FLYING TIGER PHASE I - 2012
Foxtrot Tango: Corey Engelman, Brett Snare, Conlan Wesson, Geoff Carlson, Mark Kerbel
Faculty Coach: Thomas Reichlmayr
Sponsors: MOOG Inc. Heather Hussain, Dr. Agamemnon Crassidis, Dr. Jason Kolodziej

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 virtual 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

- Cockpit and controls
  - 3D Environment
  - Multiple displays
  - ARINC-429 compatible
  - Customizable interfaces
  - Multiple input methods

- Motion table

- Motion table team

- Cockpit team

- Moog

- Team FoxtrotTango

- dSPACE Computer

- FlightGear Software

- Instrumentation display

- Visual display

- Cockpit team

- Display team

Process Methodology - Scrum

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

Design

- 2 days
- 2 weeks

- Product Backlog
- Sprint Backlog
- Sprint
- Working increment of the software

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

Technologies Utilized

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

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