AIRROBOT®

Micro Unmanned Aerial Vehicle

With Autonomous Flight and Navigation Capabilities

and Modular Payloads

RECONNAISSANCE SURVEILLANCE SEARCH AND RESCUE INTELLIGENCE INSPECTION

AIRROBOT

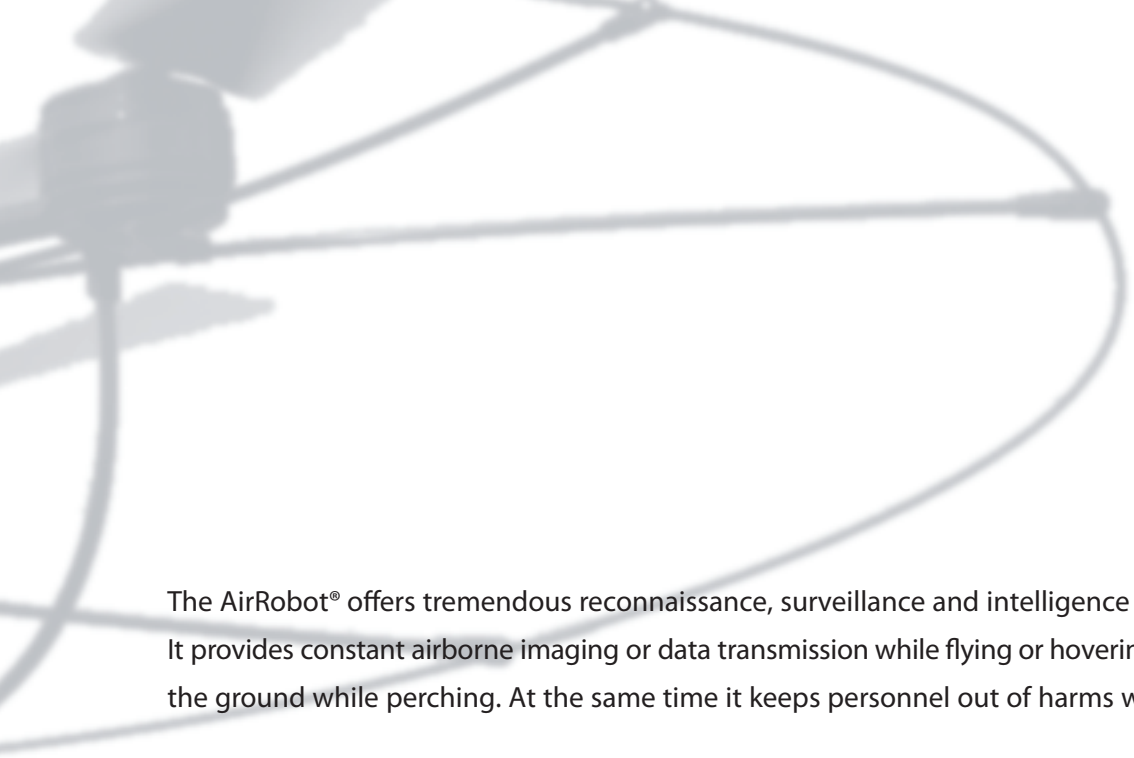
is a new Micro Unmanned Aerial Vehicle (micro UAV) with autonomous flight and navigation capabilities that utilises modular payloads for:

- Reconnaissance
- Surveillance
- Search and Rescue
- Intelligence
- Documentation
- Inspection

The AIRROBOT can go where no other unit can go, providing vital real time information from the air or the ground, while keeping personnel out of harms way.

With the AIRROBOT a new dimension in operational effectiveness, situational awareness and tactical advantageis now available to:

- Search and Rescue Teams
- Firefighters
- Law Enforcement
- Military
- Special Operation Forces



The AirRobot® offers tremendous reconnaissance, surveillance and intelligence capabilities. It provides constant airborne imaging or data transmission while flying or hovering and from the ground while perching. At the same time it keeps personnel out of harms way.

With the AirRobot's® unique autonomous self-positioning and self-stabilizing flight management processor, non-pilot operators can safely operate the AirRobot®. It is lightweight and ready to deploy within minutes by asingle operator. With vertical take off and landing capabilities there are no limitations to where the unit can be use, even in urban, confined or complex terrains. The almost silent operation avoids escalation of critical situations as well as enabling the unit to be used for stealth surveillance missions.

Affordable, responsive, easy to operate, simple to learn and use, the AirRobot®safely provides forward observation and presence without placing the operator at risk. With its interchangeable payload capability it can be used for a wide variety of applications:

- Day/night surveillance/reconnaissance/documentation
- Hover and stare, perch and stare operations
- Security/early warning
- Inspection of critical assets like bridges
- Remote detection of hazardous/radio active materials
- Transport of small items like walky talkies for search and rescue

FLYING PLATFORM AR 100B

The flying platform AR 100B is a vertical take off and landing autonomous micro UAV. Its unique technology allows for fully autonomous stable "hands-off", "hover and stare" operation using GPS or optical position lock. The optical positioning system memorizes the underlying area and keeps the unit in position even in conditions where a GPS signal is not accessible.

The unit is further stabilized with a unique combination of gyroscopic, barometric and magnetic sensors. The AR 100B will maintain its position, direction and flight altitude without operator interference. It is safe to operate at all times. When the unit does not receive any commands it will simply stay in position - even under windy conditions. A non-pilot operator can achieve safe operation without the skills associated with a pilot.

The AR 100B can be controlled by the operator using the life video feed. The unit does not have to be in sight, the operator flies as if sitting in the cockpit using the video feed to control the flight. This allows for remote landing and launch Used as a ground sensor the AR 100B still retains the ability to take-off and fly to an other location, or to follow any object of interest that is moving.

The AR 100B has the ability to move in all directions including sideways and backwards. The electrical propulsion makes the AR 100B almost silent to operate. Batteries can be exchanged in a snap to extend the operation time. All moving parts are protected by a ring, which avoids damage to the rotors in case of an unintended collision with an obstacle.

A non-pilot operator can achieve safe operation without the skills associated with a pilot.

KEY FEATURES

Auto Position	GPS and optical lock
Auto Stabilization	altitude and direction with barometric-, magnetic-, gyroscopic sensors
Electrical Propulsion	4 maintenance-free, brushless and gear-less motors running at 2000-rpm maximum for almost silent operation
Max Ceiling	1000m (3000 ft)
Endurance	< 30 min
Max Payload	200g (0.5 lbs)
Payloads	User interchangeable without tools, step-less tilt mechanism allows for 100 degree remote controlled tilt
Deployable Radius	500 m (1800 ft) limited by analogue video signal 1500 m (5000 ft) limited by digital video signal
Environmental Conditions	Sealed electronics and motors capable of operation in rain, salt, fog, sand, dust
Max Wind Load	8 m/s
Max Airspeed	50 km/h (30 mph)
Launch / Recovery	Vertical take off, landing and recovery
Autonomous Landing	When battery limit is reached or radio communication is lost
Battery	Lithium Polymer, Recharging time 1 h 15 min
Temperature Range	30oF - 115oF, 100% humidity
Gross Weight	1 Kg 2 lbs
Diameter	1 m (40 inches)
Receiver	HF radio transmission

PAYLOADS

The modular payload concept greatly extends the range of applications for the AirRobot®. From constant airborne video imaging over IR sensors up to measurement and detection of hazardous and radio active materials, the AirRobot® will accommodate the appropriate sensors. All payloads can be tilted remote controlled up to 100 degrees. Cameras can look in all directions including straight down. The operator can change all payloads without tools within minutes.

All payloads are self contained and sealed. They can be exchanged in less then a minute.

Affordable, responsive, easy to operate, simple to learn and use, providing forward observer presence without placing the operator at risk.

AVAILABLE PAYLOADS

Daylight color video camera
Resolution 480 x 640 px
Frame Rate: 25 fps PAL, 30 fps NTSC
Angle of view 70 degrees

The daylight video camera provides real time video feed to the ground station or video glasses. Video can be recorded for documentation with the optional documentation software or external device. The optional software package also allows for capture of still images out of the video feed.

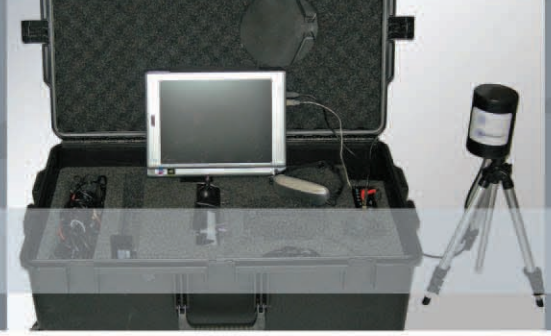
Dawn/ low light black and white camera
Black and white imaging
Resolution 570 lines
Frame Rate 25 fps
Sensitivity 0.0003 lux
Angle of view 90 degrees

For surveillance, reconnaissance in low light conditions with life video feed and optional recording for documentation purpose using documentation software. The optional software package also allows for capture of still images out of the video feed.

10 MP Still Camera
Color still images 3648 x 2736 px
Sensitivity up to 800 ASA
Remote controlled 3x Zoom

Provides high-resolution still images. Images are stored on memory card in the payload. Camera trigger through documentation software based on video feed used as preview.

Infrared camera
IR thermal image camera
384 x 288 pixel array
Response 7-14 µm (filter bandwith)
Thermal sensivity < 50 mK
Refresh rate real-time 50/60 Hz
Start-up time < 1 sec.
Contrast/brightness advanced image processing
Operating ambient temperature -20° - 50°C
Automatic electronic iris
Optic focal length 15 mm, field of view 58,5° x 48,3° x 37,1°
Focus method manual, temperature stabilized
For detection of human activity up to 330 feet



GROUND STATIONS

The ground stations contain everything to control the AirRobot® and to communicate with cameras and sensors installed on the AirRobot®. Two versions of the ground station are available:

1. Ground Station Standard

With the ground station all functions of the AirRobot® can be controlled and overseen from a safe location. Battery status and GPS positions are constantly available. The payloads can be tilted and remotely controlled.

Contains:

- Radio remote control for flight operation
- Video receiver security link with 4-fold diversity receiver
- Video goggles
- Charger and battery for video receiver
- Antenna stand
- Transportation case for AR100 and components

2. Ground Station with Documentation

The station with documentation capacities in addition allows for recording of video footage including documentation of time and GPS position. Further it enables the operator to capture still images out of the video feed. It also features an orientation by point of the compass and a “home” guidance system, which makes it easy for the operator to steer the unit back to the original location when out of sight.

Contains:

- Radio remote control for flight operation
- Video receiver security link with 4-fold diversity receiver
- Video antenna
- Charger and battery for video receiver
- Laptop computer
- AIRROBOT documentation software
- Antenna stand
- Transportation case for AR100 and components

GROUND STATION SOFTWARE

The windows based GCS software displays all relevant data and records all transmitted video footage. All data is filed within a data base and linked to projects which contain time, date and GPS location of the recording.

The software also monitors battery status, flight data, distance and GPS position. For better orientation during flight under "out of sight" conditions it has a display of flight direction by compass point. A backtrack system makes it easy for the operator to steer the unit back to the original location. The user interface is straight forward, all information and controls are available from within one window.

Software Features

- Live video display (including full screen)
- Project-image preview tab
- Battery status AIRROBOT
- Battery status laptop computer
- GPS-signal strenght including readiness
- GPS data
- Date and time stamp
- Compass
- Backtrack
- Realative and absolute altitude

The software can be used in conjunction with the laptop computer as part of the base station with documentation or it can be installed on a windows computer system which is already mounted in a command center or vehicle.

AIRROBOT SYSTEM CHART

GROUND STATION STANDARD

Flight control with video goggles.

AR103

GROUND STATION DOCUMENTATION

Flight control with laptop computer and documentation

AR104

CUSTOM SOLUTIONS

for integration into command centers and vehicles

Flight control and documentation based on existing computer equipment

Set 1: AR192

Set 2: AR191

FLIGHT BATTERY LIPO

AR037

CHARGING STATION

for LIPO Batteries

AR014

Required for operation. Please order separate - not part of AR100, Ground stations or complete sets AR 191 and AR 192

FLYING PLATFORM

AR100B

Flight platform only. Without payloads and tilt mechanism. Does not include remote controller, batteries, charger and payloads

PAYLOAD TILT MECHANSIM

AR005

Required for attachment of payloads

DAWN/ LOW LIGHT CAMERA

Constant airborne b/w video feed under low light conditions

AR003

DAYLIGHT VIDEO CAMERA

Constant airborne color video feed under daylight conditions

AR002

10.0 MP STILL CAMERA

High-resolution still images stored on card in payload and contant video feed

AR026

IR CAMERA

Thermal imaging - detection of human activity in up to 330 ft distance from unit

AR027

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