

# THE FUTURE IS HERE!



Newsletter # 1711

## AFFORDABLE AERIAL MONITORING

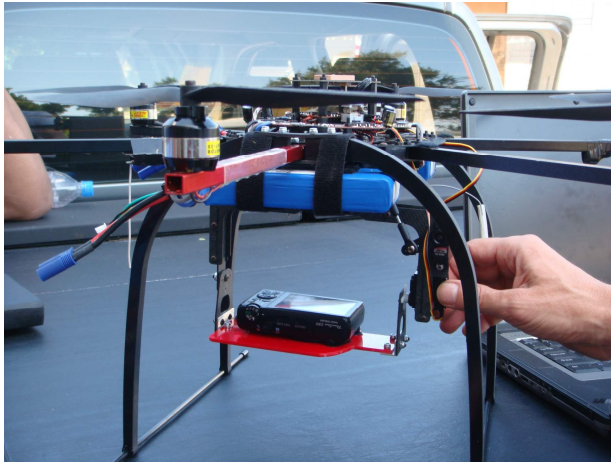


In collaboration with



Unmanned Air Vehicle Systems Engineers

Technological and Environmental Management (TEM) Network Ltd., environmental consultants, in collaboration with Duwatech, unmanned air vehicle systems engineers, have formed a strategic partnership to bring emerging technology to Jamaica and the Caribbean region— we now provide aerial photography (including obliques and vertical points of view, monitoring and low noise signature surveillance) at low altitudes using unmanned air vehicles (UAVs). These multi rotors have been named “Explorer”, followed by a suffix that designates the particular model: SH, SQ, SLH (used by law enforcement), SYO (8-rotor), HVQ (4-rotor, bigger payloads, longer flights).



*The Explorer SH pictured here, is typically 61cm (24") in diameter, 42cm (16.5" ) high and weighs a mere 2Kg (4.4lbs).*



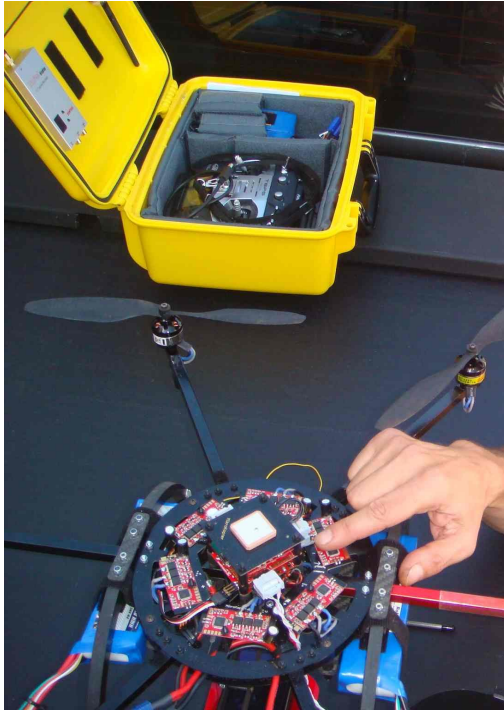
*The Explorer SH can fly for 36 minutes and has an integrated GPS system, with a default option that allows it to return to its starting position (home) automatically.*



*Explorers can have four, six or eight engines depending on the model and desired function. Way points can be programmed so that a specific route is flown with great accuracy and precision. A payload of up to 1kg for the Explorer SH allows it to carry a HD camera or video cam on a gyroscopically stabilised tray for acquisition of the desired high quality vertical or oblique images.*



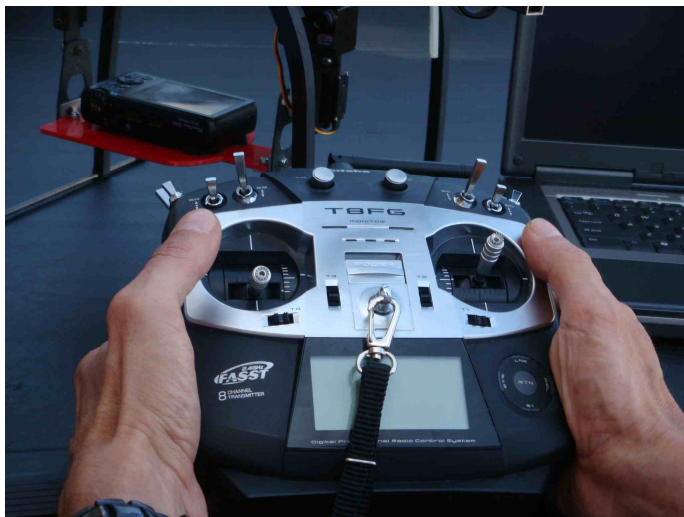
*The Explorer's integrated circuitry is contained in a light frame and housed under a custom-made, protective, moulded polycarbonate hemisphere.*



*The Flight-Control circuitry is the "brain" of the Explorer and contains the main processor and sensors necessary for stable flight. The controller is programmed with proprietary software from Duwatech.*



*The Explorer SH is powered by lightweight, high capacity Lithium Polymer (LiPo) batteries which allow up to 36 minutes of flight time, depending on the size and weight of the payload being carried.*



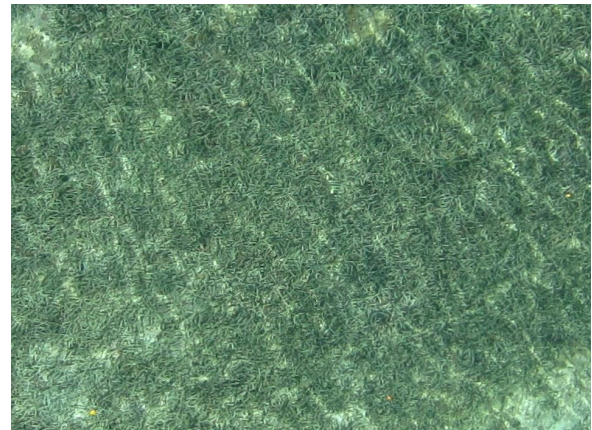
*Explorer's flight paths are preprogrammed via a laptop or manually operated with a remote controller. The Explorer SH carries six electric motors with 10" propellers that allow fast take off, high climb rate and ease of operation in winds of up to 50 Km/Hr to provide a steady platform for capturing images at low altitudes. A transmitter/receiver system and wireless communication with the base station laptop allow mission parameters to be changed in-flight if necessary and make possible, real time monitoring of the flight path in low-vis situations and downloading of photographic data while the craft is still flying its mission.*

It is also possible to fit the Explorer with a variety of environmental sensors to monitor humidity, CO<sub>2</sub>, CO, methane, butane (and other gases of the hydrocarbon family), as well as a Geiger. Readings are relayed directly to the ground station. Advanced configurations (more expensive) allow a secure HD video link to be established with the ground and relayed on the Internet via a secure server. In addition, the pilot can be fitted with a special pair of goggles that allows him to see – in real-time – where the craft is heading. In this configuration, the telemetry is superimposed on the video feed, allowing the operator to monitor all vital parameters. The on-screen display also includes distance and direction to home. Flying in this mode allows a pilot with advanced flying skills to fly in difficult to access or over-the-hill locations.

TEMN and Duwatech have already demonstrated the applicability of the Explorer to environmental monitoring with considerable cost savings in achieving monitoring objectives. The project - Auditing of the Sea Grass Mitigation exercise in connection with the Falmouth Cruise Ship Port Development made use of the Explorer's high resolution, low altitude imaging and integrated GPS capability. Geo-referencing of the captured images enabled fast and reliable identification of significant areas of previously unmapped candidate sites suitable for sea grass restoration activities.



*Left: Coastline Near Braco from an altitude of 70 meters.*



*Right: Seagrass blades visible in 1.5 meters water depth from an altitude of 10 meters.*

The high resolution images generated at low altitude demonstrate further, the potential for using Explorer in a variety of environmental monitoring situations.

The future is here!

## CONTACT US TO UTILISE THE SERVICES OF THE EXPLORER



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