

P18262 - EVT Battery Management System

Phase 3: Preliminary Detailed Design Review - Tuesday, Nov. 7 2017 3:30 PM,
GLE-4425

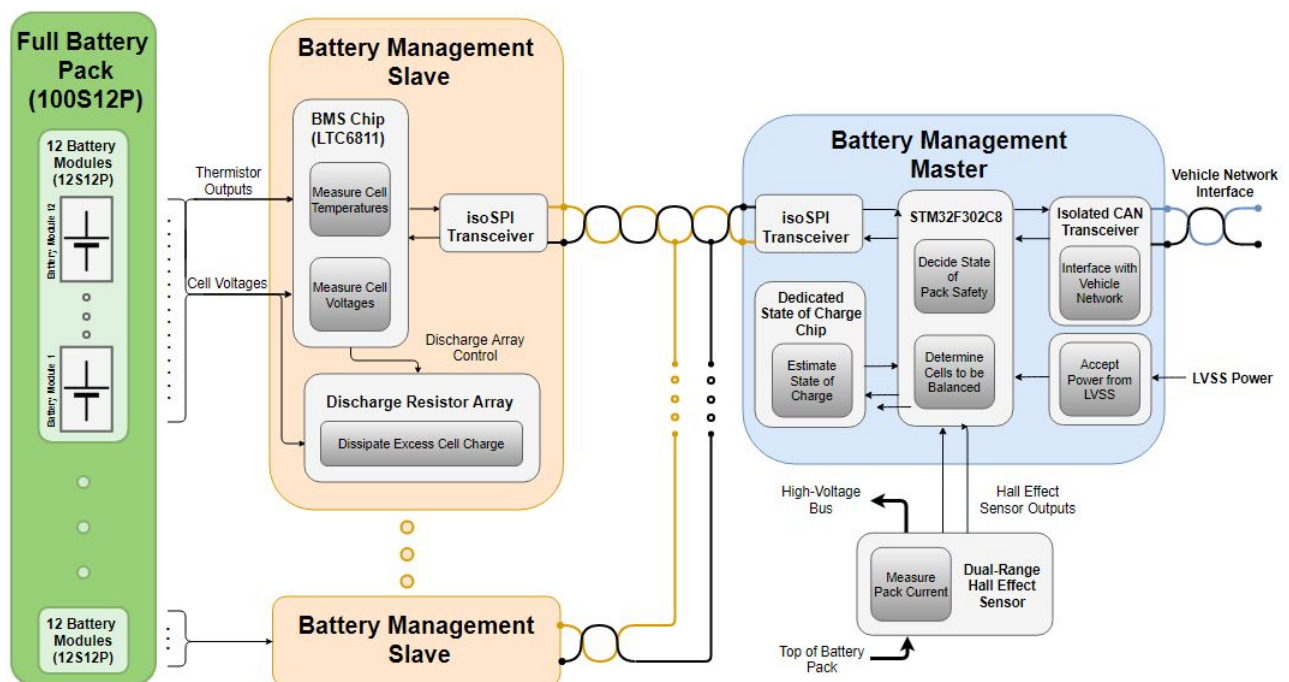
Members: Steve Titus, Greg Malanga, Ben Stewart, Murali Prasad, Will McCaffrey, Jacob Allison

Guide: Harold Paschal

Project Summary: EVT is in the process of designing the second revision of an all electric race motorcycle known as REV2. This project is a battery management system (BMS) for REV2. Its primary goals are to balance the cells, monitor pack conditions and communicate them to the bike's main computer.

Terminology:

- **Cell:** a single lithium ion battery.
- **Module:** A combination of 12 cells in parallel. Note that we will be using the word "cell" when talking about modules because of the terminology used by our BMS chip.
- **Pack:** The complete battery pack of REV2. The pack will have 100 modules in series and 12 in parallel. This is abbreviated to 100S12P,
- **Balancing:** If two cells are at different voltages the effective capacity of the battery is reduced by the difference between the two. Balancing is the process of equalizing the batteries voltages.
- **Passive Balancing:** The process of discharging all cells to the voltage of the lowest cell.
- **State of Charge (SOC):** A calculated percentage describing the estimated remaining charge of a battery.



System Block Diagram

Meeting Agenda

- Phase II Overview
 - Team Vision, Goals, 3-week Plans
 - Concept Selection & Sub-System Block diagram
 - Risk Assessment
- Phase III
 - Team Vision, Goals & Timeline
 - Block Diagram & Sub-System Diagrams
 - Master
 - MCU - Prototyping, Feasibility, Test Plans, Schematics, Rqmt Flowdown
 - SOC - Prototyping, Feasibility, Test Plans, Schematics, Rqmt Flowdown
 - Slave
 - LTC Control - Prototyping, Feasibility, Test Plans, Schematics, Rqmt Flowdown
 - Balance Circuit - Prototyping, Feasibility, Test Plans, Schematics, Rqmt Flowdown
 - Temp Sense Circuit - Prototyping, Feasibility, Test Plans, Schematics, Rqmt Flowdown
 - Wiring
 - Connectorization & Harnessing
 - BOM
 - Risk
- Phase IV
 - Team Vision & Goals
 - Gantt Chart
 - 3-week Plans

