

Work Breakdown Structure:  
(Draft Version)

1.	Flight Control System	(100%)
1.1	Documentation	(__%)
1.1.1	Capstone Documents	(__%)
1.1.2	Technical Documentation	(__%)
1.1.3	End-User Documentation	(__%)
1.1.4	(internal) Non-Deliverable Documentation	(__%)
1.2	Flight Module	(__%)
1.2.1	Core Control Unit	(__%)
1.2.2	Sensor Interface Unit	(__%)
1.2.3	Actuator Interface Unit	(__%)
1.2.4	Telemetry Interface Unit	(__%)
1.3	Test Module	(__%)
1.3.1	Core Test Unit	(__%)
1.3.2	JSBSim Interface Unit	(__%)
1.3.3	Simulated Sensor Unit	(__%)
1.3.4	Simulated Actuator Unit	(__%)
1.4	Capstone Project Demo	(__%)
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1.5	Upgrades	(__%)
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1.5.2	Functional Windows 10 Compilation	(__%)
1.5.3	Extended Sensor Functions	(__%)
1.5.4	Arbitrary Data Bus	(__%)
1.5.5	Non-GPIO Controllers	(__%)
1.5.6	Parser / Code Generator to Test New Constants	(__%)

1.1 Documentation: Level 4 Specification

1.1.1 Capstone: As required by Professor Massey.

1.1.1.1 Requirements and Specifications Document

1.1.1.2 Risk Management Document

1.1.1.3 Architecture Document

1.1.1.4 Work Breakdown Structure Document

1.1.2 Technical: Required for Software Upkeep / Extension.

1.1.1.1

1.1.1.2

1.1.1.3

1.1.3 End-User: Necessary to run/use software.

1.1.1.1 Compilation Notes

1.1.1.2 FAQ

1.1.1.3

1.1.4 Non-Deliverable: Internally required but not deliverable.

1.1.1.1 Projects Schedule

1.1.1.2 Contacts

1.1.1.3

## 1.2 Flight Module: Level 4 Specification

- |       |                                     |  |
|-------|-------------------------------------|--|
| 1.2.1 | Core Control Unit:                  | Process Data and Determine Response.     |
|       | 1.2.1.1                             |  |
|       | 1.2.1.2                             |  |
|       | 1.2.1.3                             |  |
| 1.2.2 | Sensor Interface Unit:              | Provide connection to Sensor Hardware.   |
|       | 1.2.2.1 Sensor Connect              |  |
|       | 1.2.2.2 Sensor Get Data Loop        |  |
|       | 1.2.2.3 Sensor Disconnect           |  |
| 1.2.3 | Actuator Interface Unit:            | Provide connection to Actuator Hardware. |
|       | 1.2.3.1 Actuator Connect            |  |
|       | 1.2.3.2 Actuator Send Response Loop |  |
|       | 1.2.3.3 Actuator Disconnect         |  |
| 1.2.4 | Telemetry Interface Unit:           | Provide connection for Telemetry Output. |
|       | 1.2.4.1 Telemetry Connect           |  |
|       | 1.2.4.2 Telemetry Send Data Loop    |  |
|       | 1.2.4.3 Telemetry Disconnect        |  |

### 1.3 Test Module: Level 4 Specification:

#### 1.3.1 Core Test Unit

1.3.1.1 Process JSBSim Data

1.3.1.2 Process Simulated Actuator Data

1.3.1.3

#### 1.3.2 JSBSim Interface

1.3.2.1 JSBSim Connect

1.3.2.2 JSBSim Send / Receive Loop

1.3.2.3 JSBSim Disconnect

#### 1.3.3 Simulated Sensor Unit

1.3.3.1 Get Data from Core Test Unit

1.3.3.2 Send Data to Flight Module | Core Control Unit

1.3.3.3

#### 1.3.4 Simulated Activator Unit

1.3.4.1 Get Data from Flight Module | Core Control Unit

1.3.4.2 Send Data to Core Test Unit

1.3.4.3

#### 1.4 Capstone Project Demo: Level 4 Specification

##### 1.4.1 Test Module Demo on Generic Linux System

##### 1.4.2 Flight Module Demo on RCS Prototype

- 1.5 Upgrades: Level 4 Specification
  - 1.5.1 Flight Module Demo on CubeSat Reaction Wheel Prototype
  - 1.5.2 Functional Windows Compilation
    - 1.5.2.1 Windows Test Module (Simulation Mode)
  - 1.5.3 Extended Sensor Functions
    - 1.1.3.1 Multiple Sensors
    - 1.1.3.2 Enhanced Data Types and/or Volume
  - 1.5.4 Arbitrary Data Bus
    - 1.5.4.1 ?
  - 1.5.5 Non-GPIO Controllers
    - 1.5.5.1 ?
  - 1.5.6 Parser / Code Generator to Test New Constants
    - 1.5.6.1 ?