

# Acknowledgements and abstract

[Engineering](#)



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#### ABSTRACT

The cost of non-renewable energy is increasingly rapidly over time. In addition to increasing costs, non-renewable energy sources are also damaging to the environment and risk depleting precious resources. It appears that batteries may be a good alternative providing that their source is renewable. In addition, batteries can be used as a power source in areas where traditional power sources are not accessible. In many isolated areas of the countryside, lead-acid batteries have become a popular and dependable source of energy for many people due to the lack of efficient power grids used in urban areas. Lead-acid batteries are often used as secondary power sources, although some people, particularly in rural areas, use them as the main source of power. Due to this need for more accessible, dependable power sources in rural areas, I am developing an affordable, multipurpose lead-acid battery charger. This battery charger is being designed with the <https://assignbuster.com/acknowledgements-abstract/>

specific needs of people in isolated rural areas in mind and to be used particularly in outdoor situations.

This lead-acid battery charger circuit design is ideal for 6-12v batteries and will be able to charge lead-acid batteries during the sunlight hours by utilizing solar power, a renewable power source. This circuit battery charger will utilize a regulator and a comparator to control the power that travels between the solar cell panel and the battery unit, which promotes efficient charging. In whole-battery operations, the circuit battery charger will charge the battery to full capacity while at the same time limiting over-charging and increasing battery life. The second unit informs the user of the charging status of the battery, and consists of four LEDs. Simulation of the circuit design was conducted using Multisim, a type of simulating software produced by National Instruments and the Eagle 5. 7. 0 program.