

## Opening

- WBS underdeveloped
  - Does not include mechanical items in chart layout
  - Many items missing and changed

## New Car Design

- How will the car handle at high speed with shorter wheelbase?
- Do not design to the edge of rules, allow for tolerances

## VSCADA

- Pros / Cons of learning and fixing Python code
- How huge of a task would it be to rewrite the entire codebase
- Make sure code does not care about what is being displayed on the screen
  - Make switching a display something trivial
- VSCADA must be complete before all other things
  - Needed to test other subsystems
  - Earlier CDR
  - From Nadovich today: should have a SCADA skeleton in about a week
- Database is currently designed as write-only, make it read/write
  - Could use a web server to access the DB info
- Don't get hung up on a fancy dashboard display, driver probably doesn't care
- A SCADA is not required by the rules
  - Need to convince the rest of the team/reviewers/judges that SCADA is worth having on the car
  - Judges will want to see all the cool features so be prepared to demo
- How is budget divided with GLV?
- Only display valuable info → don't waste time producing features with no purpose
  - SCADA is not required by any rules
- Measure speed vs. lap time
  - Speed is not always a really useful metric for tracking

## GLV

- Old board never had GPIO pins available
  - Never able to test Temperature, Voltage, Current measurement section of board
- Consider "soft" warning from VSCADA before breaking safety loop
  - I.e. flashing light to signal to the driver that something is going wrong
- Break out boards (BOB) must be fused
  - High current applications → Trace widths matter
- Make sure outside of box connections are harder to mess up
- Why is GLV enclosure redesign made out of steel
  - Goal is to reduce weight → steel is heavy
- Make sure GLV battery box is non-conductive
- Indications to the driver about state of vehicle

- Drive mode malfunction indication and reason
- Ground the internal box for the GLV battery
- Make sure the Temp Sensor, Torque, and RPM actually work on the GPIO pins
  - Were never tested in the past because Pi GPIO pins were covered

## TSI

- Test TSI fuses
  - Slam accelerator all the way down (Floor it)
  - This should blow fuses/switch out of drive mode
- Check communication between MCS and TSI
- Track rate of discharge
- Mechanical drawings should show more
  - It's hard to know where everything is placed without a representation of the actual TSI
- IMD will be the primary focus of the water test
  - Make sure it is completely waterproofed

## TSV

- Should track rate of TSV discharge
- Why not use full 34 cells allowed by competition?
  - Current design is way underspec for the max at competition rules
  - 28 cells is the max to stay under the 100V specs (affects TS/TS and TS/GLV separation distance)
- Rubber seams for insulation = Bad idea
  - Likely will not be allowed by judges
- Minimize wrench and tool necessity to work on packs
  - Limit the amount of danger
- Do the cells produce a gas?
  - How is this gas vented if they do?
- "RFID Tracking is a garbage idea and do not do it." - Drew
- CellMen require a testing connection for competition
  - Need to be able to physically intercede between CellMan and the Cell
  - "Trick" the CellMan into seeing a different voltage
- CellMen need an on/off switch
- Make sure wireless communications doesn't interfere with each other
- Need to figure out a way to disable or shut down parts that go wrong directly
  - Boost-converter, pics conditioners, on-off switch, deep sleep mode, etc
- Consider the Gs (acceleration). Are there straps for the calls?
- We are allowed to consult the judges for advice on design
- Test the communication between modules in the PackMan, should have a demo by PDR as well as a plan B
- Need to make reprogramming the PackMans easy when an emergency happens

- Princeton took 20 min to fix something using computers, Waseh took 20 seconds to bypass the problem using button

### **Cooling**

- Send temperature information to VSCADA
- Ventilation for the subsystems should be on the car frame

### **Interconnect**

- The connectors for the accumulators are amphenol connectors which need to be GLV ground
  - Cables are coax
- How are TSV cables connected to TSI? There are pros and cons to connectors (ie amphenol) vs bolted in (current design)
  - Connectors are a liability but also add convenience
- Budget seems unrealistic
  - Will probably be higher
  - Inventory needs to be done before a number can be finalized