



Formula Hybrid - Fall 2018

Lafayette College
ECE 491



Topics

- Team Highlights
- Plan For Spring Semester
- Dyno Integration
- Lessons Learned



Team Highlights

- Grounded Low Voltage (GLV)
 - Nearly complete implementation of GLV requirements
 - Updated break-out-board and debugged system to a functional state
 - Implemented a rules compliant, functional safety loop
- Vehicle Supervisory Control And Data Acquisition (VSCADA)
 - Completely rewritten software capable of collecting data and reacting to data
 - Real-time analysis and post processing capabilities
 - Safety loop integration
 - Communicates with all electrical systems
 - Unified Dyno & Car implementation



Team Highlights

- Tractive System Interface (TSI)
 - Revised circuit schematic
 - Rule compliant TS/GLV Isolation
- Tractive System Voltage (TSV)
 - Complete mechanical redesign of packs
 - Complete accumulator management system redesign
 - Active balancing algorithm development
- Interconnect
 - Updated wiring diagrams for dyno room
 - Provided all of the necessary interconnection materials



Plan For Spring Semester

1. Complete debugging of all electrical components
 - a. GLV and TSI require major edits to the PCBs
2. Update circuit schematics & purchase updated boards
3. TSV electrical components
 - a. TSV Components designed, need to be implemented
 - b. Will have a strict time schedule in order to be complete by project deadlines
4. Mechanical Components Fabricated
5. Vehicle Integration

Dyno Integration

- GLV, TSI, Motor Controller, and Motor integrated and tested
- Verified against Acceptance Testing Plan (ATP)
- Safety Loop functional in Dyno room
 - IMD NEEDS TO BE DONE





Video





Lessons Learned

- Constructive
 - Team communication skills
 - Large group work
 - Importance of detailed and complete documentation
 - Thorough testing of all components at all stages of the building process
 - The necessity of a complete understanding of how to put all the pieces together
- Deleterious
 - When budgeting time, double any time estimate to complete a job
 - Diving headfirst into a test or build without first laying out a plan
 - Team Development progression
 - Forming, Storming, Norming, Performing

Q/A

