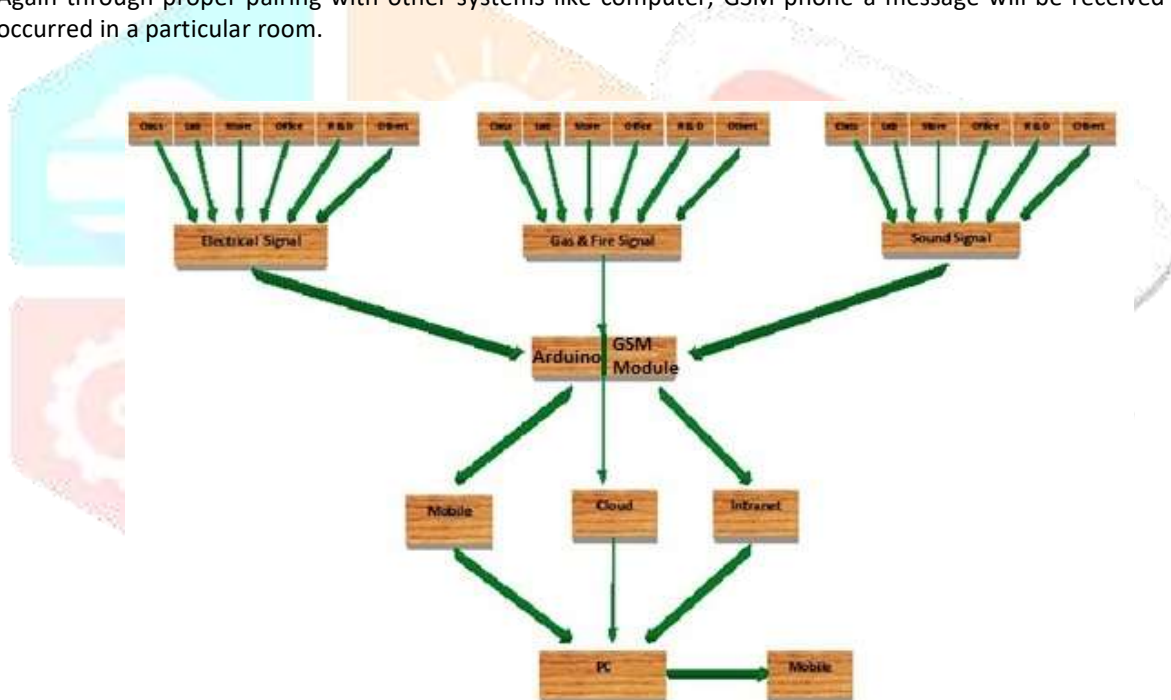

Fig 1: Block Diagram Of Proposed Model

IV.CONCLUSION

Development of "Smart Community" are actively being promoted in the country. "Smart Community" is a new form of social system that comprehensively manages the supply and demand of energy in the distributed energy systems, optimizes the use and application of energy, and incorporates lifestyle support services including monitoring service for different section of people, through the energy management system utilizing IT and storage energy technologies. The Arduino is the new hardware integrated with software will solve not only the institutional problems but also other related problems of the society . This paper will be the pathfinder for further activities related to the field. The advantage of such system is that the type of fault can be known in quick span of time and immediate and proper action can be taken to rectify the fault and prevent huge hazard. Automation is today's fact, where things are being controlled automatically, usually the basic tasks of turning ON/OFF certain devices and beyond, either remotely or in close proximity . Automation lowers the human judgment to the lowest degree possible but does not completely eliminate it. The concept of remote management of professional institute over the internet from anywhere, any time in the world today can be a reality.

V. ACKNOWLEDGEMENT

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