

2022 WITSA Global Innovation and Tech Excellence Awards Nomination Form

The 2022 WITSA Global Innovation and Tech Excellence Awards (formerly known as *the Global ICT Excellence Awards*) will be presented to select individuals, academic institutions, corporations, NGOs or governments whose use and applications of digital technologies exhibit exceptional achievement within the following broad categories:

Private Sector/NGO	Public Sector
Digital Opportunity/Inclusion Award	Digital Opportunity/Inclusion Award
Smart Cities Award	Smart Cities Award
Sustainable Growth/Circular Economy Award	Sustainable Growth/Circular Economy Award
Innovative eHealth Solutions Award	Innovative eHealth Solutions Award
Public/Private Partnership Award	Public/Private Partnership Award
E-Education & Learning Award	E-Education & Learning Award
Emerging Digital Solutions Award	Startup Ecosystem Award

In addition, a *Chairman's Award* will be presented to a nominee selected from the entire pool of candidates from all award categories.

Candidates for these Awards are nominated by ICT experts from around the world who span over 80 countries/economies. The 2022 *WITSA Global ICT Excellence Awards* will take place in conjunction with the September 13-15, 2022 World Congress on IT in Penang, Malaysia (<https://wcit2022.com>/<https://wcit2021.org.bd/>).

Emerging Digital Solutions Award

The Emerging Digital Solutions winner is selected for their proven and scalable innovative digital solutions capable of transforming the wellbeing, prosperity, connectivity or productivity of others around the world.

This award will take into consideration the successful application of ICT in such areas as humanitarianism, health, social awareness and justice, rule of law, sustainable growth, business and commerce, health care, education, as well as the effective delivery of public services and transparency.

The Emerging Digital Solutions program recognizes early-stage or veteran companies whose solutions are new, and scalable to other locations throughout the world. The Emerging Digital Solutions program is looking for solutions that can be presented to interested policy makers, investors, corporations and social stakeholders with the potential to boost its development and deployment, aiming to significantly impact individuals, groups and societies.

YOUR NOMINEES (limit three nominations per award category).

“nvtbird offshore” , by NVISIONIST SA

REASONS FOR NOMINATION:

As more and more wind parks are built around the world, low-conflict areas for wind turbines are becoming scarce, the global need for bird protection is rising and there is also a clear need for more accurate and reliable solutions. For the first time an innovative system combines radars and cameras to achieve the required accuracy and reliability and at the same time to maximize wind turbine availability. The system can be installed at offshore wind parks and at large flat areas where onshore wind parks are located.

Brief Description

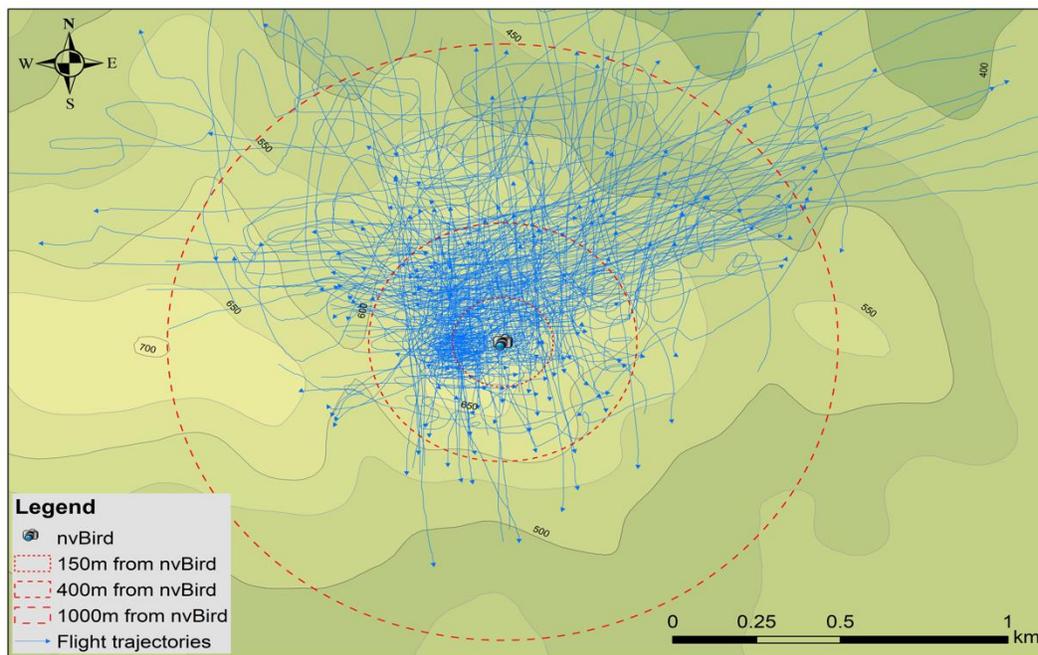
nvbird® is a new innovative system for offshore wind farms that combines 3D radars and cameras to achieve the required accuracy, reliability and at the same time maximize the electricity production of wind turbines. The system consists of a very powerful server, capable of processing high-resolution images quickly, data from 3D radars, from ultra-high resolution 12MPixels cameras with starlight technology that allow the system to capture high-resolution color images, even in low light conditions, thermal cameras for night, fog or bad weather conditions and optional speakers that emit a special sound (ASR) that targets the birds' auditory reflexes, deterring birds without disturbing them. Another key feature and advantage of the system is the use of an artificial intelligent (AI) algorithm that distinguishes birds from anything else that moves with great accuracy and efficiency. The software and the algorithm are based on artificial intelligence, artificial vision, machine learning and have been developed in collaboration with a large team of ornithologists, who have implemented the data annotation, i.e. the analysis and interpretation of the visual recordings, the detection, marking, categorization and classification of birds. This work has been done on a sufficient database of photographs and videos of birds. Whenever the system needs to be trained to identify a new species, or if a bird is not successfully identified and is simply categorized as small, medium or large, the team of ornithologists step-in to update the database. This method has created and continues to improve a huge database (dataset) of images and characteristics of rare birds to be identified (bird size, special features, wing-opening shape, etc.). As the database is enriched and improved, the algorithm is retrained by machine learning and systems are updated online wherever in the world they are installed.

The nvbird® camera identification system is constantly being trained and is able to successfully identify bird species with 97,16% false positive rate. Also, unlike existing systems based on motion detection that have many "blind spots" (masking), in nvbird there is no need to mask part of the cameras' optics to avoid detecting moving elements (like clouds, airplanes, drones, WTG blades). The detection range of the radars is up to 10km. Depending on the distance, height and path of the birds the nvbird® makes the appropriate decisions and using OPC , instructs the appropriate wind turbines to slow down when the birds are at a 5km distance. The cameras are then activated to classify the birds as soon as the distance is less than 1km and accordingly nvbird® makes a decision whether to shut down the wind turbines that are on a collision course with the protected birds.

The statistics :

Overview				
Wind park	Crete			
nvbird installation	WTG5			
Observation duration	1 month			
Ornithologists	2			
Evaluation design	Radar-assisted direct visual identification and recording of birds flight tracks			
	Recording of flight tracks, altitude and behaviour of individual birds and bird flocks in 3 distance zones 0-150m, 150-400m and 400-1000m from the nvbird system			
	Comparison direct visual observations with camera detections			
	Model species: large-sized Griffon Vulture (<i>Gyps fulvus</i>)			
False positive rate	97,16%			
Shutdown	0			
Fatality rate	0			
Statistics				
	Camera 1	80	2	2,50%
	Camera 2	60	6	10,00%
	Camera 3	485	11	2,27%
	Camera 4	115	2	1,74%
	Total	740	21	2,84%

The trajectory map:



The value proposition – The challenge and the solutions

The innovative solution uses radars and Ultra High Definition cameras of 12 megapixels to achieve 24 hours, all weather detection and operation.

The detection range of the radars is up to 10km. Then cameras are enabled to classify the targeted birds once the distance is less than 1km. The classification of the birds depends on the quality of the dataset the system has been fed. The more data available on a specific bird of interest, the better.

When the birds are flying in a collision route (direction and height towards the rotor swept area) with the wind turbines the system sends an automatic command via the OPC server to slow down the rotor speed in order to further analyze the flight data.

The system is able to monitor the operation of the wind turbine by receiving input data from the SCADA system in order to improve its functionality.

Furthermore, based on the process of detection and classification, state of the art acoustic driver modules with adjustable volume are used -if allowed- to deter birds entering the wind turbine risk zone, making them change route.

In the extreme scenario that a bird or a flock of birds enter the critical zone, the turbine (or group of WTGs) can receive automatic signals, in order to stop its/their operation and prevent the collision.

The system is a big data application that communicates directly with the wind turbines. Access to all this data is crucial both for the park owner and the environmental authorities. A report generator produces reports shown in a user-friendly dashboard that can be further adapted to the needs with graphs that are exported in various formats. Furthermore, all the information gets uploaded in the cloud and is accessible to the ornithologists to remotely classify the birds that have not been classified automatically. Then, the system algorithms get “retrained” and the quality of detections and recognitions improves.

nvbird® due to its technological excellence and innovation within a short period of time has been established worldwide and has been recognized for protecting birds from collisions on the wind turbines, an issue that concerns worldwide the wind energy sector.

Since September of 2021 nvisionist & nvbird® have won many national and international awards, thus being among the most internationally recognized innovative startups & solutions in the wind energy sector. Last November, another nvisionist solution, “nvird airport”, has been an Award Winner at the WITSA 2021 Global ICT Excellence Awards in the category «Emerging Digital Solutions Award (Private Sector)».

Nvbird has also been awarded :

1. Bite Awards first Platinum overall award with the highest score in the entire event, a Gold Award for the Energy category and another Gold Award at the Artificial Intelligence A.I. category
2. Hifa21 4th Hellenic innovation forum & awards with the HI Award for Business Model - <100 employees (Innovative Business Model Award)
3. Winner of the “Sustainable Innovative & Responsible Entrepreneurship”, "Innovation and New Products" award of the Athens Chamber of Tradesmen” in the presence of the President of the Hellenic Republic Mrs Sakellaropoulou.
4. Winner of the “Sustainable Innovative & Responsible Entrepreneurship”, "Innovation and New Products" award of the Athens Chamber of Tradesmen” in the presence of the President of the Hellenic Republic Mrs Sakellaropoulou.
5. Two Gold Awards at the “Cloud Awards 2022” in the Cloud Project category the “Energy & Utilities” award and in the Best SaaS Provider category the “Energy & Utilities” award
6. One Award at the Health and Safety Awards 2022

Also, we are very proud to announce our participation in the **Wind Europe Technology Workshop 2022** organized by Wind Europe (Pan-European Wind Energy Association) that will take place on the **23-24 June 2022** in Brussels. Mr. Tassos Alefantos, the CEO of Nvisionist, will have the opportunity to present **nvbird®- offshore**, Nvisionist’s new product. It is a huge distinction for nvisionist to be recognized by Wind Europe once again.

SUPPORTING INFORMATION: Please send any supporting information to the address above, including information from candidate (i.e. excerpt from program description, web site print-out, press release, etc.)

NOMINEE CONTACT INFORMATION (for award follow up and coordination)

Name/title: nvbird® - offshore

Email: io@nvisionist.com

Phone/Mobile: +302103008269