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DESIGN AND IMPLEMENTATION OF 600VA UPS based 0n 89C51

ABSTRACT

UPS control using micro controller is highly reliable less complex and economical when compared the conventional UPS system. This paper explains about the design and implementation of UPS using micro controller. The micro controller is mainly used for control applications. So, micro controller is used for this proposed work. The main function of the UPS (uninterrupted power supply) is to provide an uninterrupted power supply and it should function automatically when the mains supply cutoff. This automatic function in the conventional UPS is done by control system. It involves certain complex work. So, in this proposed work, micro controller does the automation of the UPS. Some of the automatic functions to be done by the micro controller are overload protection, no load release, deep discharge cutoff and inverter operation.

There are different types of micro controller families. In this proposed work, the micro controller-89S52 because of its high on chip ROM capacity, RAM capacity, serial ports, input ports, etc. The micro controller 89S52 is superior in its memory capacity. This micro controller is best suited for fast development. Since flash memory can be erased in few seconds compared to the twenty minutes or more needed for the 8751. By this, 89S51 is used to eliminate the waiting time needed to erase the chip and thereby speedup the development time. It is a 40 pin micro controller in which 3 pins are used for serial interfacing, i.e., one acts as receiver another acts a transmitter and the third as ground. By this we can interface any components serially, it has 4 ports, port 0, port 1,port 2 and port 3 and it is used for various functions of UPS such as on

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load release, deep discharge cutoff and so on. This micro controller can be operated at high frequencies and it consumes low power. Thus it is ideal for many projects.

There are different types of UPS. They are OFF line UPS and ON line UPS. This paper focuses on the design of Offline UPS. Because it is mostly prepared than ON line UPS. For example, it finds its application in the household appliances, a personal computer, and so on.

The transistors used in UPS design are replaced, as MOSFET'S because of its certain special features as positive temperature coefficient so that it has high current carrying capability. It has low switching losses and the MOSFET turn on and turn off can be obtained rapidly. Also it is easily available and has switching performance.

The conventional UPS system involves complex control system. In order to reduce the complexity of the control system of conventional UPS embedded controller are currently being used. This project describes the design and implementation of 1KVA.

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