CANARD DRONES

smart solutions for smart airports

About us

CANARD DRONES was born in 2015 to offer an alternative solution for inspection of NAVAIDs and airports using drones and custom software tools.

CANARD has received several awards and recognitions, which makes us one of the most awarded tech startups in this industry, graduating from Startupbootcamp and ESA BIC incubators. CANARD has been granted R&D programmes, which have provided resources to continue innovating.

The traditional solutions for ground and flight inspection of airports and NAVAIDs have a very high direct cost and are very complex in terms of planning. CANARD provides a smart tool for airport maintenance. It is a disruptive solution that saves money and time.

CANARD has a team with huge experience in the Aerospace Industry, with competences and deep understanding of our customer's needs. These skills are key to develop the best solutions that are solving airports problems.

Just now there are around 10,000 commercial aircraft flying around the world, 1.1 million people depend on the safety of navigation systems, at all times.*

100,000
commercial flights around the world every day

1.1
millions of daily passengers

21,150
commercial aircraft with more than 100 seats

7,000
commercial airports

15,000
airports and aerodromes

48,000
aircraft in the next 20 years

*Flight Aware 2017 data

How we work

CANARD provides a simpler, faster and more flexible solution for NAVAIDs and airport inspections offering two options.

Solutions

With the purchase of our solution, we provide all the necessary resources to operate it (drone, payload, software tools, operational and maintenance support, ...). We provide training and support so our solutions can be operated by the end customer or a third party.

Services

CANARD performs inspections and calibrations with our fleet of drones and certified pilots, including COoR (Critical Operations on Request) cases. We take over the whole operation and provide the end results and reports.

Solutions and consultancy tailored to our customers on request

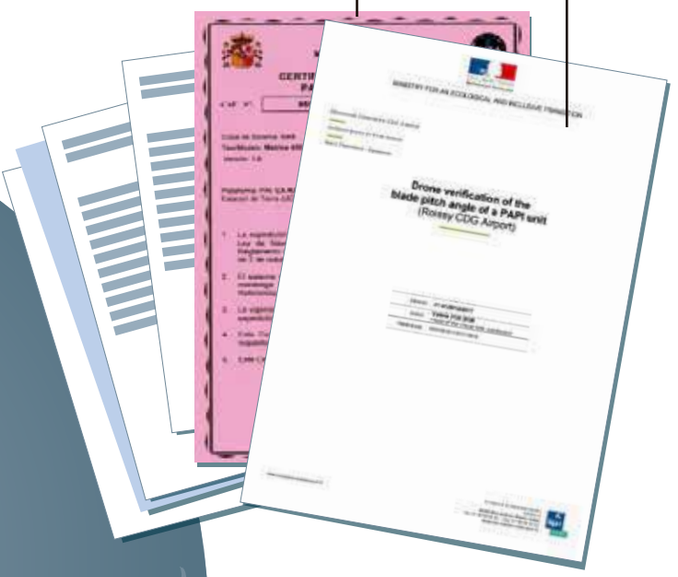
In order to perform the inspections in any country, CANARD obtains all the permits and certifications from the local CAA to operate drones within the airport environment.

In addition to the relationship with the CAA, CANARD coordinates with the airport the schedule and the logistics for the operation.

We have successfully performed PAPI verifications and commissioning in France, Poland, Spain, Finland, and Panama among other countries.

Spanish DoD CAE

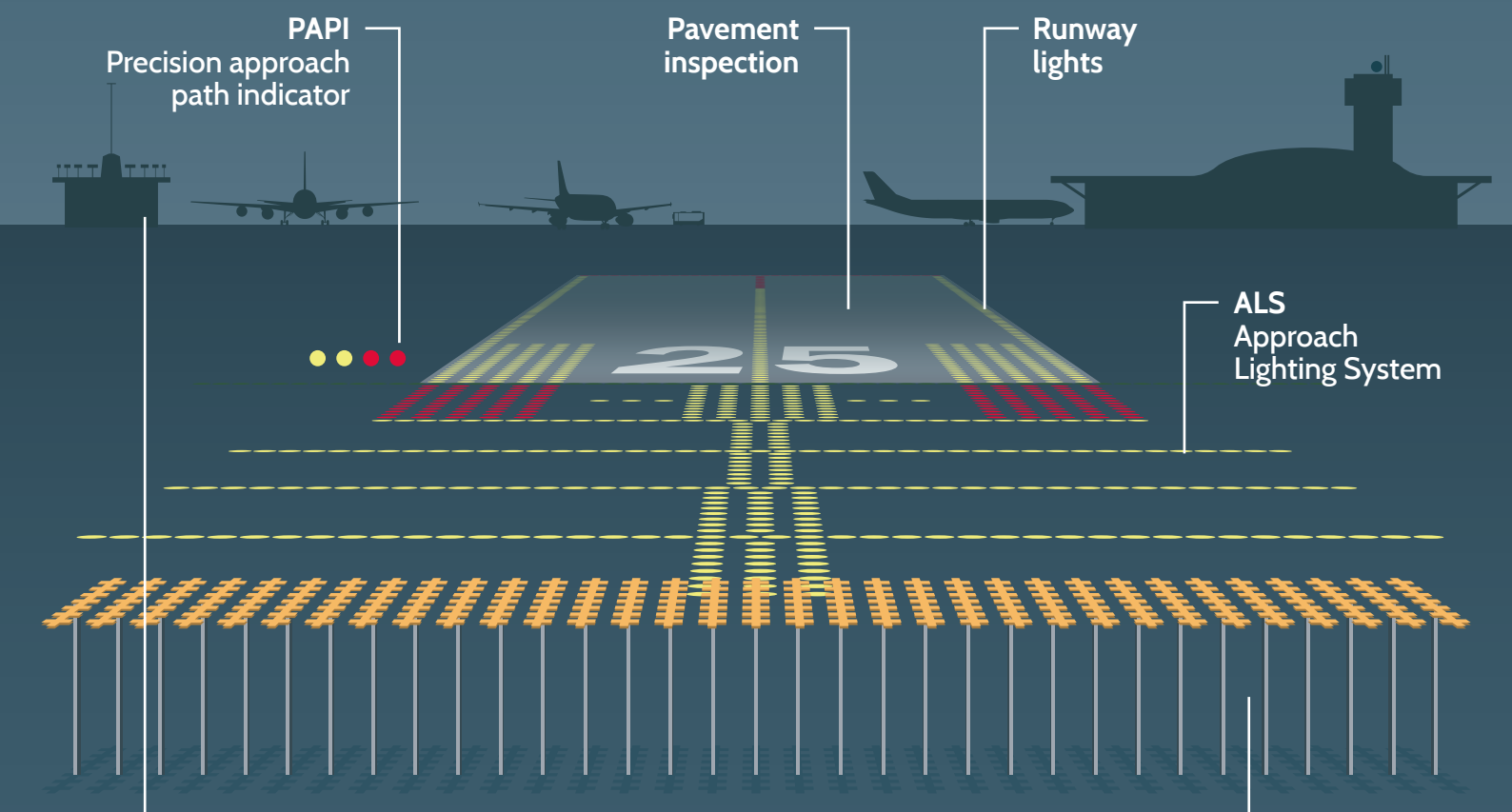
French DGAC recognition

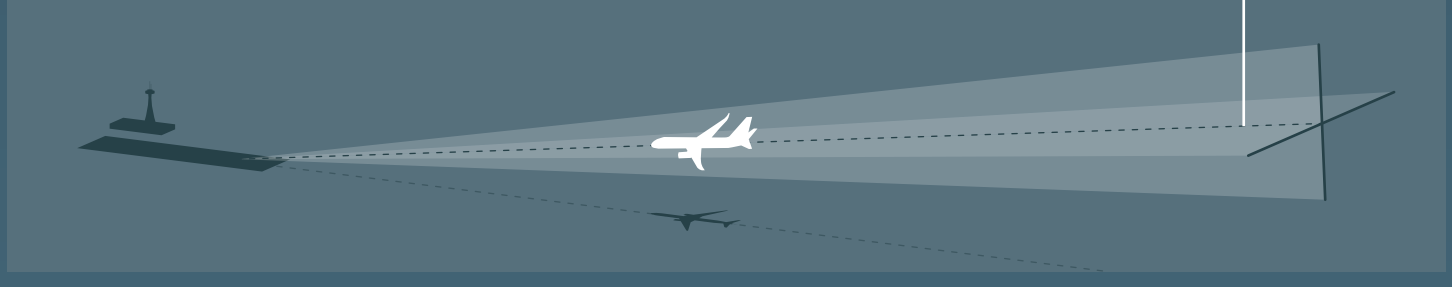


CANARD has obtained an official certification from the French DGAC for CANARD's solution and procedures.

Inspected systems

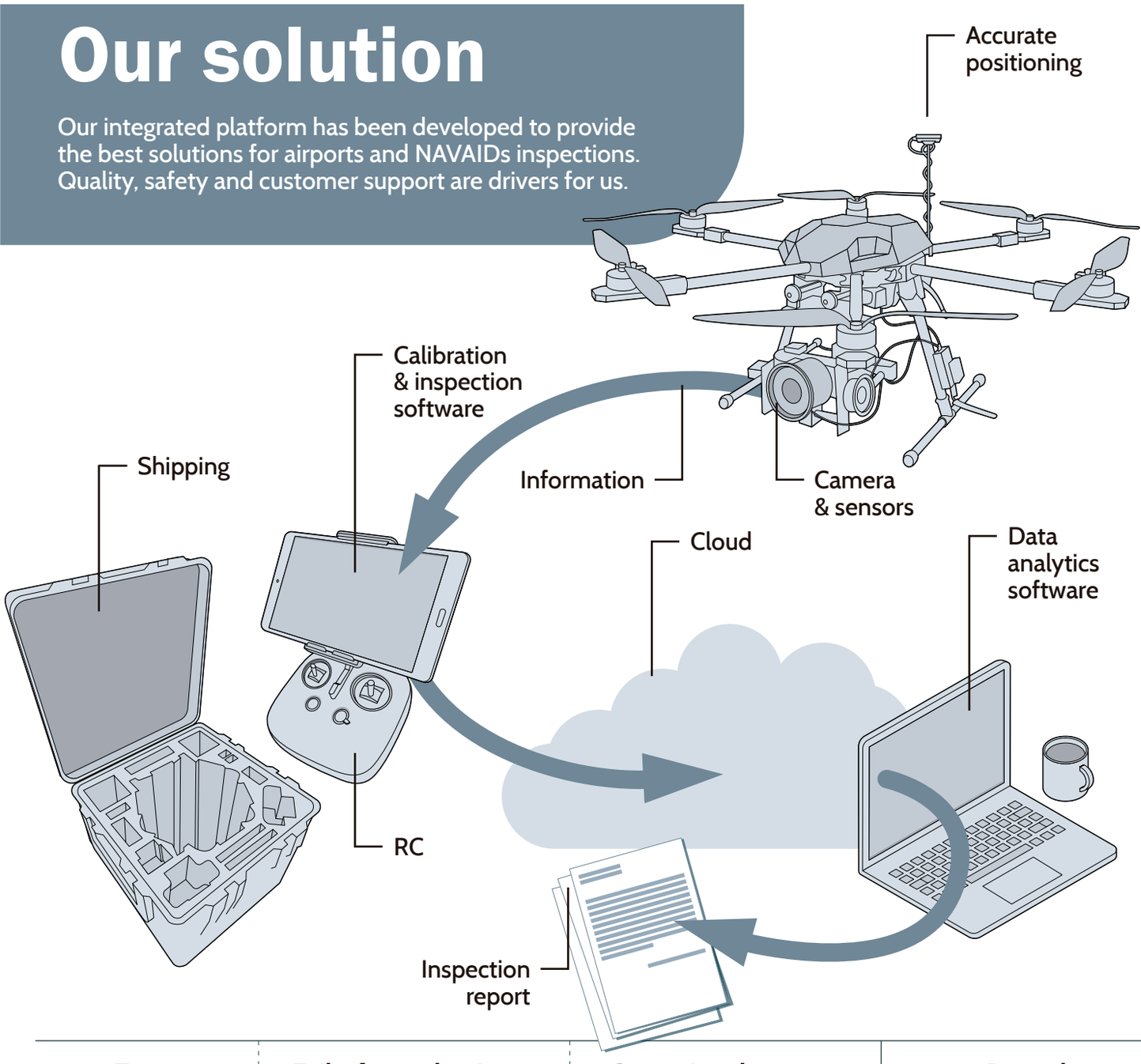
The integral solution developed by CANARD supports several types of inspections and maintenance activities in the airport environment and air navigation systems.





Our solution

Our integrated platform has been developed to provide the best solutions for airports and NAVAIDs inspections. Quality, safety and customer support are drivers for us.

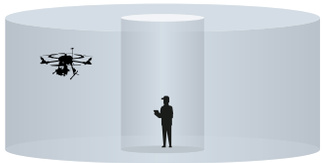


Team

pilot + operator

Failsafe mechanisms

Geofencing



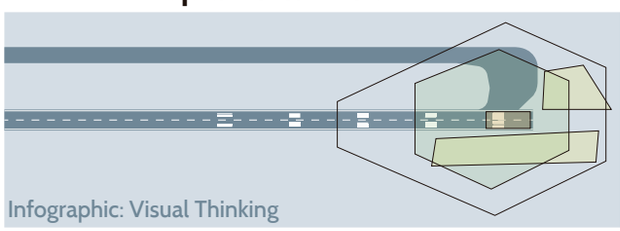
Return to home

Battery low

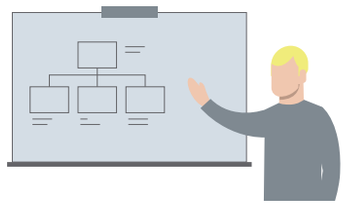
Operational support Maintenance

Procedures

Operational area



Training



Infographic: Visual Thinking

TECHNICAL INFORMATION

We use state -of-the-art drones with great performance and safety mechanisms that allow quick and precise measurements and support our suite of software tools.

M600 PRO

Characteristics

Weight:	10-12 kg
MTOW:	15.5 kg
Flight time:	25 min
Size:	167×152×73 cm
Max. range:	3.5 km

Shipping

Weight:	31 kg
Case size:	65×65×65 cm

M210 RTK

Characteristics

Weight:	5 kg
MTOW:	6.14 kg
Flight time:	20 min
Size:	88×88×43 cm
Max. range:	5 km

Shipping

Weight:	10 kg
Case size:	80×40×30 cm

CAPABILITIES

	PAPI	ALS	RWY LIGHTS	PCI	ILS	VOR	2D/3D MODELS
M600 PRO	✓	✓	✓	✓	✓	✓	
M210 RTK	✓	✓	✓	✓			✓

SAFETY

geo-fencing
battery level warning
Collision avoidance
Return to Home
Loss of GNSS
Loss of control signal

HOW IT WORKS

The core element of our solutions is the software that makes possible an efficient and automated inspection. It takes advantage of mobile app and cloud based technologies.

CANARD SOFTWARE PLATFORM

CANARD Smart Solution is more than a Drone. We designed an online platform and application that allow anyone to easily manage the entire inspection process (VISAIDs, NAVAIDs & Infrastructure). CANARD's five-day training program will provide anyone the required knowledge to carry out an inspection.

CANARD Smart Solution changes the way NAVAIDs inspection and calibration are performed. Not only these operational procedures are automated, they are also more accurate, highly efficient and cost-saving.

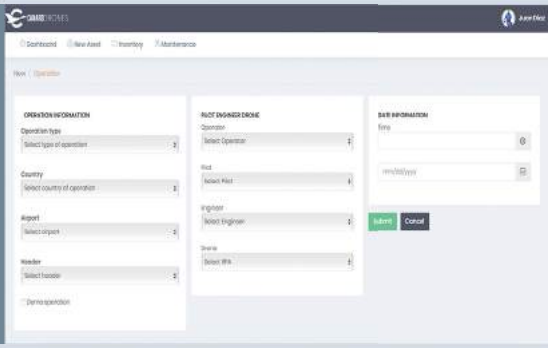
1

REGISTER YOUR OPERATION

Log in to the CANARD platform and enter the following information:

- Airport
- Runway
- Type of operation (PAPI, ALS, ILS, VOR, DME, PCI, Runway Lights)

Once these parameters have been submitted, the operation can be downloaded into CANARD's App, ready for its execution at the airport runway.



2

RUN THE OPERATION

The operator -who previously received training- launches and monitors the automated missions in the App, in coordination with ATS and the drone pilot. Live data from the drone and sensors are available in the App, which also guides the operator through the steps of the inspection procedures.

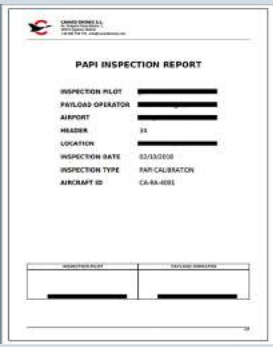
The duration of the operation may vary depending on the type of inspection.

3

GENERATE THE REPORT

Once the operation has been successfully completed, the drone will automatically get back to its launch point. The operation report is immediately accessible from both the tablet and the platform as a pdf and includes all the relevant measurements and results.

Reports will be instantly available in the CANARD web platform and App. Data and videos can be saved on the web platform for record purposes.



CAPABILITIES
Visual Aids

PAPI

Characteristics

Operation type:	VLOS
Max. distance:	300 m
Max. altitude:	35 m AGL
Location:	near THR
Duration:	<10 minutes
Precision:	<0.03°

Measurements

PAPI units angle
System angle
Horizontality
Angular coverage
Symmetry

Our solution can be used in commissioning, inspection and calibration of PAPI systems. The operation can be carried out during day or night, helping with the scheduling.
Flight inspection by aircraft for PAPI can be completely replaced with our solution, taking just a few minutes to perform all the measurements required.

ALS

Characteristics

Operation type:	VLOS
Max. distance:	200 m
Max. altitude:	120 m AGL
Location:	in front of ALS
Duration:	<5 minutes

Measurements

Lights on/off
Alignment
Colour
Relative brightness

ALS inspections for maintenance or commissioning are supported by our solution, allowing the identification of lights not working or incorrectly aligned, as well as checking the colour and relative brightness.
Our solution can be operatedduring day or night, replacing other methods such as flight inspection aircraft, and taking just a few minutes to perform the ALS inspection.

CAPABILITIES
Lights & pavement

RWY & TWY Lights

Characteristics

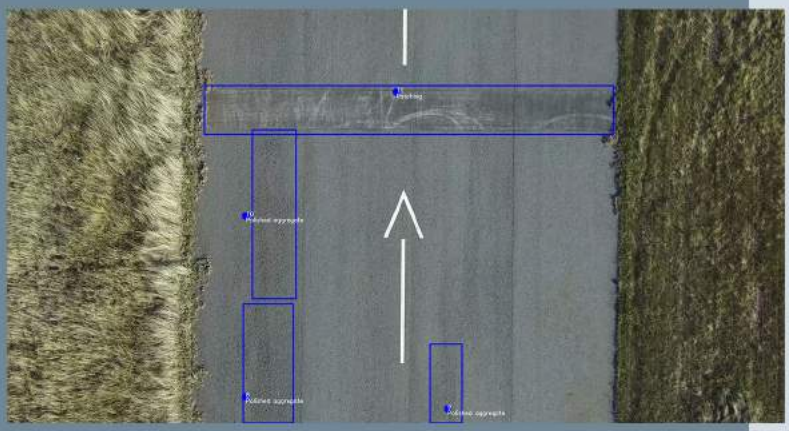
Operation type:	VLOS/BVLOS
Max. distance:	500/7000 m
Max. altitude:	40 m AGL
Location:	RWY & TWY
Duration:	2 min/km

Measurements

Lights on/off
Alignment
Colour
Relative brightness

Inspection of runway and taxiway lights is supported by our solution, allowing the identification of lights not working, as well as checking the colour and relative brightness.
The inspection can be carried out in a few minutes of flight during day or night. The operation can be carried out in a single flight (BVLOS) or by sections (VLOS).

Pavement (PCI)



Characteristics

Operation type:	VLOS/BVLOS
Max. distance:	500/7000 m
Max. altitude:	25 m AGL
Location:	RWY & TWY
Duration:	3 h/km^2

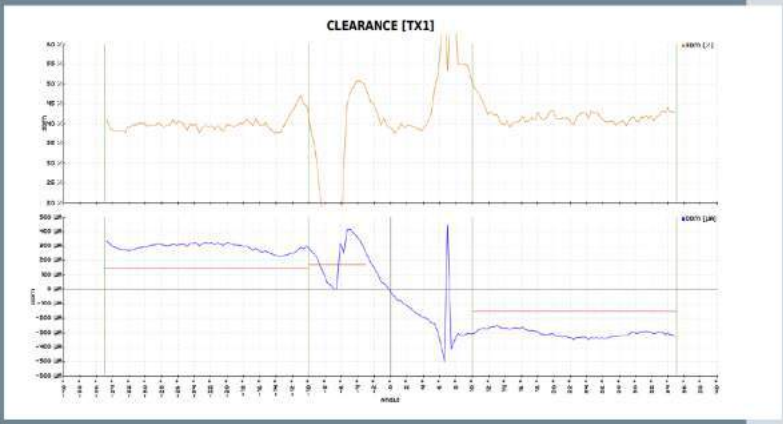
Measurements

Identification of defects
Categorization of defects
Calculation of Condition Index

Pavement Condition Index (PCI) Surveys can be quickly performed with our solution. The drone automatically flies over runway, taxiways and apron recording images geo-tagged very precisely, greatly reducing runway occupation time.
These images are then processed by our software to detect and categorise defetcts and calculate PCI.

CAPABILITIES
NAVAIDs

ILS Measurements



Characteristics

Operation type:	VLOS
Max. distance:	500 m
Max. altitude:	120 m AGL
Location:	THR & +1km
Duration:	30 min

Measurements

Localiser (LOC)
Glideslope (GS)
LOC alignment & GS angle
LOC & GS width
LOC & GS Alarms
Clearance

Our ILS measurement solution can be used to support commissioning, maintenance and inspection activities. These measurements help technicians improve their maintenance procedures, by reaching where other solutions cant't, specially in the case of GS.
With this solution, flight inspection time with aircraft can bre reduced significantly, specially for commissionings.

VOR Measurements

Characteristics

Operation type:	VLOS
Max. distance:	500 m
Max. altitude:	120 m AGL
Location:	near antenna
Duration:	20 min

Measurements

CVOR & DVOR
Alignments
Angles
Azimuth error
Modulations

Similar to our ILS sollution, VOR measurements can be used to support commissioning, maintenance and inspection activities. Our procedures help reduce flight inspection time with aircraft. The solution also helps technicians in their regular maintenance activities by providing accurate measurements at relevant distances and altitudes and locations.

CAPABILITIES
Photogrammetry

2D Mapping

Characteristics

Operation type:	VLOS
Max. distance:	500 m
Typical altitude:	25m AGL
Duration:	6 min/ha
Precision (GSD):	0.69 cm/px

Measurements

Orthophotography
Distance measurements

2D Mapping is used to generate geometrically corrected aerial images that can be used as maps. A great feature of this aplication is that distances can be measured very accurately,
Our solution allows for very quick and smart generation of 2D maps, regardless of the shape of the area to be photographed., taking just a few minutes.

3D Modelling

Characteristics

Operation type:	VLOS
Max. distance:	500 m
Typical altitude:	25m AGL
Duration:	6 min/ha

Measurements

Terrain
Structures
Variations over time

Similar to ortophotography, 3D models can be created from aerial photography. The execution of the operation is the same, but instead of a flat image, a point cloud is generated.
3D models can be used to create models of terrain, buildings and other structures. These models can be used to analyse evolution over time, calculate volumes and more.

Cost saving

CANARD's solutions reduce the time required for maintenance and inspection activities, minimising or removing the use of other tools such as flight inspection aircraft.

Customer services

CANARD provides support to customers with best-in-class quality services.

Time saving

CANARD performs inspections in only a few minutes, thanks to automated operations, software tools and quick deployment.

Efficiency

CANARD's smart solutions reduce runway occupation, operating within controlled airspace in scheduled runway closings, and even at night.

Automation

CANARD's operational procedures are automated, reducing risks and improving accuracy.

Certification

CANARD's smart solutions are compliant with international and local regulations and safety standards.

Risk reduction

Thanks to the operational planning and automated procedures, as well as failsafes and safety measures, CANARD can assure risk reductions.

Digitalization

The digitalization of the data of our inspections allow integration of information systems and data analytics.

Availability

CANARD's solutions allow a quick response to customer needs worldwide, unlike other expensive and scarce means such as flight inspection aircraft.

Smart Management

CANARD allows airports, air navigation services providers and aviation authorities self-sufficiency for NAVAIDs and airport inspections. Our products can be operated by any third party that receives our training and validation.

CANARD DRONES SL
Av. Gregorio Peces Barba, 1, 28919 Leganés, Madrid
CANARD DRONES LTD
71-75 Shelton Street, Covent Garden, London, England, WC2H 9JQ

info@canarddrones.com

canarddrones.com