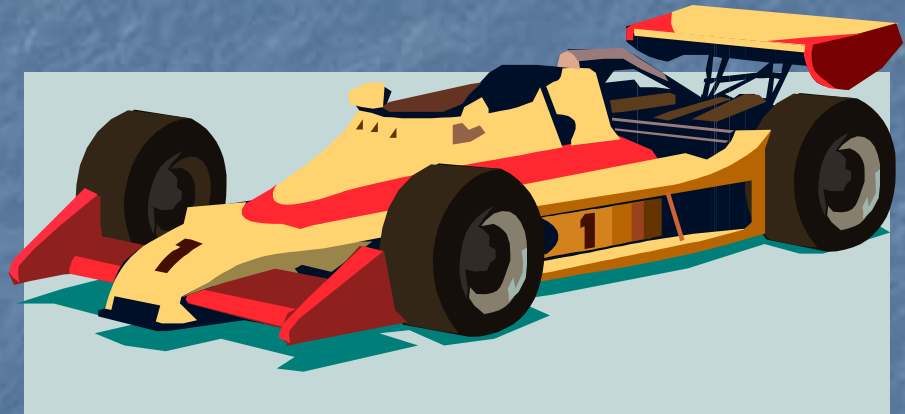




Interim Review Assignment  
February 22, 2006

# Presentation Content

- Project Summary
- Resolution of Previous Issues
- Design Summary
- Current Issues
- Schedule progress
- Budget progress



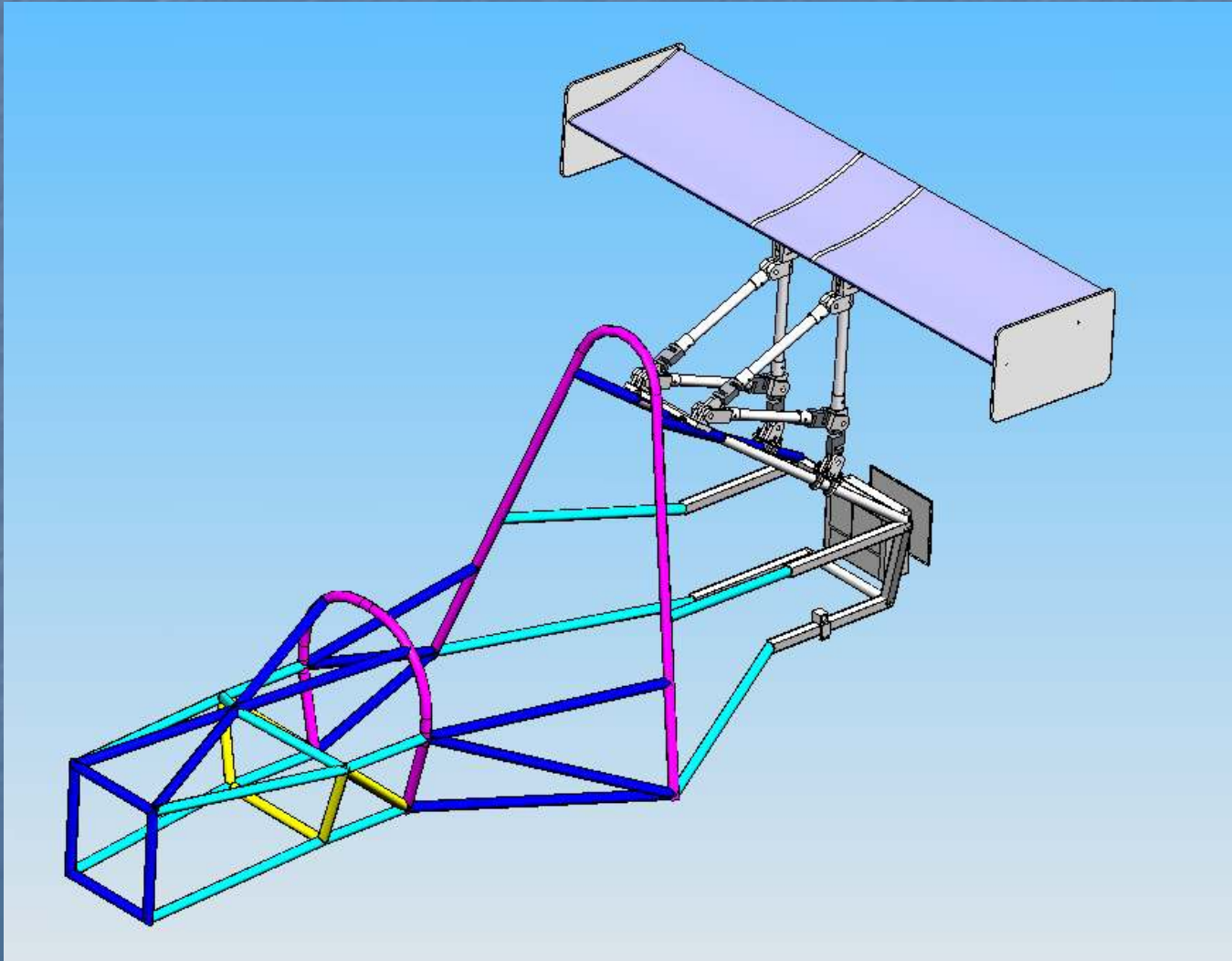
# Project Summary

- Building a device that allows us to measure the forces produced by a wing
- Resource for CU Formula SAE to quantitatively develop a wing for race car
- Industry uses wind tunnels, CFD and lap times to measure wing performance
  - Not feasible for FSAE

# Issues from CDR

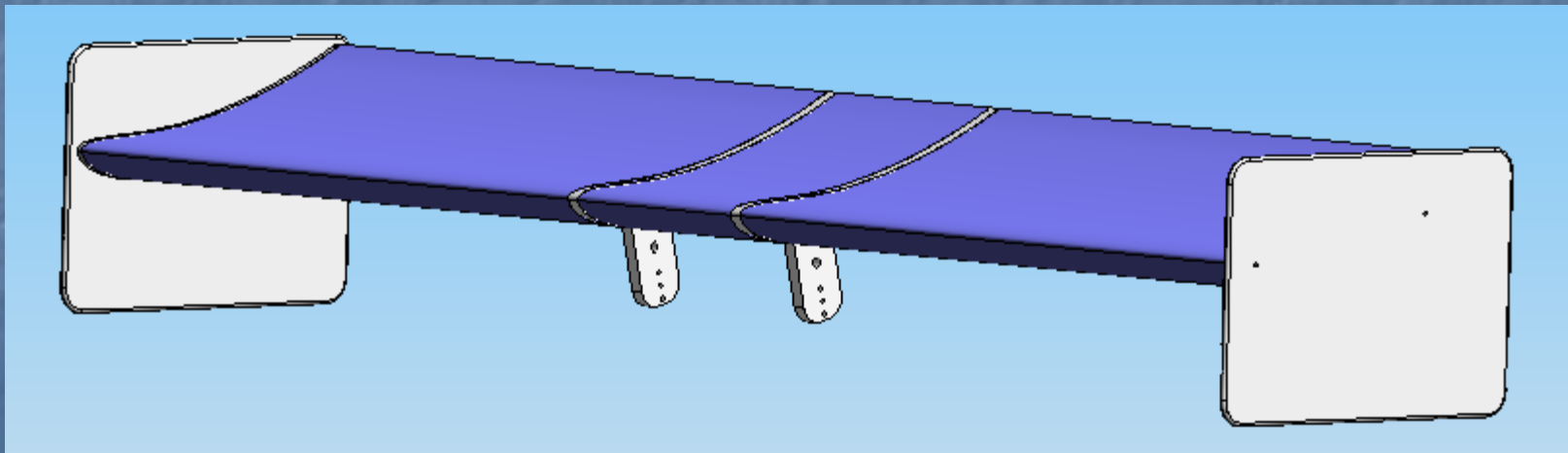
- Wind tunnel
  - Grant money available, and KU tunnel reserved
- FSAE car availability
  - Letter obtained and dates narrowed down
- Testing regimen
  - Component and static testing
  - Vibration tests
  - Straight-line test on car

# Design Summary

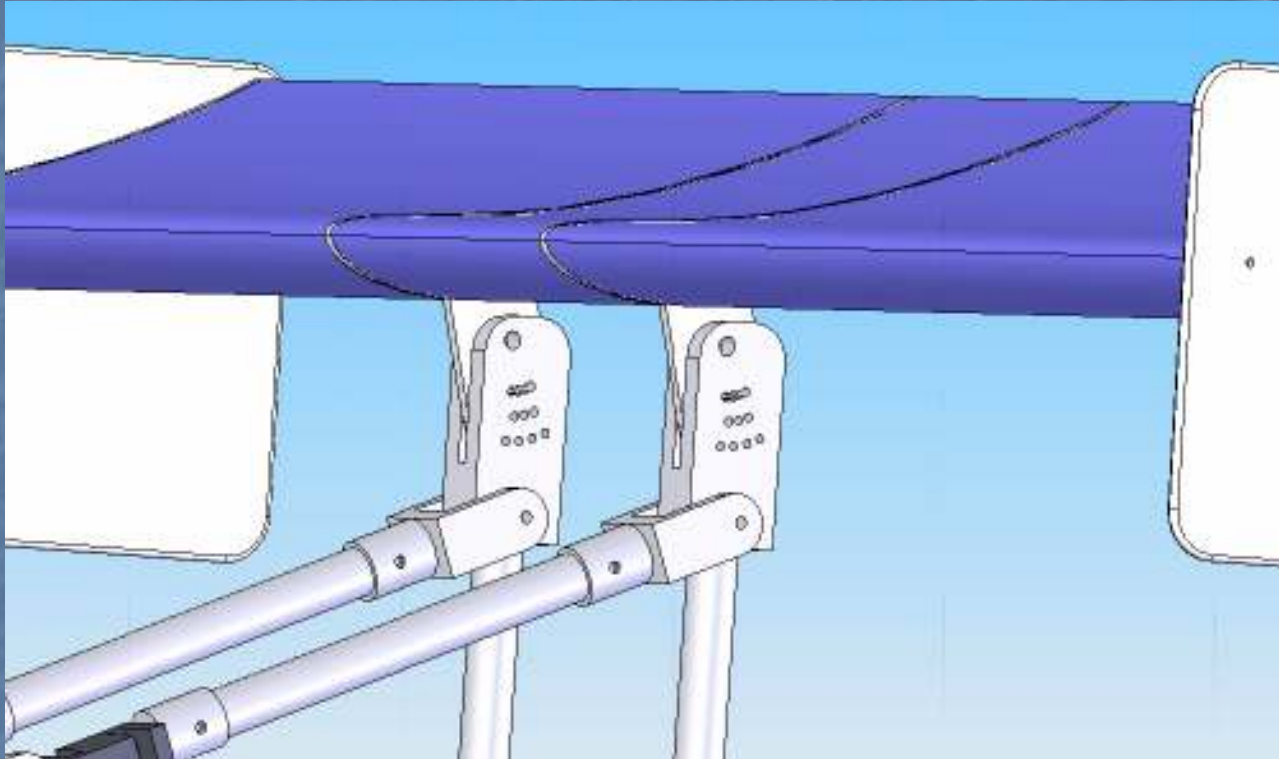


# Design Summary

- Only minor adjustments to design
- Main wing ribs now  $\frac{1}{4}$ "
  - Wing mount and upper hinge redesigned to account for new wing rib thickness



# Design Summary



# Design Summary

- Original u-bolts not as specified
  - New style of u-bolt ordered and bottom bracket design adjusted
- No more inductive chokes in electronics



# Current Issues

- Load cell destroyed by Instron Machine



# Current Issues



# Current Issues

- Timing wheel versus sprocket
  - Gear tooth sensor sized for larger gear
  - Test to see if it will work for smaller gear



# Current Issues



# Current Issues



# Current Issues



# Current Issues

- Wing lay-up procedure and location
  - Concerns with size of wing, need lots of help
  - Lay-up in paint shop or RECUV, TBD

# Schedule Progress

Milestone/Major Task	Sub-team	Planned Deadline	Status
All sensors ordered	Test	27 January	Complete
All wing supplies and equipment received	Wing	27 January	Complete
All electronic components ordered	Elec.	27 January	Complete
Upper and lower support brackets	Mfg.	3 February	Complete
Circuits bread-boarded	Elec.	10 February	Complete
Test fiberglass lay-up	Wing	10 February	Complete
Sensors calibrated	Test	17 February	Started
Letter from FSAE	Mgmt.	17 February	Complete
Full-size wing	Wing	3 March	Started
Circuits built and tested	Elec.	10 March	Started
Test complete assembly fit on car	Mfg.	10 March	Started
All manufacturing complete	Mfg.	17 March	Started
All component testing complete	Elec.	17 March	Started

# Schedule Progress

Second wing complete (If necessary)	Wing	17 March	--
Wing static loading tests complete	Wing	31 March	--
Assembly static loading tests complete	Test	31 March	--
Shaker Table/Vibration testing complete	Test	7 April	--
KU wind tunnel testing	Test	10 April	--
On-car tests complete	Test	14 April	--
Final presentation	All	18 April	--
ITLL Design Expo	All	29 April	--
Final Report	All	8 May	--

# Budget Progress

Subsection	Estimated Total	Spent
Wing	732.19	533.58
Structure	476.25	236.12
Test Stand	65.92	29.37
Electronics	2,279.15	1,902.56
Misc	100.00	88.92
Total	\$ 3,653.51	\$ 2,790.55

- Under budget so far!!
  - \$377.78
- Few Major Purchases Left
  - New Load Cell
    - ~\$305
  - Stock Aluminum
    - ~\$225
  - Carbon Fiber End Plates
    - ~\$165
- Travel Budget/Margin
  - ~\$1,100

# Conclusion

- Project is still on track

Any Questions?

# Team Members/Responsibility

- Chris Kerker and Ryan Clifford → Manufacturing and Structure
- Jeremy Ralph and Mathew Strassburg → Wing Manufacturing
- Chris McLeod and Casey Fillmore → Electronic Fabrication and Testing
- Chris McLeod and Chris Coley → Testing and Sensor Calibration
- Michael King → FSAE Correspondence and Safety
- Jeremy Ralph → Budget and Finance