Use Case - Describe the typical use case for the device or system. Refer to a sketch, block diagram, flow chart, state diagram, or process diagram.

The Low Voltage Power Supply for an Electric SAE Race Car (change this) is being developed to power all low voltage electronics on the vehicle (instrument cluster, PCM, etc). Prior to our project, there was an existing model, however, it was very inconvenient in many aspects for Aztec Electric Racing. For example, there were rechargeable batteries, however, in order to charge them it required desoldering wires and hooking up a benchtop power supply. This is not very practical, as a power adapter would be more sufficient for rechargeability, allowing the racers to plug the power supply into the wall when charging is needed. With practicality in mind, the design should not have to be tampered with in order to perform essential functions such as charging. In past competitions, the power supply used buzzers to indicate it was “on” and functioning correctly, with no method of collecting how effective/efficient the batteries were working together. For testing purposes, the chassis will include a display providing information about the batteries, such as temperature, voltage, and current output. In addition to displaying information, there will be an SD Card that will store the data. By collecting data, we are able to go “back to the drawing board” to fine-tune the design, comparing the data after each design change.