ABSTRACT

The EET Capstone project, “Control System for an Electric Motorcycle”, is a project designed to control a fully electric motorcycle, with lithium-ion cells, a charging circuit, an electric motor/controller, and safety and monitoring systems using an Atmega 2560 processor. This system uses amplifiers, optocouplers, relay boards, voltage converters, an EV controller, lithium balancing circuits, and several more systems to create a ‘smart’ system for monitoring the status of the system. Both the user via the physical killswitch, or the processor, with a relay killswitch, will be able to disconnect the battery from the EV controller. Individual monitoring systems on-board include:

- Current monitoring of a 12V supply
- Current monitoring of total draw from battery, up to 150A
- Monitoring of individual cell voltages, each cell is 4S lithium, and 4 of those in series
- Monitoring of total current draw from the battery in mAh
- Monitoring of the front wheel speed
- Monitoring of the total battery voltage
- Monitoring and recreation of the throttle value