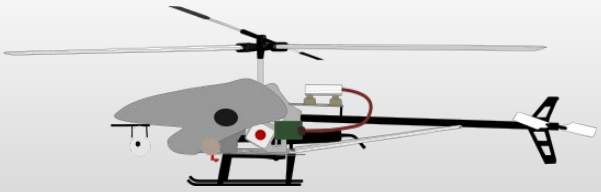
airelectronics
UAV AUTOPILOTS



Benzine Kit + U-Camera

Airlelectronics offer a complete solution for users who want to enter in the rotary wing UAV world.

Using a standard computer, the user can plan, fly and modify the UAV mission in real time thanks to the U-Pilot flight control system and the U-See ground station software.

The operator doesn't need any previous flight experience because the system can fly 100% in automatic mode: from the take-off to the landing. In case of a communication problem the aircraft will come back home and land safely.

The helicopter used is the Vario Benzine Trainer RC, helicopter conveniently adapted to become a full featured UAV without the customer having to worry for anything.

The brain of the UAV is the Airelectronics' U-Pilot flight control system. Being based in FPGA technology, U-Pilot's configurability and flexibility is unsurpassed and the advanced sensor mixture using extended Kalman filtering assures an optimal attitude and navigation control. It can be adapted to control any payload you want, and has camera control capabilities already built-in, including geo-reference of a camera image.

Also, Airelectronics U-camera is a gyro stabilized solution for users that need video stabilization on airborne surveillance platforms. Due to its light weight and reduced size, U-Camera is suitable for small and medium sized UAVs, both rotary and fixed wing.

U-Camera provides various modes for stabilization, including commanded angles, commanded rates, safe mode and pilot mode.

As Airelectronics U-Pilot, U-Camera is powered by FPGA technology. Using optical zoom, stabilization becomes an essential feature that allows to capture small details even at longer ranges. It provides live video streaming, so the user, with a standard computer, can watch the video stream in real time and modify parameters of the video using the same computer he is employing to supervise the flight plan.

Possible Applications

Border control

Survillance in terrestrial and maritime borders

Police Usage

Demonstration control, anti-drug operations

Traffic Control

Surveillance and road traffic monitoring

Fire Fighting

Monitor Active fires, avoid reactivation of controlled fires

Military

Forward observer, over the hill recon missions

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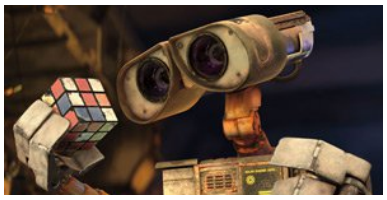
Real-Time Video Feed

Using a video transmitter you can receive real-time video

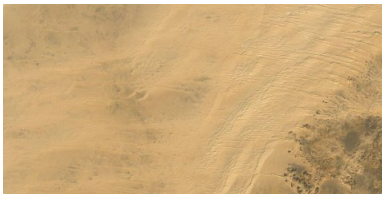


Fully autonomous

No human intervention required during flight

Affordable

Unlike other solutions, the prices are reasonable



Camera geo-reference

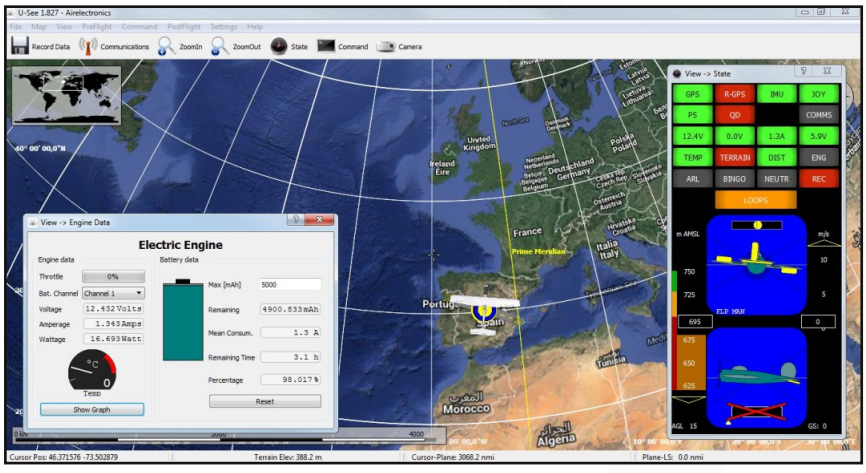
The system can give geo-referenced images

10x Optical Zoom

Able to capture high resolution details

360º Pan Continuous

360º Field of View, allowing full reconnaisance of the environment



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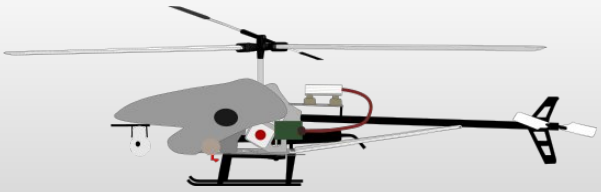

Benzine Kit + U-Camera

Flight control Specification

Flight control

Attitude Estimation & control..... 1000Hz rate
Flight-plan..... Up to 200 way-points
Speed Control..... Auto-throttle
Take-Off & Landing..... Automatic

GPS Positioning

SBAS..... Global coverage
Differential navigation..... Available on request
Channels.....12
Positioning from command interface...Configurable

Interface with Payloads & Actuators

PWM & GPIO outputs.....30
PWM rate (configurable)..... Configurable
RS-232 ports..... 4 RS-232 compliant ports
RS-232 Rates..... 9600 – 115200 bps
External ADC channels.....3 channel 12bit - 0-30 V
Main Voltage supply supervisor

Telemetry

Data-Link Frequency 900MHz/1.4 Ghz/2.4GHz
Power.....1 W
Range.....100 km / 80km / 40 km
Baud rate..... 115200 bps

Air Data System

Dynamic pressure sensor range.....0 – 200 km/h
Static pressure, low altitude option ..... 0-2000 m
Static pressure, high altitude option.....0-4000 m

The recommended hardware is the MacBook Pro 13" with BootCamp and Microsoft Windows 7.

Aircraft Specification

Dimensions

Main Rotor..... 1800 mm
Length..... 1460 mm
Width..... 200 mm
Height.....520 mm

Weights

Empty Weight.....8,2 kg.
Maximum Take-Off Weight..... 11,0 kg.

Endurance

Standard Fuel Tank.....25 min.
Full Fuel Tank.....120 min.

Pointing Control

Pointing Control.....Fully 3D pointing control
Pan-Tilt Pointing.....Yes
Rates Pointing.....Yes
Stow Mode (Protected Lens).....Yes
Pilot Mode (Look Forward).....Yes
Camera Modes.....Geo-Pointed, Stable, Manual

Video Module

Sensor.....1/4-type EXview HAD CCD
Zoom Ratio.....10X
Angle of View.....46.0° (Wide) to 4.6° (Tele)
Video Output.....PAL
Available Output for Video Tx Supply.....12V
Horizontal Resolution.....530 TV Lines

Temperatures

Maximum Temperature Range.....-30°C to +85°C
Recommended Temp. Rating.....+10°C to +60°C