**NEXT GENERATION ALTERNATIVE ENERGY STORAGE**

**APPLICATION WITH SUPER CAPACITORS/ULTRA CAPACITORS**

**ABSTRACT**

As communities and industries continue to expand, delivering power becomes more challenging– electricity grids reach capacity during peak periods, while providing electricity off the grid becomes more expensive. In India the use of electronic loads is increasing very fast and the gap between demand and the supply have made the reliability and power quality a critical issue.

By utilizing advanced Super capacitors (also known as ultra capacitors) are DC energy

sources and must be interfaced to the electric grid with a static power conditioner, providing 60-

Hz output. A super capacitor provides power during short duration interruptions and voltage sags. By combining a super capacitor with a battery-based uninterruptible power supply system,

the life of the batteries can be extended. The batteries provide power only during the longer

interruptions, reducing the cycling duty on the battery. Small super capacitors are commercially

available to extend battery life in electronic equipment, but large super capacitors are still in

development, but may soon become a viable component of the energy storage field. The most

significant advantage super capacitors have over batteries is their ability to be charged and

discharged continuously without degrading like batteries do.

Super capacitors merged with batteries (hybrid battery) will become the new super

battery. Just about everything that is now powered by batteries will be improved by this much

better energy supply. They can be made in most any size, from postage stamp to hybrid car

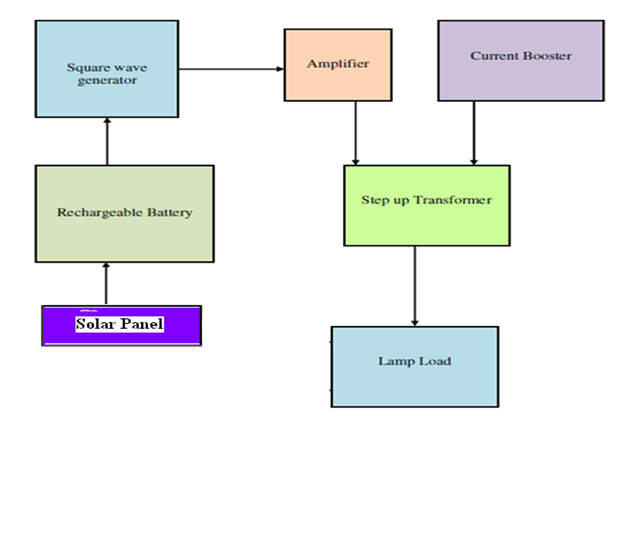
battery pack. Their light weight and low cost make them attractive for most portable electronics

and phones, as well as aircraft and automobiles. The new ones are flexible and biodegradable and can be powered by body fluids. (Since body fluids can act as an electrolyte, the battery can be used for medical devices and could be installed into a patient fully charged but dry and feed off bodily fluids to allow it to re-power and discharge energy.

This project uses regulated 5V, 500mA power supply. 7805 three terminal voltage regulator is used for voltage regulation. Bridge type full wave rectifier is used to rectify the ac

output of secondary of 230/12V step down transformer.

**BLOCK DIAGRAM**

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