GSM BASED MONITORING SYSTEM OF UPS BATTERY FOR HIGH POWER BACKUP APPLICATIONS

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ABSTRACT: *GSM Based Monitoring System of ups battery for high power backup applications deals with the concept that nowadays in most of Industries or Companies or factories or any in our domestic use or any other area where there is use of electronic system that runs of battery based supply deals with a common problem at the time of power failure , to avoid there power failures in Industries as well as domestic there are many devices which provide us backup known as Uninterruptible Power Supply(UPS).The purpose of the project is it provides detailed UPS Running and Battery Voltage Information from Long Distance and Wide Area.*

1. INTRODUCTION

In Most Parts we all know that power crisis has been a major problem in remote areas. Due to power failure, the process efficiency decreases and so this drops the productivity of an organization. In order to avoid this in Industries as well as Domestic use we have many devices which provide backup power depending on their backup time and we call these as UPS (Uninterruptible Power Supply). However, it is difficult to continuously monitor the remote areas UPS manually, If any of UPS installed fails, it would lead to loss of productivity and also the engineer may not be present every time in control room when this occurs. To Tackle this we are using machine to machine communication and in such cases the user can be alerted in case any ups fails through SMS. UPS are generally used in IT environments. Our system deals both the problem of power failure and thus at such times to overcome that problem how to overcome it. The user doesn't know how much time will UPS take to turn off and so this system will give an alert by sending SMS through GSM.

2. LITERATURE REVIEW

To obtain more deep knowledge of the topic and the different possible ways to implement the system, we have gone through various IEEE papers. These has mainly helped us in understanding basics of topic and the approach by which data are distributed to different agent. The articles helped us with getting an overview of various techniques that can be used for the system.

1. UPS PARAMETER MONITORING AND CONTROLLING USING IOT AND GSM- 2016

This paper mainly focuses on presenting a economical and elementary approach to design an Intelligent UPS Monitoring and Controlling System which adopts the concept of mobile to machine and machine to mobile communication and is one of the most effective way of wireless communication. GSM is one of the most effective wireless part which can be achieved very easily.

2. FAULT DETECTION FOR UPS SYSTEM USING GSM -DEC 2013

Nowadays UPS are very essential for Industries, a UPS is typically used to protect computers, data centres, telecommunication equipment or other electrical equipment where an unexpected power failure can cause injuries, fatalities and data loss.

3. PROPOSED SYSTEM

3.1 SCOPE

To Design an Electronic System involving GSM Technology to monitor UPS batteries through sending SMS to mobile phone in case failure or when battery charge falls to an unexpected level.

FEATURES: 1. Remote Monitoring and Controlling of battery system.

2. Low power consumption for control systems.

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3. Reliable for Industrial and Domestic Needs.

4. Automatic alerts to user.

3.2 PROBLEM STATEMENT

Designing an electronic System involving GSM technology to monitor UPS batteries through sending SMS to mobile phone in case of power failure or when battery falls an unexpected level. This system should not harm user in any case in domestic as well as Industry use. In Domestic it should not cause fire in any case due to circuit failure, external hackers should not be able to overwrite the system and in industrial it should be able ton handle power failure, temperature variation, long hours of use and so keeping these all factors in mind we have to create this system.

3.3 METHODOLOGY

The hardware requirements for creating our electronic system are:

1. Arduino Uno

Arduino UNO is just a microcontroller or is an open source electronics platform for easy use of hardware and software. It has several pins. The board consists of sets of digital and analog input/output (I/O) pins that may be interfaced to various expansion boards (shields) and other circuits. The board consists of 14 digital I/O pins (six capable of PWM output), 6 analog I/O pins, and is programmable with the Arduino IDE (Integrated Development Environment), with help of type B USB cable.

2. GSM SIM 800L

The Global System for Mobile Communication (GSM) is used to describe the protocols for 2G,3G,4G digital cellular networks used by mobile devices such as mobile phones and tablets. The following operations can be undertaken:

1. Reading, Writing and Deleting SMS
2. Sending SMS Messages
3. Monitoring Signal strength
4. Monitoring the charging level and charging status of the Battery
5. Reading, Writing and Searching phone book Entries.

3. VOLTAGE SENSOR
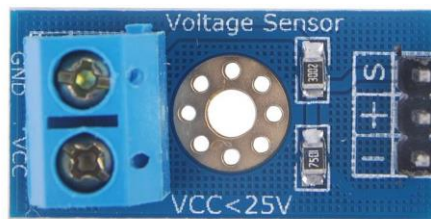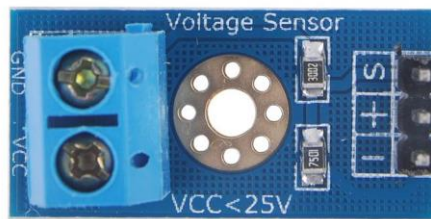
This device is used to continuously monitor the voltage. The Arduino analog input is limited to a 5VDC input. It is fundamentally a 5:1 voltage divider using a 30K and a 7.5K Ohm resistor. Keeping in mind you are restricted to voltages that are less than 25Volts. Inputs are GND and VCC. Outputs are S,+,-.
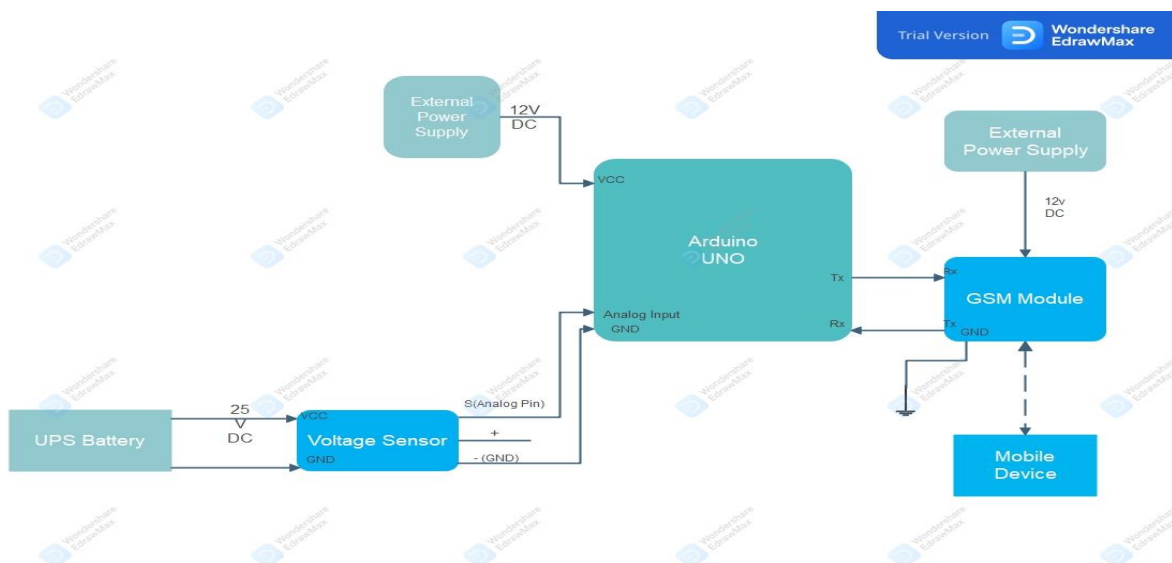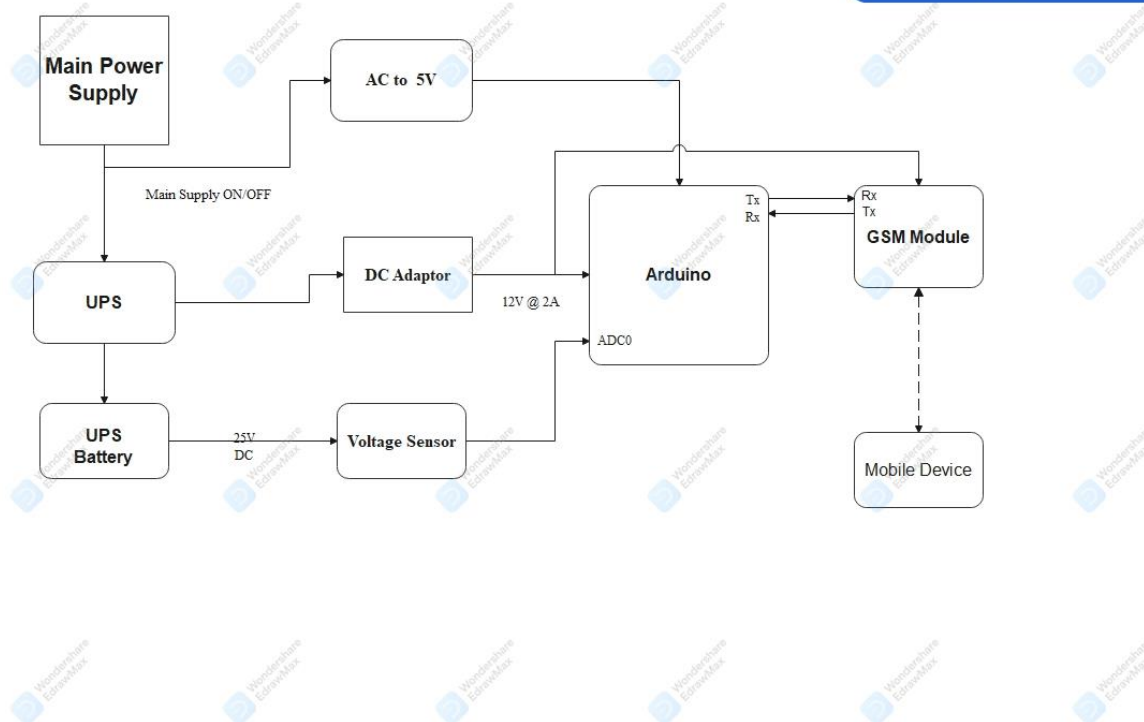

Fig. Hardware Block Diagram

Fig. Software Block Diagram

4. **CONCLUSION**

We conclude that we have created an electronic system involving GSM that would continuously monitor UPS Battery and when power failure occurs or when our battery falls to an unexpected level user would get alerted through SMS.

5. **REFERENCES**

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