

Compact Pneumatic UAV Launcher

**Sponsored by Eglin Air Force Base
(Jeff Wagener & John Deep)**

Project Specification & Project Plan

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Launch Team - Group 3

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Project Specification

The primary objective of the project is to completely design and fabricate an effective pneumatic UAV launcher capable of efficiently propelling an UAV into flight for Eglin Air force Base no later than the spring 2009 semester.

Based on further feedback given by John Deep of Eglin Air Force Base, several specifications have been redefined and described below.

- Minimum exit velocity: =18.288 m/sec
- Instantaneous acceleration must not exceed 600g at any point of launch
- Launcher weight limit: 1.134 kg, including all accessories, stand, etc.
- Launch angle should be estimated between 30-45 degrees
- No energetics or accelerants
- Must be operational a min of 5 times without being refueled/recharged
- Maximum tube dimensions .914m L x .114m W x .114m H square, or .914m x .1397m diameter round (if a tube is used)
- The system must be capable of continuously absorbing all recoil without failure
- The support should be efficient and stable on unimproved surfaces
- A tube technique is the customer's preferred method of launch

With such specifications to meet, the design remains to be open to multiple designs but there tend to be several obstacles to overcome, which may include but are not limited to

- Fabrication ability
- Capital expenditure
- Efficiently transferring the necessary force from the launching system to the projectile

- Reaching the minimum exit velocity without exceeding the maximum instantaneous acceleration

Note: The details of the aforementioned design project have been very limited and have not been fully released due to astringent security classification on behalf of the sponsor Eglin Air Force Base. All topics will be updated in detail when more information is available.

Status Update

The team has held three productive meetings since the last deliverable on 9-16-2008 which has yielded much progress. To date, the design team has completed the research phase and is well into the brainstorming phase. A tentative design schedule/plan has been completed and will continue to be followed as closely as possible. Currently, the group has several proposed designs, ideas, and concepts pending further evaluation in preparation for a design selection.

24hr Plan :

- Contact new resources for information

72hr Plan:

- Finalize further design ideas and concepts for all components
- Quantify and analyze design ideas

Weekly Plan:

- Use decision techniques and project expectations to further determine conceptual design