Battery Monitoring for Electric Vehicle Battery Packs

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# Purpose

Battery packs containing multiple batteries in series must be kept balanced, with each individual battery at the same voltage in order to increase the longevity of the battery pack as a whole. If some batteries in the pack are a significantly higher voltage than others, those higher voltage batteries will charge more quickly, and will then be damaged by overcharging while the lower voltage batteries catch up. In lead acid batteries, overcharged batteries will gas, consuming electrolyte in the process, and will therefore need more frequent maintenance (watering) to be kept in working order. [1]

In order to keep battery packs balanced, individual batteries are must periodically be removed and charged individually, so that all batteries in the pack are at or near the same potential. To determine when this is necessary with a simple, “dumb” battery pack, a technician would typically open the battery pack and measure to potential across each individual battery by hand. This process could be greatly simplified if the measurement process happened automatically without the need to open the battery pack.

# References

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| [1] | C&D Technologies, "Charging Valve Regulated Lead Acid Batteries," C&D Technologies, Inc., Blue Bell, PA, 2012. |