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UAS Loss of Link- Draft Project Proposal

February 9, 2012

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Problem Definition

- When a UAS becomes autonomous, it becomes unpredictable to ATC
  - ATC cannot adequately control airspace
  - Risk of a loss of separation or collision
  - Unnecessary rerouting of air traffic
  - Excess workload for ATC
  - Creates a potential risk and/or safety hazard
- Standardized procedures for loss of link situations are necessary
  - Events become more predictable/easier to manage for ATC
  - Standardized procedures assist in bringing UAS to commercial airspace in greater numbers

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Scope

- In Scope
  - Within non-segregated civil airspace- National Airspace System (NAS)
  - Primary focus on UAS that are capable of extended flight operations in Class A airspace
  - To test/evaluate our approach with proposed procedure
- Out of Scope
  - Identification of optimal procedure for loss of link situations

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Preliminary requirements

- **Project Requirements**
  - The team shall define essential metrics for loss of link procedures.
  - The team shall develop a methodology to evaluate sample loss of link procedures based on defined metrics. (e.g. Predictability, Efficiency).
  - The team shall prepare a final report detailing the work done within the semester.
- **Functional Requirements**
  - The methodology shall be repeatable.

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Approach

- Qualitative
  - Interviews to determine metrics from different stakeholders
    - Global Hawk Pilot
    - ATC
    - UAS Experts
    - Data Specialists
- Absolute/Binary
  - Determine thresholds that must be met
- Technical
  - Develop a simulation that analyzes individual procedures
    - Based on specific metrics

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Expected Results

- Set of metrics that are important to different stakeholders
- A methodology that can be used to evaluate procedures
  - Repeatable and adaptable to different procedures
  - Capable of being used for further research and analysis by the sponsor

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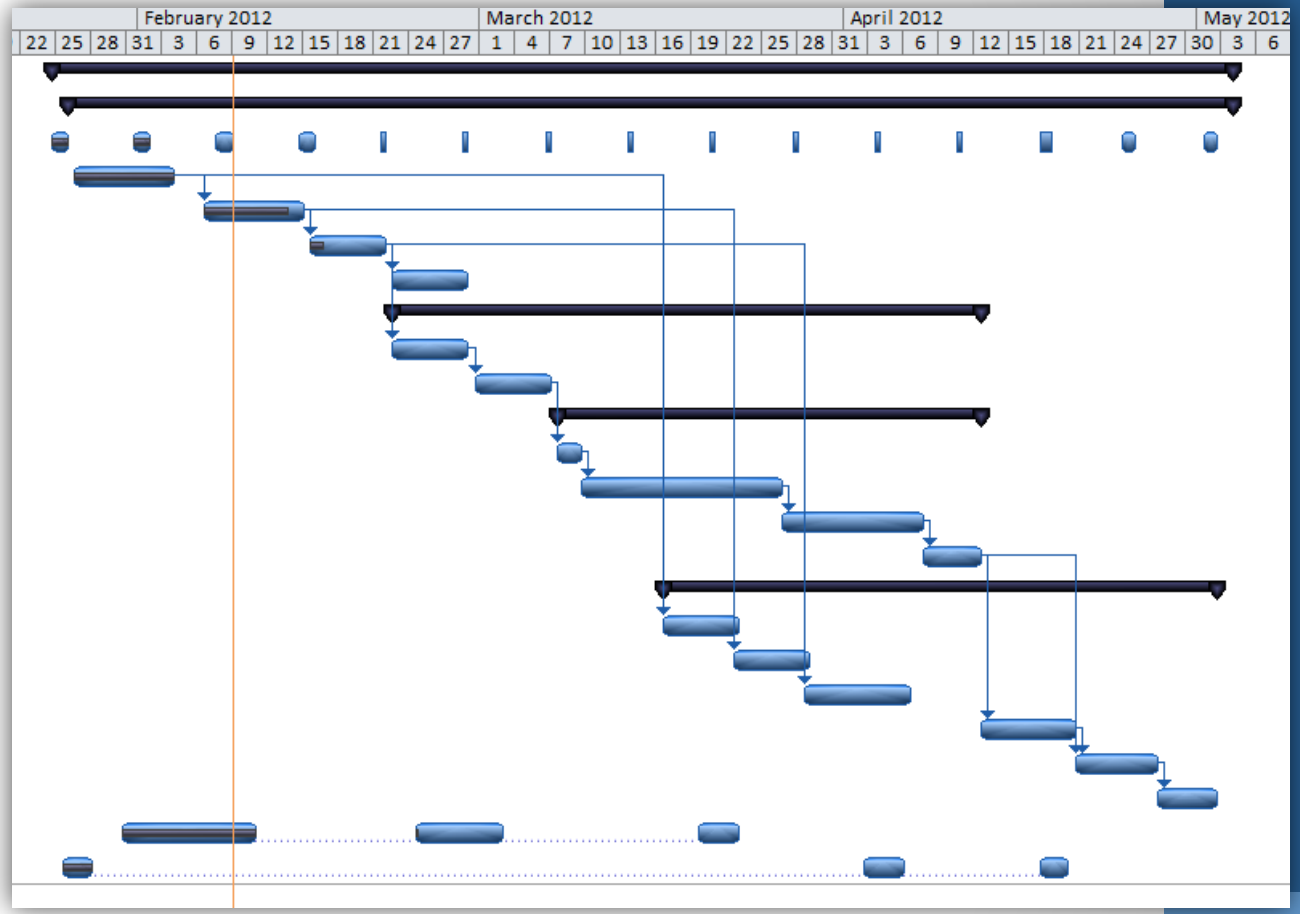
Schedule

	WBS		Task Name
1	**1**		**UAS Lost C2 Link**
2	**1.1**		**SEOR Class Milestone**
15	**1.2**		**Group Meetings**
31	1.3		Define Problem Statement
32	1.4		Define Project Scope
33	1.5		Identify Approach
34	1.6		Project Proposal
35	**1.7**		**Define Methodology Process**
36	1.7.1		Solicit Metrics
37	1.7.2		Define Absolutes
38	**1.7.3**		**Simulation**
39	1.7.3.		Define Simulation
40	1.7.3.		Build Simulation
41	1.7.3.		Test Simulation
42	1.7.3.		Validate Results
43	**1.8**		**Write Report**
44	1.8.1		Problem Statement
45	1.8.2		Project Scope
46	1.8.3		Project Process
47	1.8.4		Analysis
48	1.8.5		Outcomes and Conclusions
49	1.8.6		Recommendations
50	1.9		Research Hours
51	1.10		Web Site Design



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Next Steps

- Meet with Sponsor
- Set up meetings with Subject Matter Experts (SMEs)
  - Develop a questionnaire to determine significant metrics for different stakeholders
- Finalize draft of project proposal
- Develop Functional Requirements for evaluation methodology

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Questions?

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