

# ELECTRONIC BASED ONLINE UPS SYSTEM

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**Abstract** – In industrial method today, reliability of system is very crucial. Electricity deliver need to be able to cater the need of industrial system. In case of power failure, backup power deliver machine have to be capable of guide the main technique plant. This is to make sure smooth operation and product best. In order to do that, uninterruptible power supply (ups) device may be used to ensure the reliability, balance and consistency of the entire device. Device should be monitored in order to allow them to react hence in reaction to a fault or strength failure. In this venture, monitoring machine for ups became designed via the usage of visual simple (vb) to offer a safe and consistent 12v dc deliver in the case of power disruption. The main power deliver, 240v ac was converted to 12v dc as output voltage and a battery will be used as part of the backup system. This gadget can be able to manage the source of power which gives energy from live line or electricity from battery line. The principle output voltage become 230v ac and the battery stage can be monitored microcontroller card.

**Index Terms**— Distribution Transformer, Arduino controller, GSM

## I. INTRODUCTION

An uninterruptible power supply (ups), uninterruptible electricity source or every so often called a battery backup is a tool which maintains a continuous supply of electric power to attach system with the aid of imparting strength from a separate supply whilst software strength isn't always to be had. a americais inserted between the supply of power generally industrial software energy and the load that is included. while a electricity failure or abnormality happens, the USA will correctly switch from utility power to its own power supply nearly instantly. whilst no longer limiting to any unique sort of system, a united states of americais normally used to defend computers, telecommunication system or other electrical device where an unexpected energy disruption ought to reason accidents, fatalities, serious business disruption or statistics loss. united statesdevices come in sizes starting from devices with a view to again up a single computer with out reveal (around 200 va) to devices if you want to energy complete information facilities or homes (numerous megawatts). Larger usaunits usually work at the side of mills. conventional u. s. topologies can especially be classified into 3 different sorts

## II. BASIC DIGRAM AND BASIC CONCEPT

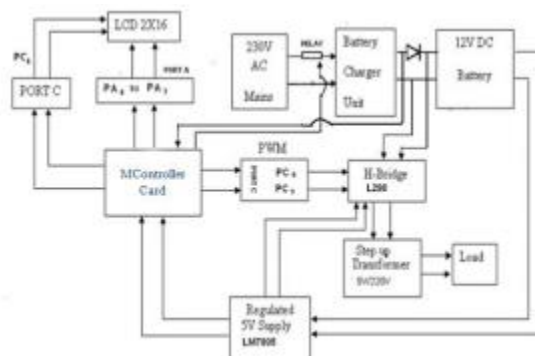


Fig. 1. Block diagram of the proposed online UPS system

Block diagram of the proposed on-line u. S. Device with over voltage, below voltage and phase out protection the usage of microcontroller card. The block diagram mainly includes following crucial blocks microcontroller card. It acts because the coronary heart of the machine. It controls and video display units complete machine. The principle function of this microcontroller is to generate spwm indicators. These indicators are given to h-bridge switches to convert dc voltage to ac voltage. Microcontroller also takes care of the safety. It protects the burden from over voltage, beneath voltage and section out situations by way of sending a tripping signal to relay. After relay isolates the burden from deliver the load is now supplied from battery unit. Because of the fluctuations of energy sources, which impose stringent requirements for inverter topologies and controls. The feature of an inverter is to trade direct current (dc) enter voltage to a symmetric alternating contemporary (ac) output voltage of preferred significance and frequency. When the main energy is not available ups uses batteries and inverter to supply ac energy. A rectifier is used to recharge the battery used while the principle electricity is lower back. Transformer is used to step up the voltage across the hbridge to 220v. In the present paintings design of on-line ups machine with over voltage, below voltage and section out safety is taken up.

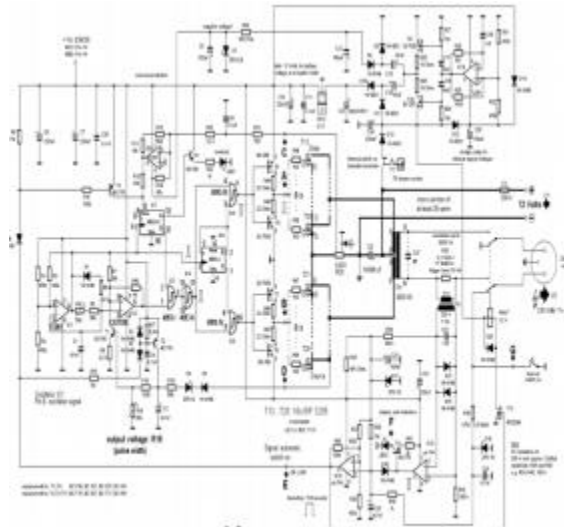
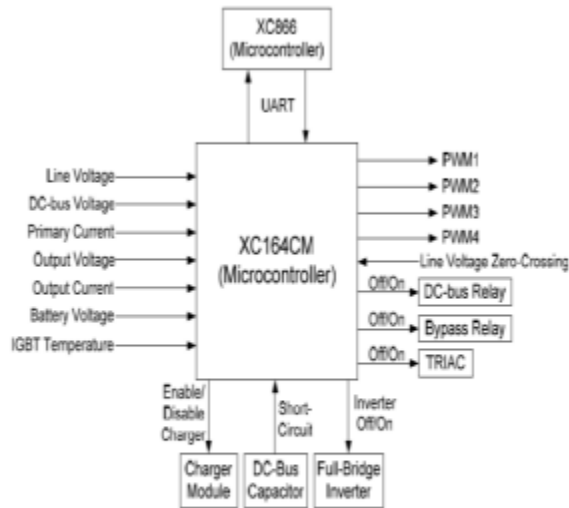
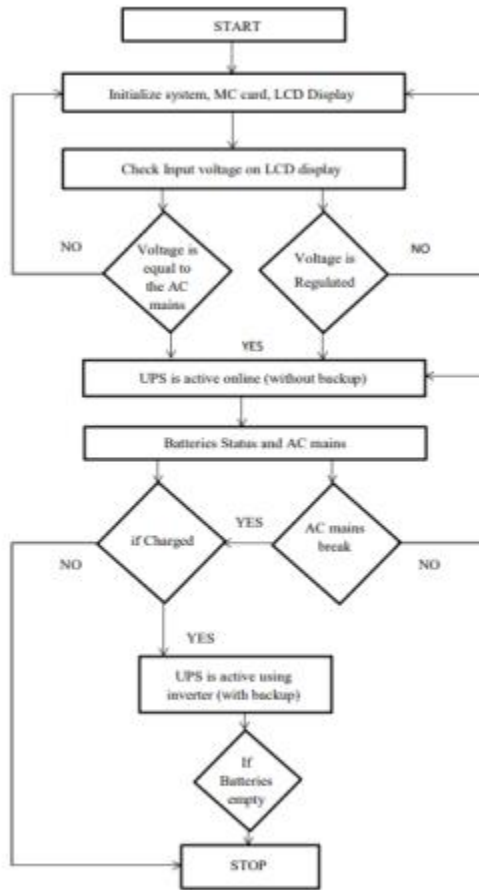


Fig.2 Circuit Diagram



**Fig.3. Micro-Controller Card (Xc164)**



**Fig.4.Flowchart**

### III. RESULTS

The online u.p S. Of the device consists of 4 foremost additives which might be electricity deliver circuit, microcontroller circuit, comments circuit, battery charger circuit and converters circuit as proven in the components were built one at a time so that the circuit is straightforward to troubleshoot. The strength deliver circuit is connected to major source 240v ac to produce 12v dc voltage. Then, the online u. S. Is linked to the pc to lcd show the general machine

Table No.1 Parameters & Observation value

Sr.No	Section Parameter	Observation value
1	AC Mains	230V 50Hz
2	Controller card working properly or not	Voltage across Pin 1 and Pin 19 = 5VDC
3	Voltage across IGBT 1	Pulse 1. 9V DC Pulse 2. 3.5V DC
4	Voltage across IGBT 2	Pulse 1. 9V DC Pulse 2. 3.5V DC
5	Voltage across DC link	85 V DC
6	Required Voltage for charging batteries (6)	12 V DC*6 = 72 V DC
7	AC Transformer voltage	230 V AC (AC mains ON)
8	DC Choke	Pure DC voltage
9	DC Shunt	85 VDC 7A
10	Voltage across Inverter (On battery Backup)	230V AC 50Hz



**Fig.5 UPS is ON (On AC Mains)**



**Fig.6. UPS is ON (On Battery Backup)**

#### **IV. CONCLUSION:**

The proposed machine overcoming the trouble of energy reduce in hospitals, icu's and excessive give up workstations, to get rid of energy disruption may want to purpose accidents fatalities, critical enterprise disruption or records loss. Additionally the united states of America device avoids beneath voltage, over voltage and section out safety to make certain safety of high performance gadgets.

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