The Capstone Experience

MSU Next Generation Flight Deck

Team GE Aviation

Daniel Alexander
Steven Cornfield
Alex Delgado
Bill Zajac

Department of Computer Science and Engineering
Michigan State University
Spring 2011
Project Overview

• Create the next generation flight deck
• Make flying
  ▪ Easier
  ▪ Safer
  ▪ Meet the demands of the future
System Architecture

- X-Plane Flight Synoptics Data Plug-in
- PFD Flight Data Plug-in
- PFD Terrain Plug-in
- LMD Flight Data Plug-in
- LMD Terrain Plug-in

Super Synoptics

Primary Flight Display

Lateral Map Display

Cross Functionality
Right Engine Failure (PFD)
Weather Avoidance (PFD)
Weather Avoidance (LMD)
Super Synoptics

![Super Synoptics](image)

**ENGINE**

- N1: 84.1, 84.1, 84.1, 84.1
- EGT: 610.6, 610.6, 537.2
- Oil Temp: 129.5, 129.5, 129.1
- Oil Pressure: 12.0, 12.0, 12.0

**LANDING**

**FLIGHT VARIABLES**
- Elevation: 12717 ft
  - Target: 0
- AoA: 5.75 deg
  - Target: ~170
- AirSpeed: 240 kias
  - Target: ~170
- Ground Speed: 277 knots
  - Target: ~170
- Sink Rate: -3269 ft/min
  - Target: 0

**COMMIT TO LAND?**
- Dist: 23.3 mi

**TIME LINE**
- Approx Landing In 0:03:24
What’s left to do?

• Implement cross functionality
• Develop weather-avoidance algorithm(s)
• Add Warning Messages to LMD, SS
• Homogenize and Polish Graphics