ISRAELDEFENSE

The Grey Owl system is on its way

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Designing, building and flying an autonomous aerial system for observation and target recognition, performed by students from the Faculty of Aerospace Engineering in the Technion who are participating in the annual AUVSI competition

A group of 9 students from the Aerospace Faculty in the Technion reinforced by 5 students from the Computer Science Faculty, under the guidance of Mr. Dror Artzi, an senior adjunct lecturer in the Aerospace Faculty, is developing this year an autonomous flying system for observation and target recognition.
The assignment the students undertook is a tough challenge, in fact it is not an easy task and it is tight-scheduled even for an industry experienced in the unmanned flying vehicles field.

The system will include an unmanned flying vehicle with an autonomous flying capability, equipped with stabilized cameras for ground target recognition while identifying their type and exact location, a computer that processes the pictures, a communication system for controlling the flight and picture transfer, a payload that can be released in order to directly hit a ground target, and a ground-based command station with a communication system for following the autonomous flight and collecting and processing the target pictures. Simply put, it is a comprehensive system that simulates a real combat system.
The best universities in the US and around the world take part in this prestigious competition and the different systems fly and display their performance for the judges over four days in the Webster airport, south of Washington DC.

As stated, the project is already underway and the team of students has already begun working on it while performing a methodical process of system engineering.
The Grey Owl system will have advanced capabilities, including:

- Flying between points defined by GPS coordinates and altitude, while avoiding going into prohibited areas
- Searching and identifying ground targets along a given flight route, from different altitudes
- Searching for targets in a given area and identifying their characteristics (location, shape, color, orientation, etc.).
- Autonomous take-off and landing
- Transmitting the information of the targets discovered in real-time
- Operation and control of the system from a ground control station

In addition, the students will need to conclude the work with writing an article describing the engineering work, and present it orally to the judges. The presentation will be done in the format of Flight Readiness Review (FRR), including references to all the safety issues of operating the system. The students will experience all steps of design, analyses, algorithmics, image processing, control, production, experimentation, operation, flying and testing of a real autonomous aerial system.
Without a doubt, this is a challenging Israeli project that could combine Israeli systems and exhibit their capabilities.
The IsraelDefense Magazine has given its sponsorship to the project and the system will be presented at the UVID 2014 conference.

Additional details about the competition for flying systems (Student UAS) can be found here:
http://www.auvsifoundation.org/Competitions/SUAS
http://www.auvsi-seafarer.org/
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