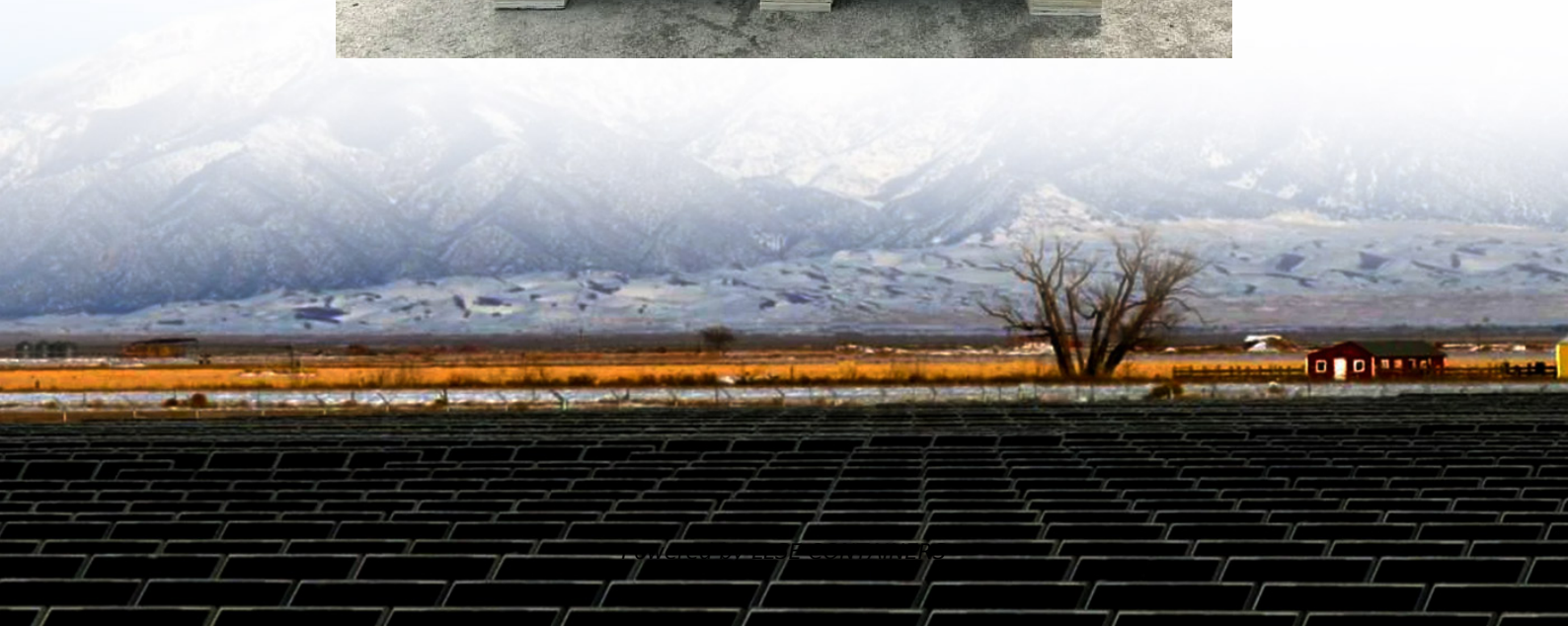


# **Monitoring the modified uninterruptible power supply**





## Overview

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Power saving is the need of the day and in India it is a major issue to be looked into. To get uninterrupted supply nowadays power backups such as inverters and UPS are used commonly. If it is a traditional UPS it is difficult to know remaining power. Power saving is the need of the day and in India it is a major issue to be looked into. To get uninterrupted supply nowadays power backups such as inverters and UPS are used commonly. If it is a traditional UPS it is difficult to know remaining power and time till it can supply energy in terms of power. In order to overcome this issue, a design is proposed in the following paper. Working model of microcontroller based intelligent Uninterrupted Power Supply (UPS) system for power management in laboratory is worked upon. The appliances of lab viz. computers, fans, lights are automatically controlled during power failure according to their priority to ensure optimal utilization of UPS power. This work mainly concentrates on two key points. Firstly, calculating possible time of battery run-away and displaying it on user screen.

Power failure  
Power Management  
Real Time Embedded Systems  
Uninterrupted Power Supply (UPS)  
Battery Management  
UPS Management  
Battery Utilization  
Power Saver.

A country like India face major problem of power generation, supply, distribution which loom the growth. In 2010, blackouts and power shedding interrupted irrigation and manufacturing across the country. Who did have access to electricity; the supply was intermittent and unreliable [1]. According to 2013 report, though India's power sector is world's fifth largest, the conditions in rural areas have not been changed. Using Uninterrupted Power Supply (UPS) systems to get continues power is a traditional way. But UPS systems have their own limitations like variable cost that depends on the required load capacity, size and slow charging time [4]. One should go for effective utilization of available charge in UPS when power fails. Most of the UPS systems indicate beep during power failur.

American Power Conversion (APC) embedded a software in Microsoft's windows OS, which monitors UPS manufactured by APC. But it is OS dependent and monitors only one PC and a cable need to be connected between UPS and UPS for communication. APC also developed firmware (PowerChute) which works on windows platform to monitor UPS. Sophisticated UPS and inverters display backup time using a LCD, but user has to be in the proximity of UPS/Inverter to observe it. An attempt to predict and display of



backup time is made in [2]. The system is implemented by considering battery discharge rate, voltage across the battery and battery manufacturer data. However, estimation of discharge characteristics is not same for different m.

- 1To design hardware circuitry which detects and display exact the battery backup time of UPS.
- 2To design embedded system which automatically turns off fans, lights, and finally computers in computer lab according to UPS back up and their respective priorities.
- 3To design software, which is automatically turns off computers in hibernation mode.

The working functions are as follows:

What is a microcontroller based intelligent uninterruptible power supply (UPS) system?

Working model of microcontroller based intelligent Uninterrupted Power Supply (UPS) system for power management in laboratory is worked upon. The appliances of lab viz. computers, fans, lights are automatically controlled during power failure according to their priority to ensure optimal utilization of UPS power.

Can a STM32 microcontroller monitor ups power status?

Abstract: This paper presents the design of a UPS (Uninterruptible Power Supply) power monitoring system based on the STM32 microcontroller, aimed at achieving real-time monitoring of UPS power status and precise analysis of performance parameters.

How to get uninterrupted power supply?

To get uninterrupted supply nowadays power backups such as inverters and UPS are used commonly. If it is a traditional UPS it is difficult to know remaining power and time till it can supply energy in terms of power. In order to overcome this issue, a design is proposed in the following paper.

How to use ups when power fails?

One should go for effective utilization of available charge in UPS when power fails. Most of the UPS systems indicate beep during power failure and interval between two beeps indicates the remaining time, the battery can supply power. User should be aware of the run-away time and according to priority he/she has to operate the appliances.



## Monitoring the modified uninterruptible power supply

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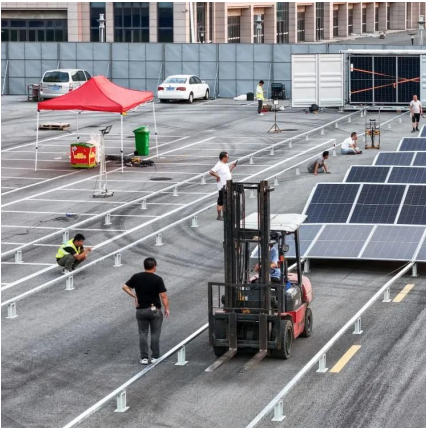
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