



**THE EDGE
COMPANY**

Visionary Knowledge



**BCMS
VENTUR**

Bird & Drone
Detection System

**SMART AI SOLUTION FOR AVIATION
SAFETY & SECURITY**

OUR HISTORY, WHERE WE COME FROM

Served as a **fighter pilot** in the Italian Air Force for about 25 years, in addition to operational duties - four air operations - was appointed as **Chief of the Flight Safety** at 5th Fighter Wing. In the late 90's **designed and implemented** a method to counter the phenomenon of **bird strikes** and F.O.D. After one year there was a **70% bird strikes reduction**, and the method was extended to the entire **Air Force**.



**_WE LOOK TO THE FUTURE
WITH THE STRENGTH OF OUR
EXPERIENCE**



FABIO MASCI
LTCol Ret. ITAF,
FOUNDER & CEO
THE EDGE COMPANY

_AND WE NEVER FORGET ABOUT THE BEAUTY OF OUR DREAMS



Software
Italy

The Edge Company

Enhancing the safety of air travel with AI-powered defenses against birdstrikes.



Solution components Hardware

- Lenovo AI ThinkSystem SR650 servers with NVIDIA® Quadro RTX 4000 GPUs
- Integrated 10 GbE Controller for Lenovo ThinkSystem

Software

- BCMS® VENTUR
- GStreamer
- Lenovo XClarity Administrator
- Milestone XProtect VMS
- NVIDIA CUDA
- NVIDIA NVDEC
- NVIDIA Performance Primitives
- OpenCV
- TensorFlow
- VMware ESXi

Each year, collisions between birds and aircraft cause an estimated US\$1.2 billion in damages and delays for the aviation industry.¹ To reduce the global impact of birdstrikes, Italy-based start-up The Edge Company (TEC) has developed BCMS® VENTUR—a bird and drone detection system based on smart cameras and custom-developed AI algorithms that uses machine vision to detect birds and deliver species-specific auditory deterrents. Running on Lenovo ThinkSystem SR650 servers with NVIDIA® Quadro RTX 4000 GPUs, BCMS® VENTUR is up to five-times more effective at identifying birds than humans—and TEC is poised to offer the new capabilities to airports around the world.



“Thanks to our innovative BCMS® VENTUR solution—powered by Lenovo and NVIDIA technology—we are poised to help the aviation industry vastly reduce the risks and costs of birdstrikes.”



Fabio Masci,
CEO, The Edge Company

[LEARN MORE >](#)

¹ Allan, J.R. 2000, 'The costs of bird strikes and bird strike prevention', *Human Conflicts with Wildlife: Economic Considerations*

Lenovo

FROM AN IDEA OF THE YOUNG LIEUTENANT FABIO MASCI TO SOLVE THE BIRD STRIKE ISSUE



TO A DEEP TECH COMPANY WITH THE WORLD AS HORIZON. TO BEGIN WITH!



1 BIRDSTRIKE EVERY 15 MINUTES

EVERY AIRCRAFT, AT ANY AIRPORT IN THE WORLD EVERY DAY
RUNS THE RISK OF COLLISION WITH BIRDS, ESPECIALLY IN THE PHASE
OF TAKE-OFF AND LANDING, OFTEN WITH SERIOUS CONSEQUENCES.

All systems used to date at airports to mitigate the risk of birdstrike and drone intrusion (in most recent years), are based on monitoring through personnel and/or radar systems, which activate deterrent systems and hazard management procedures as they are detected. Current monitoring methods, however, are not sufficient to ensure effective management and acceptable flight safety level. All this translates into an average increase in birdstrikes worldwide of about 500% over the past 20 years, **1 every 15 minutes.**

IN ITALY WE SPEND **40 MILION EUROS** PER YEAR ON REPAIRS AND FLIGHT DELAYS. SINCE 1988, MORE THAN **255 PERSONE** HAVE BEEN KILLED WORLDWIDE DUE TO IMPACTS WITH WILDLIFE.
AND AT LEAST **380 AIRCRAFT** MILITARY AND **88 CIVILIAN AIRCRAFT** HAVE BEEN DESTROYED

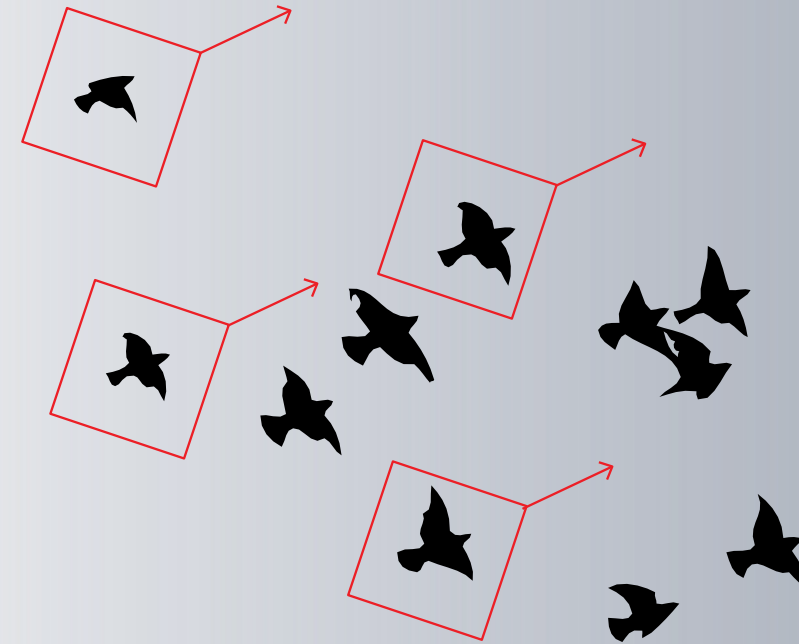
THE PROBLEM

BIRDSTRIKE@AIRPORT

**BCMS® VENTUR IS THE
WORLD'S FIRST SYSTEM USING
ARTIFICIAL INTELLIGENCE
TO IDENTIFY, TRACK, COUNT
AND CLASSIFY SPECIES OF
BIRDS AND THE PRESENCE
OF DRONES, IN REAL TIME.
BCMS® VENTUR IS THE MOST
APPROPRIATE SOLUTION FOR
THE SAFETY OF VEHICLES AND
PEOPLE AT AIRPORTS,
VOLOPORTS AND SPACEPORTS.**

 **BCMS®
VENTUR**

Bird & Drone
Detection System



THE SOLUTION AT A GLANCE

THE ADDED VALUE OF AI



WHY IT IS REVOLUTIONARY COMPARED TO METHODS IN USE

Monitoring by
Bird Control Unit's
PERSONNEL
Current status
in airports



Monitoring
using RADAR



Monitoring BY
BCMS® VENTUR,
based on **AI** and
TELECAMERE HD



	Monitoring by Bird Control Unit's PERSONNEL Current status in airports	Monitoring using RADAR	Monitoring BY BCMS® VENTUR, based on AI and TELECAMERE HD
_Airport coverage	PART	TOTAL , 100%	TOTAL, 100%
_Ability to detect birds and drones: - in flight - on the ground	LOW LOW	MEDIUM NO SKIALL	HIGH, 95% HIGH, 95%
_Accuracy of bird and drone detection	LOW	NO ACCURACY	HIGH
_Responsiveness hazard detection	LOW	HIGH	HIGH
_Responsiveness of hazard communication (with towercontrol tower and with assigned personnel and Deterrent Systems)	LOW	MEDIUM	IMMEDIATE
_Activation of Deterrent Systems	DELAYED	DELAYED	IMMEDIATE
_Birdstrike and Drone Impact Risk	MEDIUM	MEDIUM	STRONGLY REDUCED
_Cost of Risk Management	HIGH	HIGH	STRONGLY REDUCED
_Cost / benefit	LOW	VERY LOW	VERY HIGH
_Environmental Impact	LOW	HIGH	GREEN, ZERO EMISSION



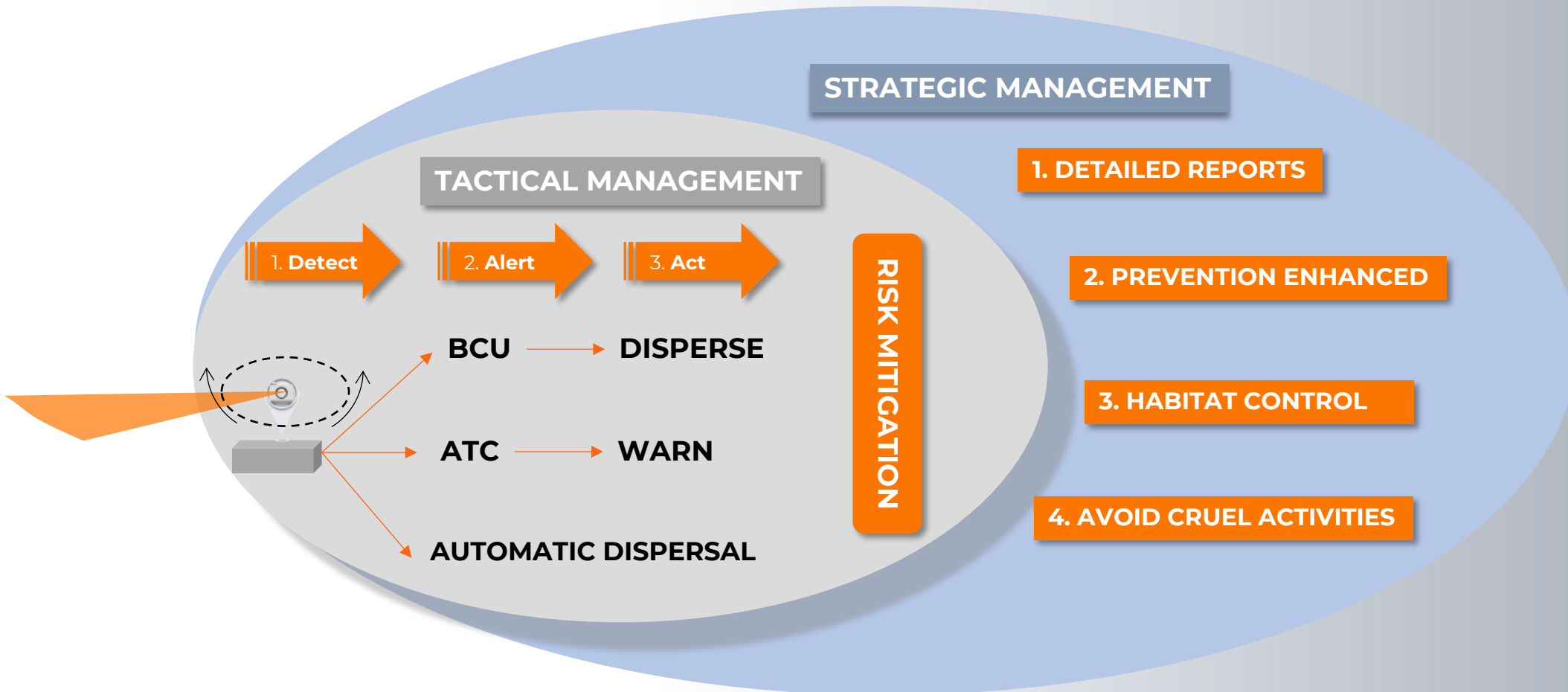
CONTINUOUS SELF IMPROVEMENT

**BCMS® VENTUR CONSTANTLY
STORES EVERY OBSERVATION IN ITS
NEURAL NETWORK. BASED ON THE
DATA IT COLLECTS, THE SYSTEM'S
DEEP LEARNING ALGORITHMS
CONTINUOUSLY IMPROVE ITS
ACCURACY AND CAPABILITIES
OVER TIME.**



BCMS VENTUR ADVANTAGES

**REDESIGN STRATEGIC AND TACTICAL PROCESSES
FOR MORE EFFECTIVE AND EFFICIENT MANAGEMENT**



BCMS VENTUR ADVANTAGES

- INCREASE THE EFFICIENCY AND EFFECTIVENESS OF RESOURCES DEPLOYED
- REDUCE THE WORKLOAD OF HUMAN RESOURCES
- REDUCE PERSONNEL EMPLOYED AND CONSEQUENTLY RELATED COSTS
- IMPROVE PREVENTION AND RISK MANAGEMENT
- IMPROVE NATURAL HABITAT MANAGEMENT
- INCREASES THE ESG (ENVIRONMENTAL, SOCIAL, AND GOVERNANCE) RATE BY INCREASING THE VALUE OF THE COMPANY
- THE LOWER THE RISK OF BIRDSTRIKE, THE GREATER THE POSSIBILITY OF ATTRACTING TRAFFIC FROM AIRLINES TO AIRPORTS, RESULTING IN HIGHER REVENUES



BCMS VENTUR ADVANTAGES



Bird & Drone
Detection System

SOME FIGURES

- **70% SAVING** ON PERSONNEL COSTS
- **70% SAVINGS** ON VEHICLE WEAR AND TEAR DUE TO THE REDUCTION OF PATROLS REQUIRED ONLY WHEN **DANGER** IS BEING **REPORTED**.
- **REDUCING BIRDSTRIKES MEANS REDUCING INSURANCE LIABILITY COST**

REAL LIFE EXAMPLE:

ITALIAN AIRPORT

16 BCU's personnel
480.000 € year salary. 2.400.000 € in 5 years

Deploying **BCMS® VENTUR SYSTEM** you just need **4 maximum BCMS® VENTUR CAPex Plus 4 BCUs cost 640.000 € SAVINGS.**

ROI > 50%



BIRDSTRIKE DAMAGES

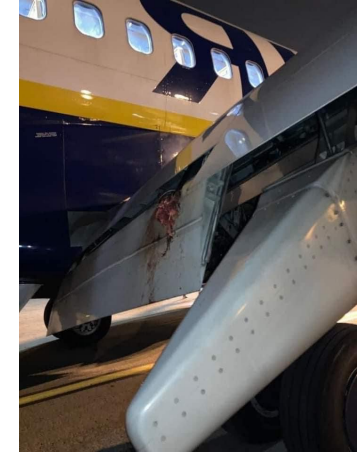
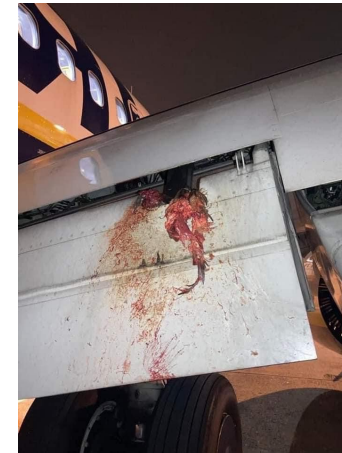
**MINOR BIRDSTRIKE MIGHT CAUSE VERY SERIOUS
ECONOMIC DAMAGE.**

ENGINE DAMAGE COULD COST 2.000.000 AND MORE!



CAPTAIN MONICA KHANNA was the pilot in command (PIC) of the Spicejet flight, whose left engine caught fire fire, following a bird hit, shortly after take-off from Patna yesterday. With 185 passengers onboard the overweight Boeing 737, she along with the first officer Balpreet Singh Bhatia skillfully performed emergency landing at the highly constrained Patna airfield and brought the aircraft to safe grounds. All passengers were safely evacuated. Bravo Captain.

https://www.linkedin.com/posts/corporate-soldiers_shero-aircraft-boeing-activity-6944843987597815808-kGV4?utm_source=linkedin_share&utm_medium=ios_app



REAL LIFE RESULTS- VERONA AIRPORT



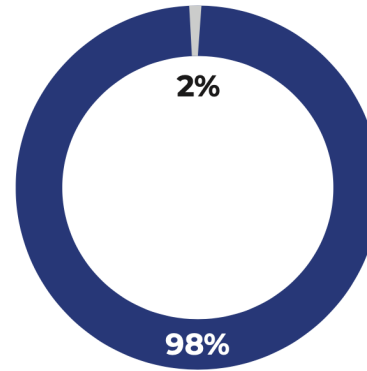
Bird & Drone
Detection System



UNBEATABLE SYSTEM PERFORMANCES

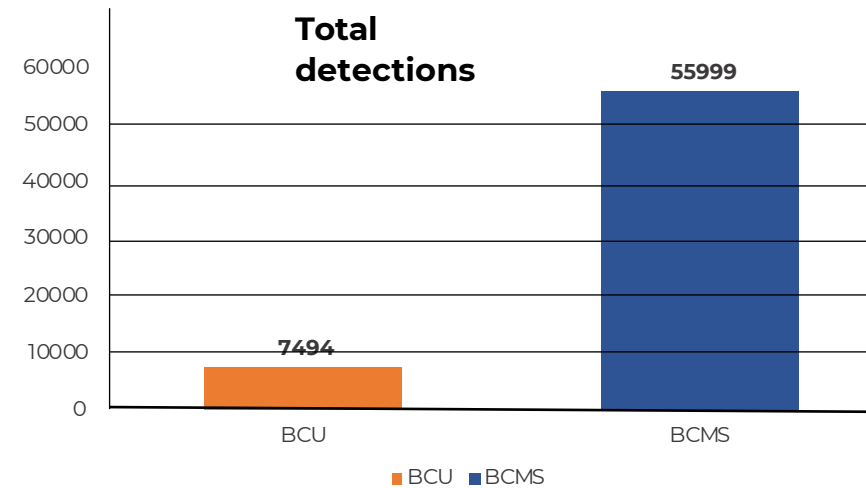
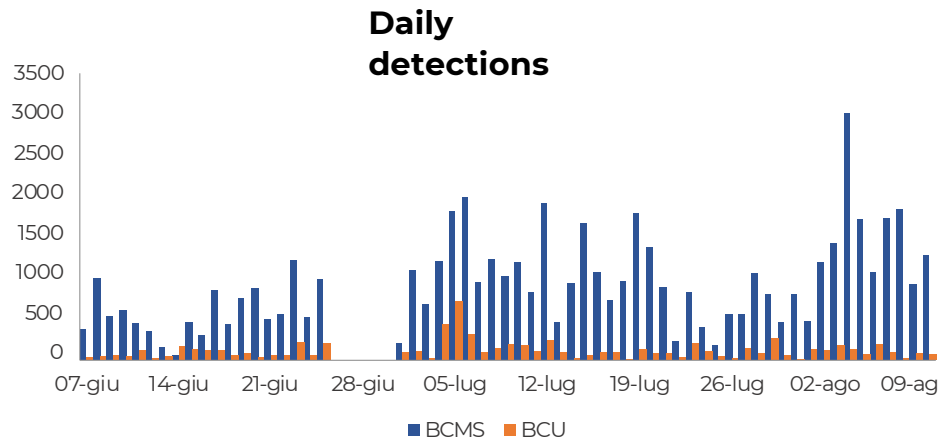
SYSTEM ACCURACY

Sistem
precision after
retraining



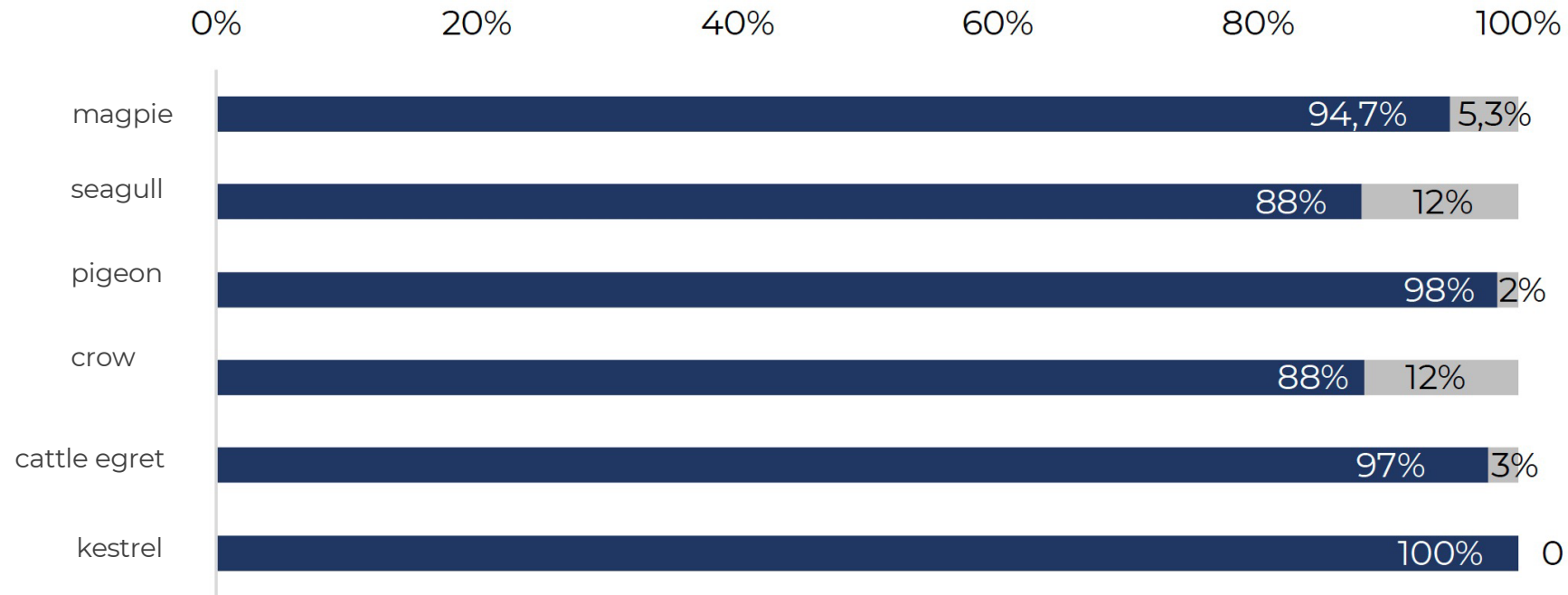
True positive rate

DETECTION BY PERIOD



BCMS[®] VENTUR detected 7,49 times more birds than BCU

UNBEATABLE SYSTEM PERFORMANCES

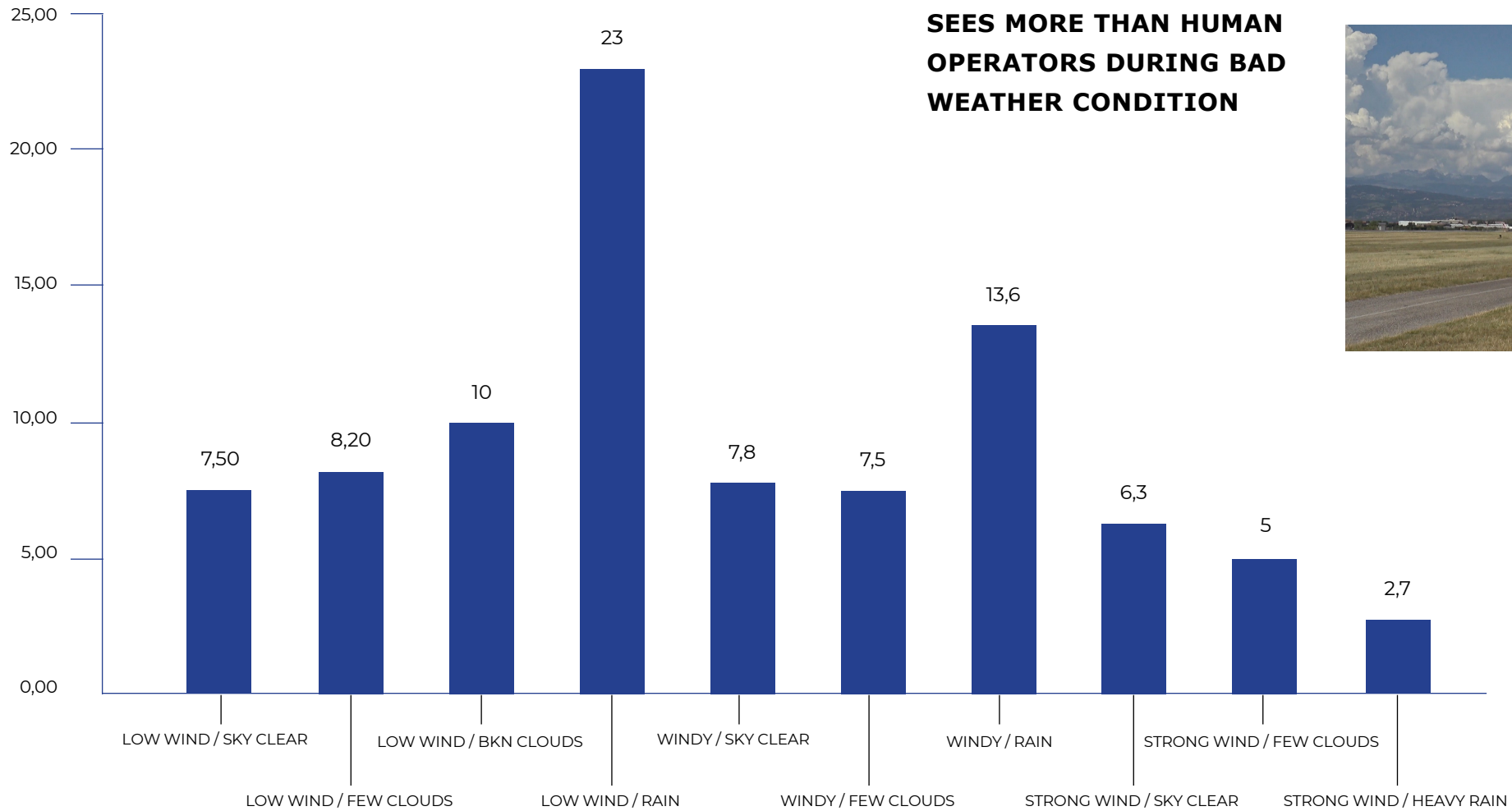


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BAD WEATHER CONDITIONS

**HOW MANY TIMES BCMS VENTUR
SEES MORE THAN HUMAN
OPERATORS DURING BAD
WEATHER CONDITION**



CUSTOMER REFERENCES

**BCMS®
VENTUR**

Bird & Drone
Detection System



**AERONAUTICA MILITARE
4° STORMO**

OGGETTO: Dichiarazione di installazione del sistema BCMS (Bird Concentration Monitoring System).

Preso atto che:

- in data 20 marzo 2019 è stato stipulato un atto negoziale di permuta tra il 4° Stormo e la società "The Edge srl" in cui è stata accordata l'installazione ed utilizzo degli apparati del sistema in oggetto sul sedime aeroportuale in via sperimentale per la scoperta, il monitoraggio e la classificazione dei volatili;
- nell'anno 2021 è avvenuto un upgrade del suddetto sistema;

in merito a quanto richiesto dal Sig. Masci Fabio, titolare "The Edge srl", si dichiara che il sistema in parola è tuttora presente presso il 4° Stormo di Grosseto.

IL COMANDANTE
(Col. *Ernst KANTONIK*)



In the area of intersection, i.e., the area covered simultaneously by BCU and the system, BCMS® VENTUR detected a total of 55,999 birds (true positives) while BCU detected a total of 7,494 birds.

The comparison was performed by evaluating BCU and BCMS® VENTUR observations homogeneously, i.e., using the same spatiotemporal parameter over a total of 849.62 hours. The BCMS® VENTUR System detected and identified 7.47 times more birds than the BCUs.

7. All obligations have been met

All this being stated and in consideration of what has been said above, the following is therefore issued

BCMS® VENTUR SYSTEM ADEQUACY STATEMENT

the objectives set by the TEST AND EVALUATION carried out with your company, namely "to assess the potential for improving and raising the safety levels of Verona Villafranca airport through a technology for reducing the risk of Impact with birds for military, civil and commercial flights".

This is released for the uses permitted by law.

THE ACCOUNTABLE MANAGER
Ing. *Corrado Fische*



Aeroporto Valerio Catullo di Verona Villafranca S.p.A. - 37060 Caselle di Sommacampagna (Verona) - tel. +39-045 8099940 - fax +39-045 8819974 - www.aeroporto.verona.it
Codice Sociale 0 38345 036-00 - S.p.A. di Verona Nr.071 - Registro Imprese Verona CF 78764 0081002032



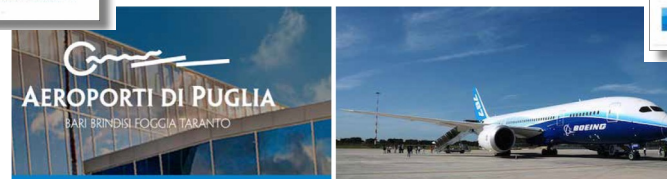
DECLARATION

We AEROPORTI DI PUGLIA declare that BCMS VENTUR is installed at Grottaglie Airport, as nat spaceport designated by Infrastructure and Transport Ministry, as demonstration system during the I (Mediterranean Aerospace Matching) exhibition, on 22-23-24th September 2021, as a solution to ent the wildlife management and strongly reduce the risk of bird strike.

Sincerely,

Bari, 7th September 2021

Patrizio SUMMA
Special Project Director



BANGLAMARK LTD
House No : KA - 6 / A - ,Nadda
Navana Sylvania, Level-3, Baridhara
Dhaka - 1212 , Bangladesh.
Hotline : +880 1977 646 434
Mail : sales@banglamarK.com

Ref no: BM/TEC/BMD-01

Date: 13.03.2022

To
The EDGE Company S.r.l.
Viale della Repubblica 74, 47923 Rimini (Italia)

Subject: Notification of Awards (NOA) of tender/Proposal ID: 633069

Dear Sir,

We, **BANGLAMARK Corporation** having offices at KA-6/A, 3rd floor, Navana Sylvania tower, Nadda, Baridhara-1212,

Hereby notify you that your proposal dated 18-Jan-2022 for the supply of Goods and related Services for Supply, installation, commissioning and technical support of Bird Monitoring and Deterrent System for CAAB on Trunkay Basis, is up to standard in accordance with the requirements of the final client and has been approved by Office of the Director (CEMSU).

Therefore, you may proceed with the execution of the supply of goods and related services with respect to your submitted proposal.

Thanking you

Rob Steven
Rob Steven
Proprietor
BANGLAMARK Corporation



www.banglamarK.com



AI TO ENHANCE FLIGHT SAFETY

BCMS VENTUR

Bird & Drone
Detection System

BCMS VENTUR-X

Airborne Obstacle
Detection System

AQUISITION

_ Images capturing

DETECTION

_ Count
_ Tracking
_ Object detection
_ Background upgrade
_ Motion detection

CLASSIFICATION

_ Matching
_ Object classification

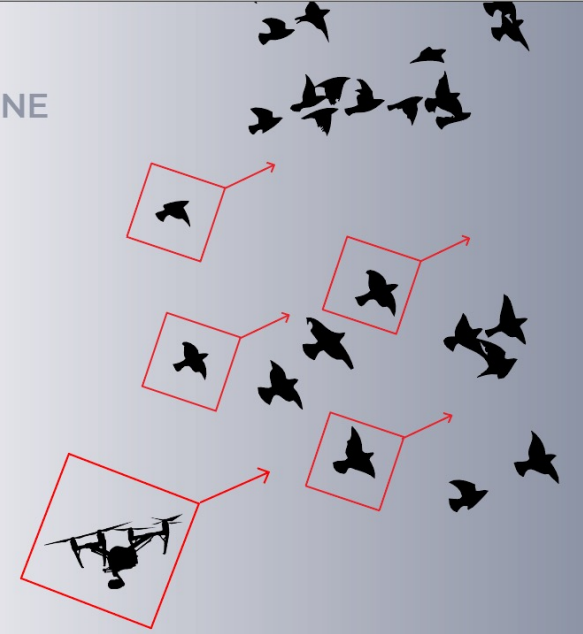


2 - AIRBORNE

**DYNAMIC
BACKGROUND
ESTIMATION**

**OBJECT DETECTION
AND CLASSIFICATION**

**MULTI OBJECT
LOCALIZATION
AND TRACKING**



1 - TERMINAL AREAS

3 - CORRIDORS

1 km +

1 - TERMINAL
AREAS

AIRPORT

VOLOPORT

SUBURBAN

URBAN

“ CAN ANYTHING THAT IS USEFUL BE OBTAINED
WITHOUT CHANGE? “

Marco Aurelio
Roman emperor, philosopher and writer

GRAZIE

