

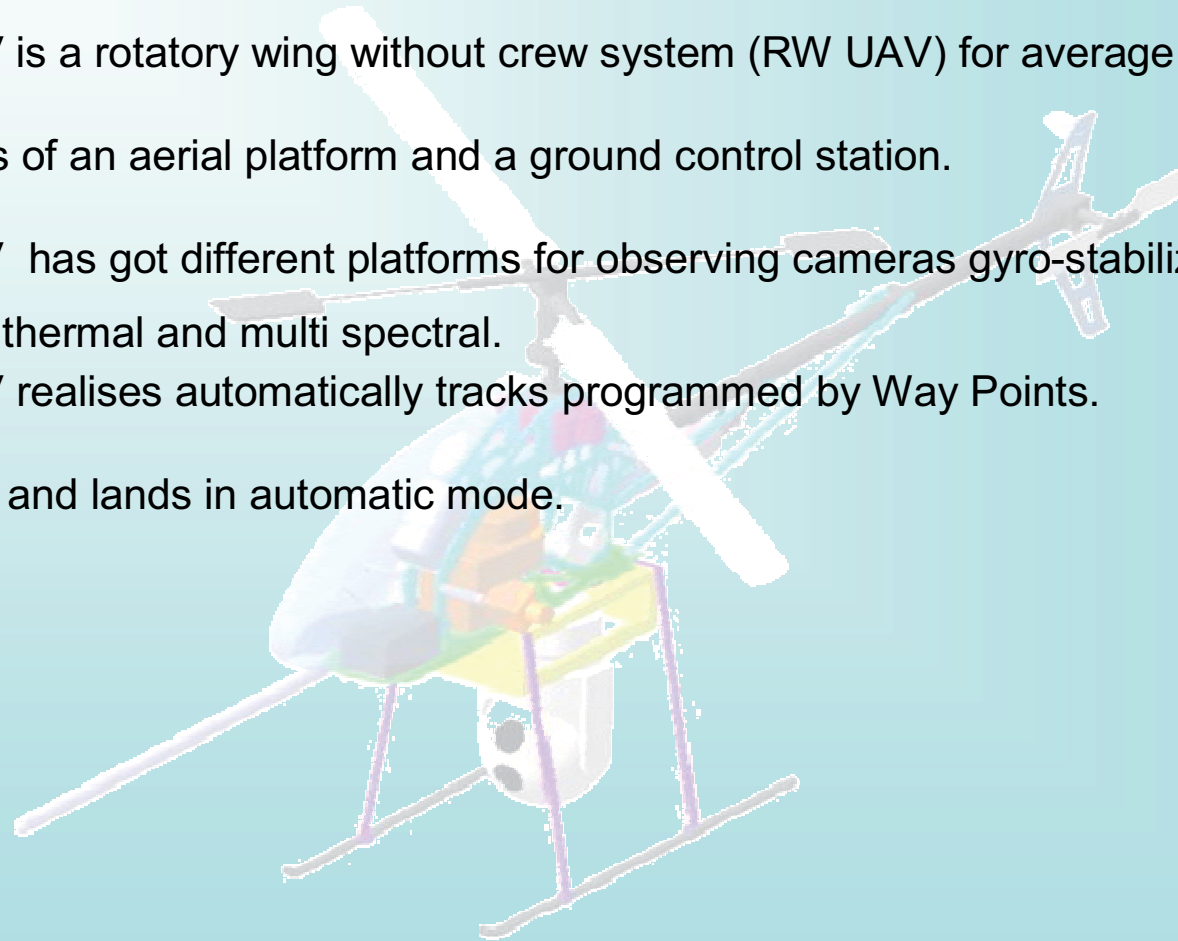
HEL-UAV (Vigilance Light System)



INDA
INNOVACIONES Y DESARROLLOS
AERONAUTICOS, *sociedad limitada*

¿What´s HEL-UAV?

- HEL-UAV is a rotatory wing without crew system (RW UAV) for average distance.
- It consists of an aerial platform and a ground control station.
- HEL-UAV has got different platforms for observing cameras gyro-stabilized as high-definition thermal and multi spectral.
- HEL-UAV realises automatically tracks programmed by Way Points.
- Takes off and lands in automatic mode.



Technical Characteristics of System HEL-UAV

- **Max. Take off weight (MTOW): 15,5kg.**
- **Endurance flight: 1-3 hrs (depending configurations)**
- **Range :**
 - Up to 45 km visual link FCS-GCS.
 - Up to 110 km to link (full duplex) of data and control (“spread spectrum”).
- **Motor 2T:**
 - Capacity: 30,5 cc.
 - Power: 2,9 Kw.
- **Dimensions:**
 - Rotor Diameter: 1,8 m.
 - Length: 1,8 m.
- **Autopilot AP04:**
 - Autonomous flight by “way point”.
 - Automatic take off and Landing
 - “hovering”.
 - Payload control
 - programmable in flight
- **Optimum observation height of 300 m from the ground**
- **Max. Speed: 100 Km/h**
- **Optimum speed operation: 55 Km/h**
- **Payload:**
 - Configurable to application requirements (Visible, infrared, multi spectral ...)
- **Sensors:**
 - Magnetometer.
 - Gyro meter and accelerometers in three axes
 - Pressure Sensors static and dynamic
 - Engine rpm
 - Measurements of the supply voltages of AP04 and servos.
 - Differential GPS embarked 4Hz



Technical Characteristics of Station Ground (GCS)

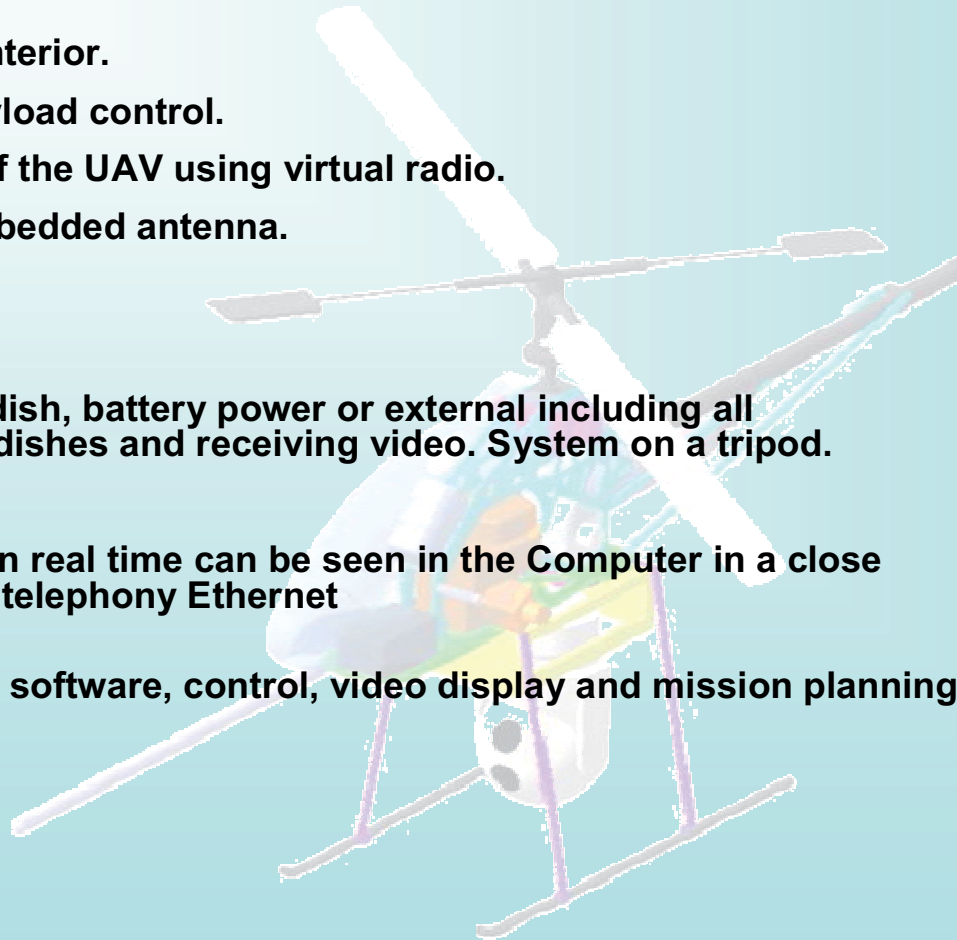
- GCS phone: rugged touchscreen computer, battery power up to 15 hours playtime
- GCS Fixed: PC interior.
- Gamepad for payload control.
- Manual control of the UAV using virtual radio.
- GCS payload embedded antenna.




GPS positioning dish, battery power or external including all communications dishes and receiving video. System on a tripod.

The video signal in real time can be seen in the Computer in a close circuit TV and 3G telephony Ethernet

Data presentation software, control, video display and mission planning.



Navigation System of HEL-UAV

Stabilization System	Autonomous control of all flight parameters
Navigation System	Navigation software based PC with GPS, including a continuous position in a geo referenced map
Take off and Landing	Fully automatic or manual
Flight 	<ul style="list-style-type: none">-Fully automatic: Flight predetermined coordinates.-Semiautomatic: Change of flight plan during flight and introduce new coordinates.-Manual: (HOVERING AUTOMATIC), when the operator introduces or changes new parameters of navigation.-Emergency (AUTO HOMING): Automatic return to the fixed base and automatic landing.

CIVIL APPLICATIONS: AUDIOVISUAL

RECORDING AND FOLLOWING:

- Concerts
- Sporting events
- Local Festivals



CIVIL APPLICATIONS: WINTER ACTIVITIES

- Avalanche control
- Vigilance ski slopes.
- Search for victims of avalanche.
- Predictive maintenance of ski facilities



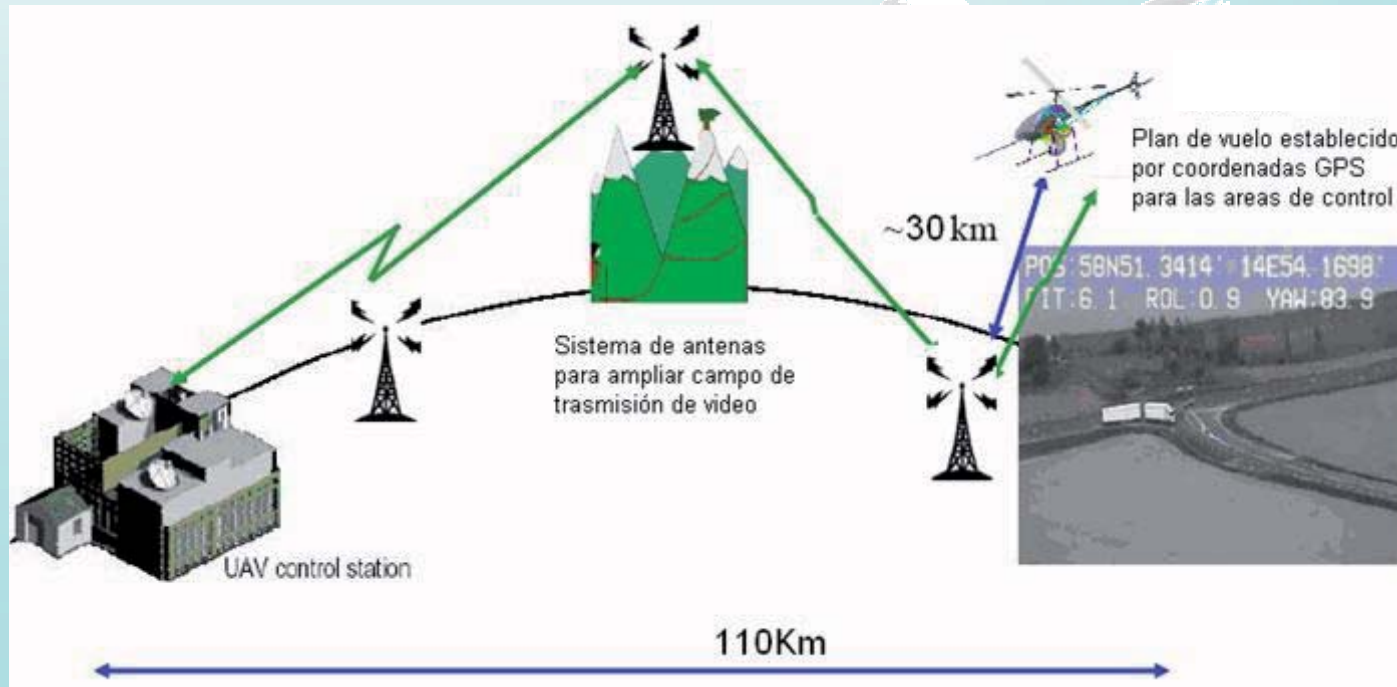
HEALTH EMERGENCIES : MEDICAL TRANSPORT

- Blood transport.
- Medicine transportation to villages without communication



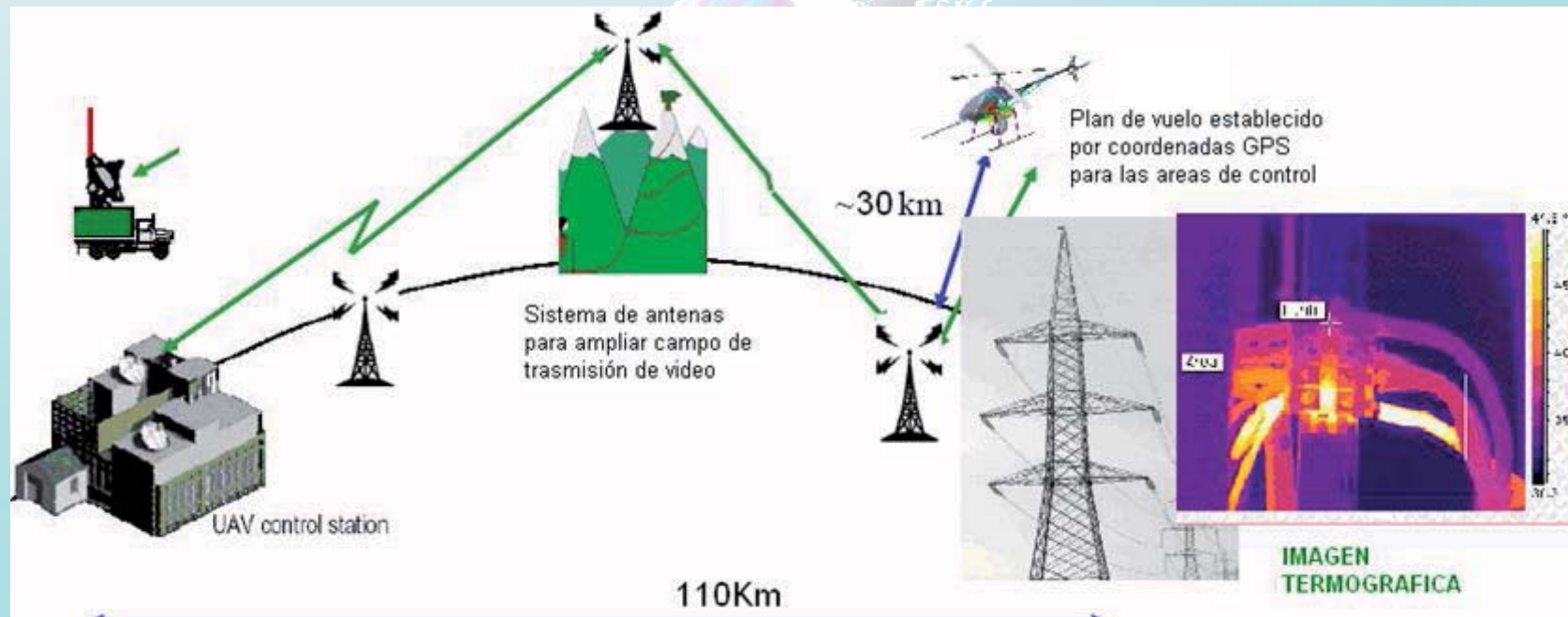
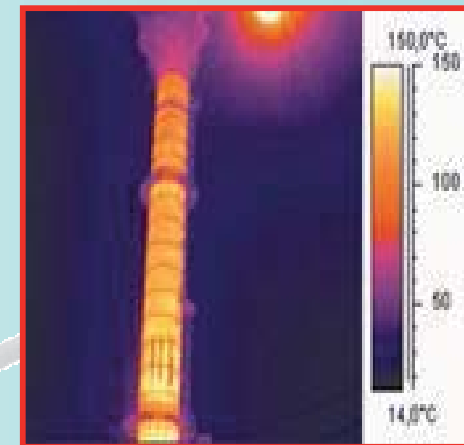
PUBLIC SERVICES: VIGILANCE AND CONTROL

- Borders, coasts, customs
- Traffic, urban
- Natural parks, poaching
- Police operations, control of events
- Search of missing persons



PUBLIC SERVICES: ENERGY INDUSTRY

- Lines of high-medium voltage
- Wind park
- Solar plants
- Pipelines
- Hydroelectric plants



AGRICULTURAL APPLICATIONS

- **Detection and control of plagues.**
- **Detection and actualization of hedgerows**
- **Water stress**



MARITIME APPLICATIONS: DETECTION, MONITORING AND COMMUNICATION

- **Detection and pursuit of school of fish**
- **Detection of survivor of wreck**
- **Communication between floats**



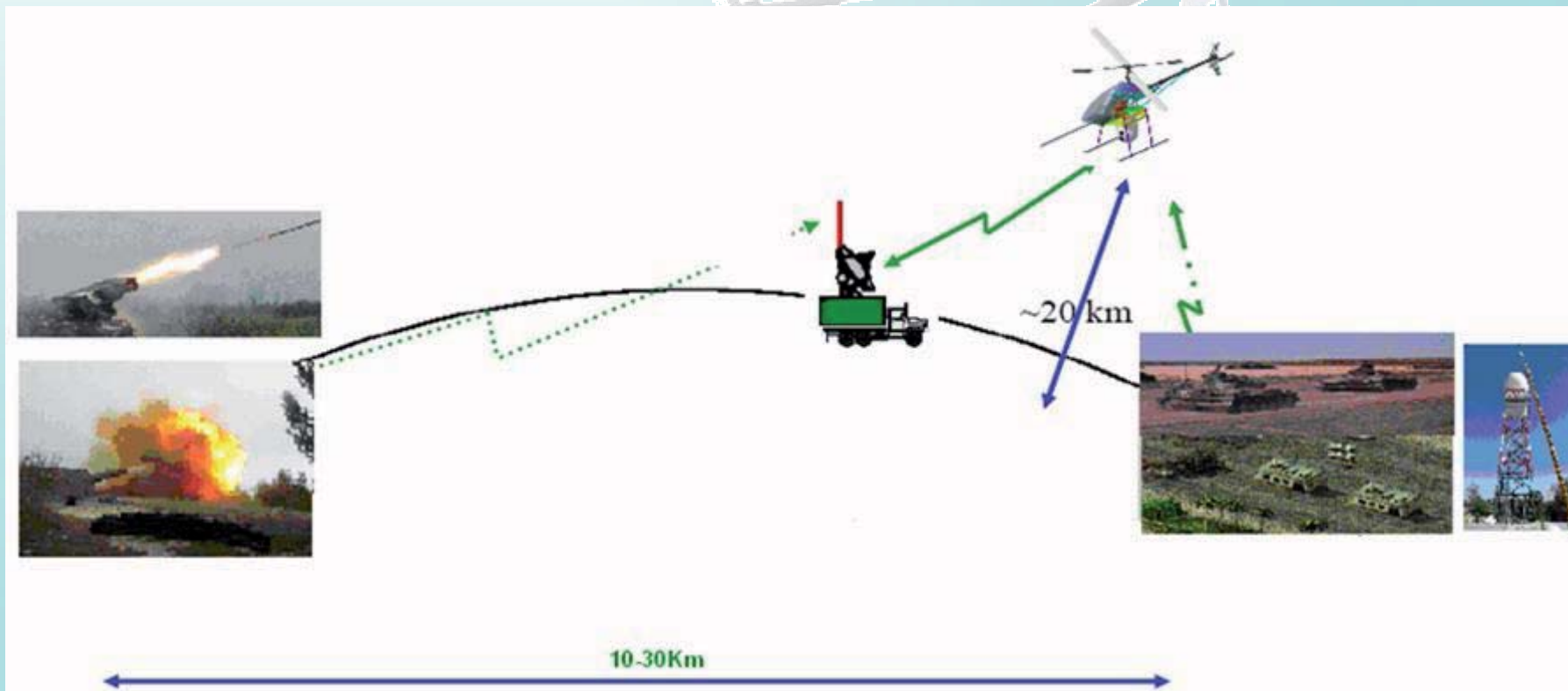
ENVIRONMENT APPLICATIONS: VIGILANCE, TRACING, SEARCH AND PROTECTION

- **Fires**
- **Endangered species**
- **Migratory birds**
- **Discharge in rivers, protected areas, etc.**
- **Search for missing persons**
- **Disaster Control**
- **Floods.**



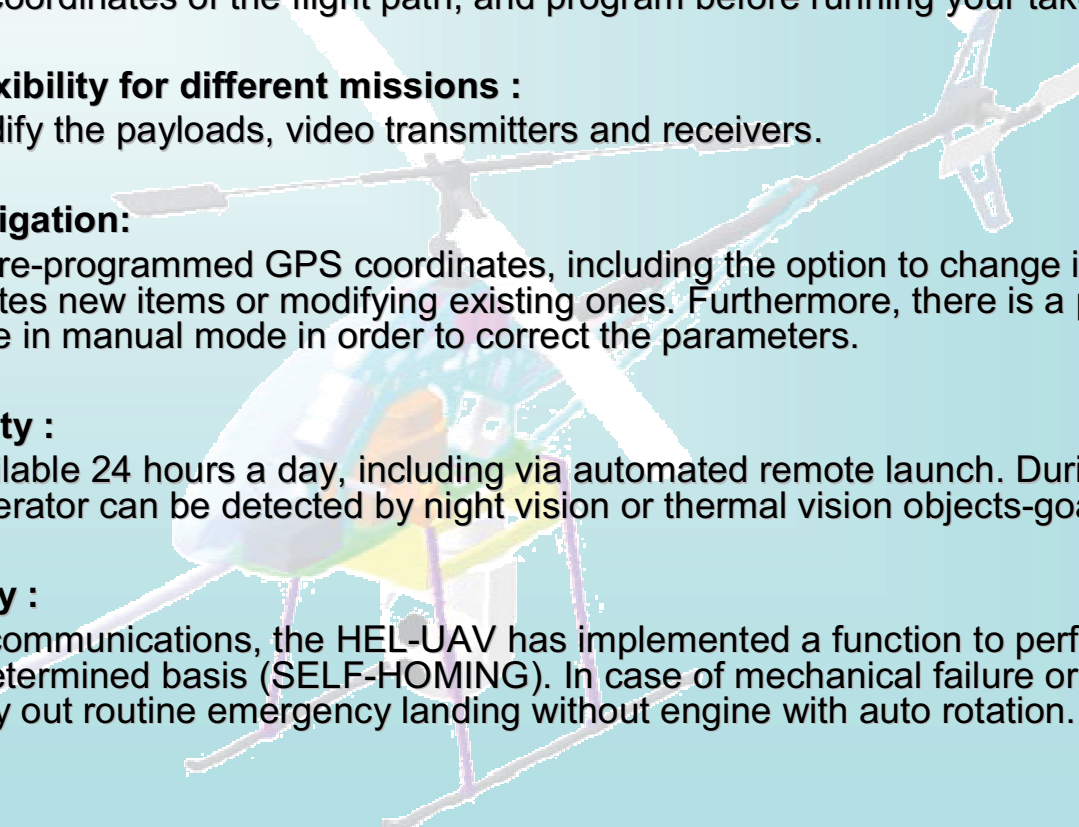
MILITARY APPLICATIONS

- Damage control
- Correction of shooting
- Target marking
- RW-UAV for tactical ground exercises
- Through the HEL-UAV the forward command post gets the information of troop deployment
- Decision-making in real time for Chief of Battalion
- Troop safety



Profits System

- **Automated air cell :**
The helicopter take off and landing runway or not requires special conditions. The helicopter flight HEL-UAV in flight can be fully automated and does not require a professional pilot in the ground station. The flight control can be triggered by the program that controls the flight computer, by selecting specific coordinates of the flight path, and program before running your takeoff.
- **Configuration flexibility for different missions :**
A request can modify the payloads, video transmitters and receivers.
- **Autonomous navigation:**
The flight path is pre-programmed GPS coordinates, including the option to change it during the flight and coordinates new items or modifying existing ones. Furthermore, there is a possibility at any time to operate in manual mode in order to correct the parameters.
- **System Availability :**
The system is available 24 hours a day, including via automated remote launch. During night operations, the operator can be detected by night vision or thermal vision objects-goals.
- **HEL-UAV Security :**
In case of loss of communications, the HEL-UAV has implemented a function to perform a single-wing back to predetermined basis (SELF-HOMING). In case of mechanical failure or engine, the HEL-UAV will carry out routine emergency landing without engine with auto rotation. Chance locator beacon.
- **Cost Saving:**
Low fuel consumption is greener (less impact on environment). Reduced maintenance



TARGETS

- LOW TIME:
 - RW UAV, HEL-UAV, 22Kg PAY LOAD.
 - UAV, AV-UAV-5.
 - SAFETY SYSTEMS (SAFETY BREAKS AND AIRBAG).
 - MEASURE SYSTEMS.
 - POWER SYSTEMS.
 - RECEIVED TV IN MOBILE PHONE
- MEDIUM TIME:
 - UGV FOR TRANSPORT
 - SWARM-NET WORK OF HEL-UAV

SERVICES

- RENT A RW-UAV.
- TRAINING FOR FLIGHT AND SYSTEMS
- SALES SYSTEM CUSTOMIZED.
- RENTING.
- POST SERVICE





THANK'S FOR YOUR ATTENTION