

2010 AUVSI UAS Competition: Fact Sheet

Rutgers University Autonomous Aircraft Team

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1 Airframes

We have two similar airframes for crash redundancy. The flight electronics and payload are modular. We use the same equipment in each airframe.

1.1 Daedalus

Maiden Flight 18 March 2010

Model: 10ft Custom Built Cessna
Wingspan: 10ft
Length: 6ft
Gross Weight: 27lb
Engine: 45cc two-stroke gasoline
Fuel: Gasoline with two stroke oil
Fuel Capacity: 24oz
Propeller: 22in (56cm) diameter
Battery: 7.2v 2.4Ah Lithium Polymer

1.2 12ft Telemaster

Under Construction

Model: Aero Craft Ltd. 12ft Telemaster
Wingspan: 12ft
Length: 7ft 6in
Gross Weight: 27lb
Engine: Fuji-Imvac BT-43EI 43cc
Fuel: Gasoline with two stroke oil
Fuel Capacity: 24oz
Propeller: 22in (56cm) diameter
Battery: 7.2v 2.4Ah Lithium Polymer

2 Autonomous Control

Autopilot: Paparazzi Autopilot for Linux
Hardware: Beagleboard Single Board Computer
Battery: 11.1v 1.5Ah Lithium Polymer

2.1 Sensors

GPS: uBlox LEA-5H based
IMU: Custom three-axis Accelerometer, Magnetometer, and Rate Gyro

3 Payload

Camera: Sony MHS-PM5
Resolution: 5MP
Pan-Tilt unit: 120 degree tilt, 720 degree pan

4 Radio Systems

4.1 R/C Saftey Radio Link

Futaba 2.4GHz FFAST 6 channel radio system
Frequency Band: 2.4GHz

4.2 Autopilot Long Range Telemetry

Maxstream XBee Pro Series 2.5
Frequency Band: 2.4GHz

4.3 Autopilot Wifi Telemetry

802.11n 5GHz Router and USB Adapter
Frequency Band: 5GHz

4.4 Video Downlink

RangeVideo TX-900 500mW Video Transmitter
Frequency Band: 900MHz
Power: 500mW
License: FCC Amateur Radio Technician



Figure 1: The Daedalus. Maiden flight on 18 March 2010 available at <http://bit.ly/RUdaedalus>