FLYING TIGER PHASE I - 2012

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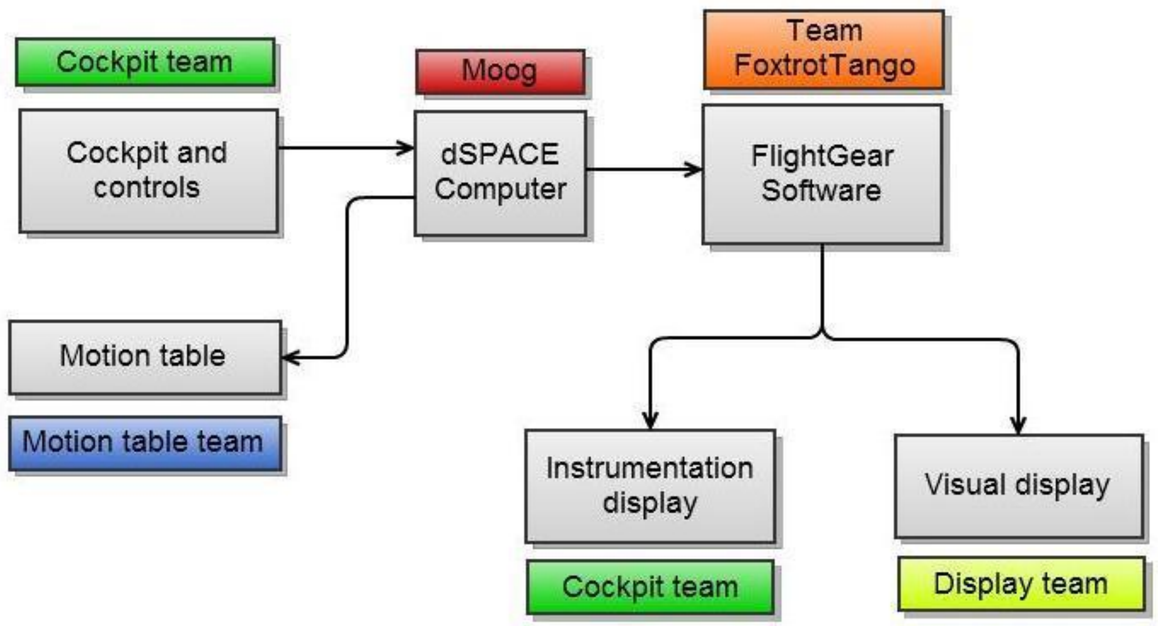
Abstract

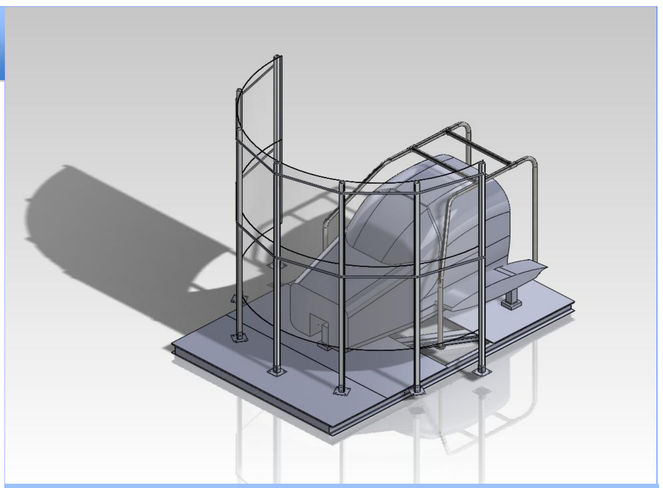
- Sponsored by Moog Inc. of East Aurora, NY
  - Precision motion control products and systems
  - Actuator design and production
- Multi-disciplinary senior project
  - Three mechanical engineering teams
  - One software engineering team
- Flight simulator for customer demonstrations
- Operator will use real flight controls to operate system
- Provides visual simulation from dSPACE flight model

System Features

- Instrument Panel
  - Air Speed Indicator
  - Artificial Horizon
  - Vertical Speed Indicator
  - Turn & Bank Indicator
  - Heading Indicator
  - Altimeter
  - Stall Warning
  - Simulation Synchronization Warning
- 3D Environment
- Multiple displays
- ARINC-429 compatible
- Customizable interfaces
- Multiple input methods

Project Concept



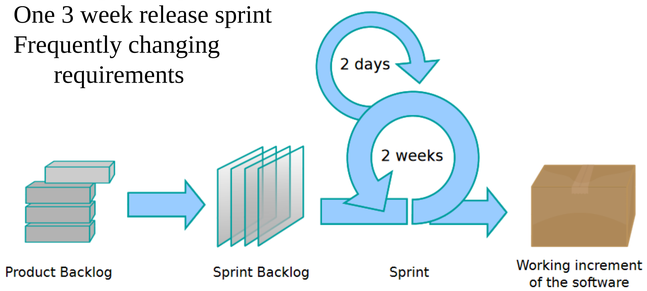


Technologies Utilized

- ARINC-429 protocol
- Condor Engineering CEI-520a board
- dSPACE
- FlightGear Flight Simulator
- PixelWix geometric correction software
- C++ / XML

Process Methodology - Scrum

- Scrum Master – Corey Engelman
- 2 week sprints
- Biweekly standups
- 6 development sprints
- One 3 week release sprint
- Frequently changing requirements



Future Work & Lessons Learned

- Log statistics and simulation data
- Support different aircraft models
- Sound
- 3D instruments
- Flight school
- Replay flight from black box
- Motion table
- Teach sponsor Scrum
- Make team members responsible for artifacts
- See what software already exists
- Not everyone is an engineer in industry

Design