Internal Memo

PROJECT: Team XXX – NEO Scout

Manager: Agent Smith

Last modified:

HOW TO READ THIS DOCUMENT

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| **Person in charge** | **Date task is inserted** | **Completion date** |
| **TASK** | | |

**System Engineers – they keep this list up to date, mark in green completed tasks, in red those behind, and update as needed. After Nov. 29th we will focus on refining design by iterating among the 3 groups, and finally choosing the parts we can. More detailed tasks can be added along the way.**

**System Engineers milestones**

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| **SE** | **10/18/2013** | **10/25/2013** |
| **Draft CAD of S/C based on DS-1. Get shapes, dimensions, materials, and specs from papers. You were sent material/references to use. Try to get proportions on weights (how much on ADCS, how much on propulsion, etc.).** | | |

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| **SE** | **10/18/2013** | **11/1/2013** |
| **Enable CAD file to easily output center of mass, principal frame of inertia, and moments of inertia. Ready for others to easily update and re-compute.** | | |

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| **SE** | **10/18/2013** | **11/1/2013** |
| **Draft volume, mass, power (this overlaps with attitude-power people), and cost tables. At beginning some subsystems may be blank or estimates.** | | |

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| **SE** | **10/18/2013** | **11/8/2013** |
| **Draft table on all parts. Draft risk management matrix. At beginning some subsystems may be blank or estimates.** | | |

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| **SE** | **10/18/2013** | **11/22/2013** |
| **Enter input from other two teams in CAD, tables, everywhere. Iterations may be needed as constraints may be violated.** | | |

**Trajectory and Propulsion Engineers milestones**

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| **TRAJ** | **10/18/2013** | **11/1/2013** |
| **STK/Astrogator solution to intercept problem, WITHIN the max delta-V, and WITHIN the 1-year constraint. Use maximum allowable mass and thrusters suggested by NASA (check slides from JSC). Start from example on training manual, with 2 thrusting phases and coasting in between.** | | |

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| **TRAJ** | **10/18/2013** | **11/8/2013** |
| **Extract Cartesian Coordinates in ECI for Scout trajectory and provide to Simulink folks. Provide also SUN Cartesian Coordinates to Simulink group.** | | |

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| **TRAJ** | **10/18/2013** | **11/15/2013** |
| **Define required attitude during the flight to the asteroid. Base choice on need to get power from Sun, communicate to ground, thrust in correct direction, and finally rendezvous with asteroid. Provide this info (attitude segments) to attitude folks.** | | |

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| **TRAJ** | **10/18/2013** | **11/29/2013** |
| **Implement in STK the attitude profile generated by Simulink folks, and set the simulation up to estimate power (this overlaps with attitude-power people), link budget (see exercises on GPS-SUN vector and the ones working with antennas characteristics).** | | |

**Attitude control and power subsystems milestones**

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| **ACS-PWR** | **10/18/2013** | **10/25/2013** |
| **Simulink model of attitude and orbit successfully controls to face ground** | | |

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| **~~ACS-PWR~~** | **~~10/18/2013~~** | **~~11/1/2013~~** |
| **~~Simulink model uses reaction wheels to generate torque (add a block computing the acceleration rates needed with chosen RW to obtain the required torque)~~** | | |

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| **~~ACS-PWR~~** | **~~10/18/2013~~** | **~~11/8/2013~~** |
| **~~Simulink model uses small thrusters to generate torque (add a block computing the activation of engines needed to generate required torques)~~** | | |

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| **ACS-PWR** | **10/18/2013** | **11/15/2013** |
| **Simulink model uses externally provided Cartesian Coordinates to generate attitude maneuver – to start just face Sun all times.** | | |

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| **ACS-PWR** | **10/18/2013** | **11/22/2013** |
| **Have Simulink model now following attitude segments provided by TRAJ team** | | |