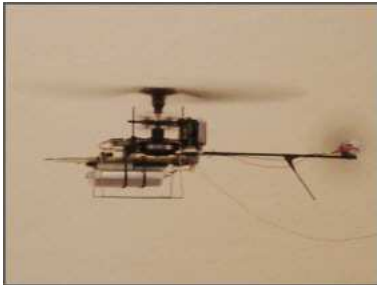


Hornet-3 is airborne



The Hornet-3a made its first flight on January 30th 2009 at the Prox Dynamics premises. The very first flight included stable “hands off” hovering and the aircraft was airborne for several minutes.

The Hornet-3a is a completely new design featuring a new brushless motor, a complete array of flight sensors including a pressure sensor, gyros, accelerometers, magnetometers and a two way digital radio link. It also proved the company’s ability to transfer technology from previous version to a new

design. Physical characteristics such as centre of gravity and moments of inertia was derived from the CAD model and used in Prox Dynamics’ in-house developed mathematical simulation model to calculate coefficients for the “fly by wire” flight control system in the UAV.

The picture below clearly shows the differences compared to the Hornet-2 (see Newsletter Q4-2008). Below the rotor mechanism; the brushless PDM motor is visible with the motor controllers mounted in front. The highly integrated electronics package is located between the battery and the structure, the weight is less than two grams including all flight sensors. The tail motor will be replaced by a brushless motor at a later stage. The E/O sensor is not yet mounted but all provisions are ready including plenty of signal processing power for video compression. The coin to the right of the helicopter is an US quarter dollar.

One of the more pronounced differences when airborne is the sound picture. The direct drive main motor makes the helicopter almost noiseless except for the humming from the high RPM tail rotor. The propulsion system is far more efficient than in the Hornet-2, and Hornet-3a has already demonstrated more than 25 minutes continues flying on a single battery charge.



The high speed digital radio link, also developed by Prox Dynamics, is a first step in making a Ground Control

Station. It allows the engineers to downlink real time telemetry from the helicopter for flight analyses, and also uplink new flight control gains and other data to the helicopter in addition to control inputs. This will be a valuable tool in the ongoing flight testing.

Over the coming weeks the Hornet-3a will undergo extensive testing and in turn the different flight sensors will be fused into the autopilot to allow ever increased performance and an expanded flight envelope.

Prox Dynamics releases artist’s impression of the PD-100 Black Hornet system

Prox Dynamics PD-100 Black Hornet will be a complete pocket sized system comprising three aircraft and a Ground Control Station that doubles as a protective transport container. The first concept drawings are released showing one possible layout.



The GCS will include all necessary functions and features needed for the operation of the UAVs. The aircraft inside the GCS may be assembled and made ready to fly in three easy steps. The size of the total system is approximately 15 x 15 x 5 cm (6 x 6 x 2 inches) and an estimated weight of 0.5 kg (1 Lbs).

Prox Dynamics presents paper at the 24th UAV conference in Bristol, UK

Prox Dynamics will be presenting a paper at the 24th Bristol International Unmanned Air Vehicle Systems Conference in March/April 2009. The title of the paper is Nano UAS – An upcoming reality. Demo flights with the Hornet prototype will be performed during the presentation. Please use the conference link for further details:

<http://www.aer.bris.ac.uk/uavs/>.

Expanding the Team

The development of the PD-100 Black Hornet system goes very well with several new activities under way. To keep up with all ongoing and new activities Prox Dynamics is planning to substantively expand the team in 2009. The company is looking for young and enthusiastic people and will be hiring engineers from different fields:

- Software
- Hardware
- Video
- Radio
- Signal processing
- Aerodynamics

Please check the Prox Dynamics website Careers section in the coming weeks for more details.

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