Team Members

Eric Adjorlolo • MechE 07 • When Eric is not studying or making an airplane plan its own path, he enjoys the company of his friends.

Ricky Diaz • MechE 06 • Interested in robotics and sensors, Ricky is responsible for parts of the ground station.

Matt Doherty • EECS 06 • Matt's sarcastic humor keeps us from ever being too serious. He is interested in software and programmable hardware.

Jonathan Downey • EECS 06 • Jonathan founded the team after working on the MIT ROV team for 2 years. He is responsible for hardware design.

Jon Gibbs • AeroAstro 06 • Jon is the current co-president of the MIT AIAA chapter. He is experienced with autopilots and flight controls.

Derrick Tan • MechE 06 • Derrick is our experienced R/C pilot and was also in charge of the airframe. He is interested in all types of robotics.

Massachusetts Institute of Technology

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E-mail: uav-admin@mit.edu

Competition Organized by:

AUVSI
ASSOCIATION FOR UNMANNED VEHICLE SYSTEMS INTERNATIONAL

Massachusetts Institute of Technology

MASSACHUSETTS INSTITUTE OF TECHNOLOGY Student UAV Team

Project: A²RES

Autonomous Aerial Reconnaissance and Exploration System

2006 Sponsorship Brochure

MIT's Project A²RES
2006 Sponsorship Brochure

The Project

Project A²RES (formerly the MIT UAV Team) was founded a year ago when a group of MIT undergraduate students organized an inter-disciplinary team with the task of developing an autonomous aircraft for AUVSI's Student UAV competition. While many competition teams already existed at MIT, these students imagined that building an autonomous vehicle for an aerial task would be a particularly difficult and rewarding challenge. Now, they combine their knowledge and experience from aeronautical, mechanical and electrical engineering to solve a difficult problem, gain hands-on engineering experience, and win an inter-collegiate competition.

AUVSI's Student UAV Competition

In 1990, AUVSI realized the need to introduce future generations of engineers, scientists and operators to unmanned systems. To that end, AUVSI created several competitions, including the Student UAV Competition, with the hope of fostering ties between undergraduate engineers and the organizations developing UAV technologies. This competition seeks to engage students with the difficult task of building and testing an autonomous aircraft. Each year, the competition requires a team's UAV to complete a different realistic mission. This year's mission required a radio controllable aircraft to navigate a specified course and use onboard sensors to asses a series of man-made objects on

Our Progress in 2005

With the team forming in December, work on the A²RES project began the following month. Initially, a great deal of time was spent finding sponsors and developing the team. The highest priority of the team, in its first semester, was to develop a versatile aircraft that would be capable of carrying a previously unknown load and sensor package. An almost-ready-to-fly model aircraft was selected and heavily modified to accommodate the instrumentation devices and further increase the flying stability. While retrofitting of the airplane was in progress, other team members focused their efforts on developing electronics and software for a future competition. After a semester of development, our airframe has proven to be very reliable and have a long range.

Our Plans for 2006

This coming year, the team plans to resume work on the custom autopilot. This autopilot is being designed with an emphasis on low-cost and small form-factor. It is also intended to be a completely integrated solution with almost no external wiring required. We plan on developing the autopilot hardware by December and will begin flight testing in January.

From lessons learned this past year, the team's goal is to also build several small transportable, electric aircraft that will allow us to perform flight testing more often. These low-cost aircraft will allow us to test aggressively without the fear of losing

2006 Estimated Budget

Test Airframes	$2,284
Final Airframe	$3,620
Custom Autopilot Electronics	$9,860
Ground Station Equipment	$3,850
Payload Camera System	$1,240
Development Tools	$2,700
Operations	$3,500
Printing and Publishing	$1136
Competition Entry Fee	$500
Travel	$7,150
Tools	$1,500
Total	**$38,240**

Sponsorship Details

While our team has high aspirations, ambitious goals, and the people to realize these goals, the development of an unmanned vehicle is costly and would not be possible without the generous support of our sponsors. We are extremely grateful to all of our sponsors, recognizing that research and development would not be possible without your support. We appreciate our sponsors and make every effort to promote them. By sponsoring Project A²RES, your company will receive international visibility at the 4th Annual AUVSI Student UAV Competition. In the past, the AUVSI competitions have been televised on The Discovery Channel, Scientific American Frontiers, and other television, radio, and print media.

Thank you for carefully considering sponsorship of our student team.

Sincerely,
MIT's Project A²RES

For More Information on Sponsorship

E-mail: uav-admin@mit.edu