

The Impact of Partial vs. Full Discharge on AA Lithium-Ion Battery Longevity

Claire Fowler

Greenwich Central School, Greenwich, NY, United States Claire Fowler

This study is related to an environmentally friendly way to keep the longevity of your batteries. Lithium-ion batteries are becoming more and more relevant because of their high energy density and low weight. It's important to keep the batteries captivated because it will make your battery last longer. The Lithium-ion batteries can make their way to contaminate water supplies and ecosystems. We can reduce the amount of batteries disposed improperly in landfills by using the batteries to their fullest. The lithium-ion batteries work by an electrochemical cell. In that cell there is an anode and a cathode. A cathode is the positive end of the battery and the anode is the negative end and is made of copper foil with graphite coated on it. The objective of this study was to test the effect of different discharges on lithium-ion batteries to test their longevity. My hypothesis is if the lithium-ion battery is discharged fully then it will have a longer longevity as compared to partially discharging the battery. This was researched by having 4 AA lithium-ion batteries labeled control, partial discharge, full discharge, and 80%-20% so I can tell them apart. Once the batteries are at their designated charge I will then run them through a motor. The motor was connected to a voltmeter that I would collect data from every 10 minutes. My data confirms that a battery discharged fully had a greater longevity as compared to the battery discharging it partially.

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