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NEARTHLAB

LinkedIn

Make Your Next Inspection A Breeze

.NEARTHLAB

Autonomous Drone Solution
for Wind Power Inspection

Korea | United States | Germany | Brazil

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Brazil

NEARTHLAB

A Leading Global Provider of Autonomous Flight Drone Solutions

Approach

Nearthlab is a leading company that has successfully commercialized drone solutions, leveraging proprietary technology developed in Korea.
We set new benchmarks in the drone industry by seamlessly integrating cutting-edge innovations.
Powered by our proprietary AI flight technology, we deliver tailored solutions across diverse industries.

Technology Expertise
Over 60% of Workforce Specializes in R & D

AI Autonomous Flight
Beyond Level 4
Vision AI Autonomous Flight

Global Commercialization
80% of Total Revenue Occurs Overseas

Industry

Nearthlab redefines industry standards in public safety, defense, inspections, and infrastructure management through proprietary drone engineering, advanced flight algorithms, and a robust data platform.
Beyond technology, we drive efficiency, safety, and sustainability with impactful solutions.

Security
Public Safety & Physical Security

Defense
Domestic and International Defense & Enterprise Sectors

Infrastructure Inspection
Autonomous Inspection for Critical Facilities

Achievements

2025
Edison Awards 2025
iR52 Jang Young-Sil Science and Technology Award 2025
CES 2025 Best of Innovation Award
iF DESIGN AWARD 2025

2024
Winner of the Robotics and Aerial Integration for Defense Challenge, hosted by Korea's Ministry of Defense
World Economic Forum 2024 Technology Pioneer
Red Dot Design Award 2024
Fast Company's Most Innovative Companies in Robotics

2023
Secured three projects from the Defense Acquisition Program Administration (DAPA)
Forbes Asia 100 To Watch 2023
Microsoft Growth X Accelerator

2022
Gold Medal in the International AI Competition (Google's Kaggle)
CES 2022 Innovation Award
Recipient of the Minister's Award for Leadership in Drone Industry Innovation from Korea's Ministry of Land, Infrastructure and Transport (MLIT)
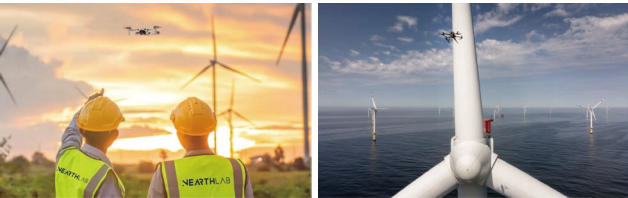
Key Partners

Nearthlab expands its presence with long-term partnerships to drive innovation.
We continuously enhance technology and create industry-wide value by collaborating with leading corporations and institutions.

대한민국 국방부 Ministry of National Defense · EDGE · HYUNDAI · NAES · SoftBank
Vestas · ONYX · KEPCO · RWE · LIG Nex1
Deutsche Windtechnik · SIEMENS Gamesa RENEWABLE ENERGY · VATTENFALL · INNERGEX
NORDEX We've got the power · Eurus Energy · NORTHLAND POWER · Hanwha Systems

NEARTHLAB's
Approach to Wind Turbine Inspection

Nearthlab's wind turbine inspection team specializes in autonomous drone inspection technologies tailored for wind turbines, with expertise rooted in AI-driven flight control and high-resolution visual analytics. The company focuses on enhancing the operational efficiency, safety, and longevity of wind assets through precise, automated inspections, providing a next-generation approach to turbine maintenance for both onshore and offshore wind farms around the world.

SIEMENS Gamesa   KHNP   Vestas   Eurus Energy   Deutsche Windtechnik   RWE
GE Renewable Energy   KEPCO   SoftBank   NORDEX   NORTHLAND POWER   VATTENFALL

▲ **90**%
Customer
Renewal Rates

30+ Countries
Global Presence
in EU, NA, LATAM, and APAC

HQ in Korea
with Overseas Branches

Why NEARTHLAB?
Smarter Safety, Faster Insights, Stronger Assets

Nearthlab delivers autonomous inspection solutions that drive smarter operations and accelerate the future of wind energy. Powered by AI and robotics, our technology reduces risk, enhances performance, and unlocks long-term value.

Efficiency

Maximum Efficiency
in Time and Cost

- Fully autonomous operations eliminate human risk and maximize safety
- **95%** faster inspections and up to **20%** reduction in maintenance costs
- Inspection reports delivered within **10 days**
- Inverse-Y positioning eliminates blade rotation, saving time and complexity
- Repair actions accelerated by **40%** for minimal downtime

Precision

Unmatched Safety
and Inspection Precision

- Advanced flight control system ensures precision navigation and stability
- High-resolution imaging captures micro-defects as small as **1 mm**
- AI-powered analytics detect defects with **99%** accuracy

NEARTHLAB's
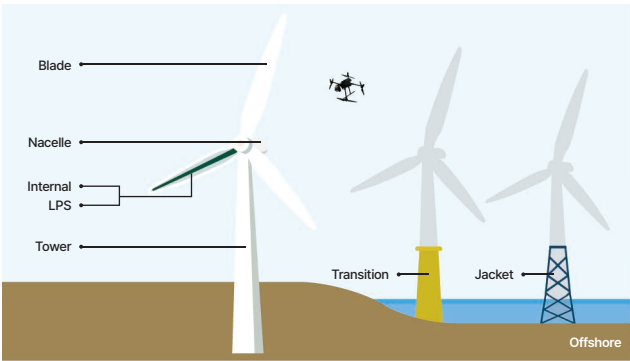## Comprehensive Wind Turbine Inspection Solution

Full-Stack Wind Inspection Suite

From flight to insight, every step is streamlined to maximize efficiency, precision, and scalability-no specialized hardware is required.
Designed to serve both professional teams and field operators, it adapts to any workflow with ease.

Comprehensive Wind Turbine Inspection Solution

	Manual Operation		Pro	Mobile	zoomable
	Rope Access	Manually Piloted Drone	Autonomous Inspection Drone	Plug-and-Play Mobile App	AI Data Management & Analysis Platform
Safety	Low	Mid.	High	Mid.	
Time	Long 1-2 turbines/day	Mid. 4-5 turbines/day	Short 20+ turbines/day	Short Usage-dependent	
Cost	Mid. - High	High	Low	Lowest	
Image Precision	Low Limited Angle	Mid. Average 20-40 MP	High Max. 61 MP	Mid. Payload-dependent	

NEARTHWIND Pro
NEARTHWIND Mobile
zoomable

Full-Scope Wind Turbine Inspection Coverage

Comprehensive inspection capabilities for both onshore and offshore wind farms. Whether it's surface defects or deep-chamber conditions, Nearthlab's technology delivers complete visibility across your entire fleet. Engineered for flexibility, the solution supports all turbine environments without compromising safety or speed.

Blade
Nacelle
Internal LPS
Tower
Transition   Jacket
Offshore

Full-Sync Technology for Flight and Analysis Excellence

Nearthlab's inspection drones operate at the highest autonomy tier achievable in real-world field conditions-Level 4. By fusing LiDAR-based spatial mapping with AI-driven flight control and data analytics, our drones execute mission-critical inspections without pilot intervention, even in dynamic environments. This high-level automation eliminates human-related risks while delivering unmatched precision, faster insights, and rock-solid operational stability.
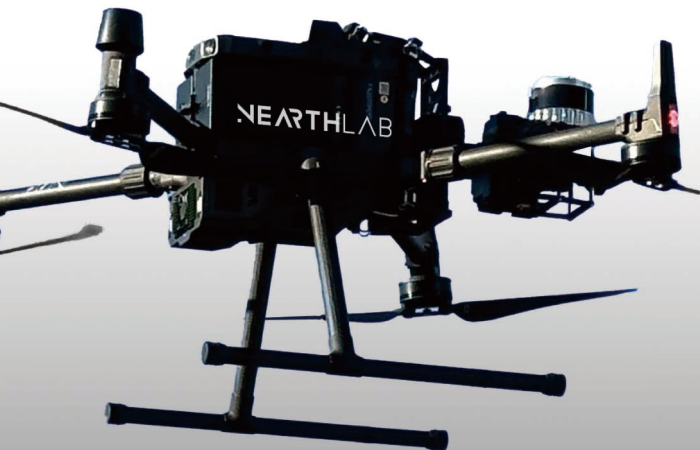

LiDAR based   AI based

NEARTHWIND **Pro**
Autonomous Wind Turbine Inspection Drone

- **Autonomous AI Inspection**
- **High-Resolution**
- **Reduced Inspection Time**
- **Customizable Configuration**

NearthWIND PRO is an Autonomous Wind Turbine Inspection Drone powered by vision AI, designed to capture high-resolution data along blade edges for precise and efficient safety inspections with minimal manpower.
By enhancing safety while reducing inspection downtime, NearthWIND PRO improves workplace safety and operational efficiency.
Its customizable configuration enables optimal inspections across diverse industries.

All-in-One Blade-to-Base Inspection

A single autonomous flight captures the entire turbine-from blade tips to base components-reducing downtime and simplifying logistics.

Precision Flight, Reliable Data

AI ensures stable proximity and ultra-sharp 61 MP imaging for consistent, high-quality defect detection.

20-40 MP (Industry Average)

Onshore to Offshore, One Drone

Built to operate seamlessly across diverse wind farm environments-on land and at sea-powered by robust flight stability and Nearthlab's deep expertise in safety validation and field operations.
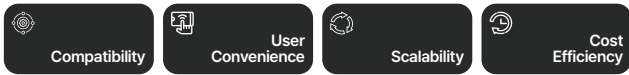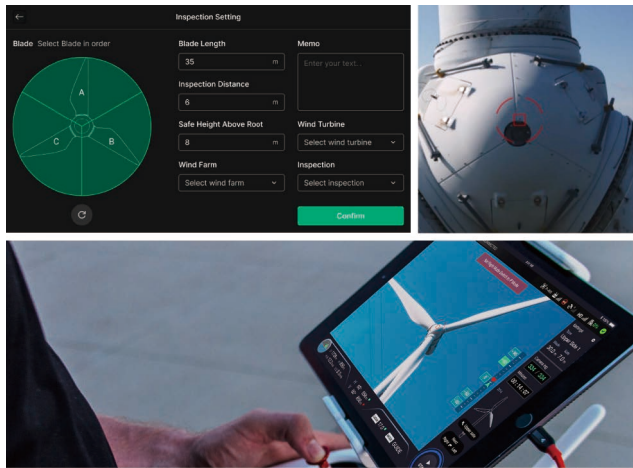
NEARTHLAB

15 min.
Inspection Time per Turbine

20+ WTG
Daily Inspection Capacity

Below **1** mm
Defect Detection Capability

Flexible Options for Clients

	Turnkey Solution	Flexible Leasing	Drone Purchase
Equipment Availability	✓	✓	✓
Training Provided	✓	✓	✓
Pilot Support	✓	⊗	⊗
Prompt Inspection	✓	✓	✓

NEARTHWIND Mobile
Subscription-based Wind Turbine Inspection Mobile App

Compatibility	User Convenience	Scalability	Cost Efficiency

NearthWIND Mobile is a Subscription-based Wind Turbine Inspection Mobile app that transforms commercial drones into automated facility inspection tools, powered by deep learning AI and autonomous flight. It is a highly scalable solution that can be integrated with off-the-shelf commercial drones.
By reducing reliance on costly specialized equipment, it lowers operational costs and features an intuitive interface for seamless operation.

No Drone? No Problem

Unlock fully autonomous inspections using your existing commercial drone-no need for costly industrial equipment. With simple drone training, your team will be equipped with your own inspection solution.
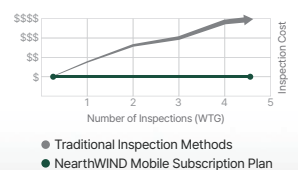
Unlimited Inspections, One Download

GET IT ON Google Play · Download on the App Store

A single app installation gives you full access to Nearthlab's deep-learning AI, enabling unlimited inspections with no extra fee.

The Most Cost-efficient Inspection Solution

With low hardware requirements and zero pilot outsourcing, NearthWIND Mobile delivers industry-grade results at a fraction of the cost.

● Traditional Inspection Methods
● NearthWIND Mobile Subscription Plan

Compatible with several versions of the DJI Mavic series – more models to come

3 Steps to Smart, Scalable Wind Inspections

1
Download & Setup

Download the NearthWIND Mobile app and connect it to your compatible drone - no additional hardware required.

NearthWind M 2.0.1
Please open this page on your Android device!
Download 2.0.1

2
Inspection Flight

With a few taps, your drone will autonomously perform a complete blade inspection, guided by AI and preloaded flight logic.

3
Data Management

Upload inspection data and metadata to Zoomable for automatic defect analysis, reporting, and full lifecycle tracking.

zoomable™

Comprehensive Add-On Modules
Inspection Options for Total Safety

Full-scope Inspection	Environment Adaptive	Structural Insights	Field-proven Reliability

Internal Blade Inspection Solution

Nearthlab's Internal Blade Inspection Solution allows customers to gain insight on the condition inside of the turbine chambers using Nearthlab's in-house designed and manufactured rover. Equipped with a 360-degree camera, the rover can navigate deep within the blade and identify hidden damages that could otherwise go unnoticed.
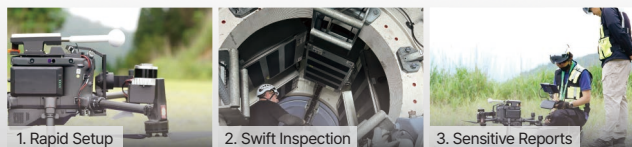

Inspection Rover

Trailing Edge

Leading Edge

Zoomable Sample Report

Offshore Wind Turbine Inspection Solution

Nearthlab delivers precision inspection across every critical component of both onshore and offshore wind turbines. From blade surfaces and internal chambers to transition pieces, jacket foundations, and offshore substations-our proven technology ensures accurate diagnostics even in the most remote and complex environments. This end-to-end capability gives operators total visibility and control throughout the entire wind asset lifecycle.

(A) Turbine Components
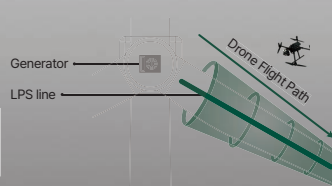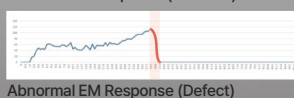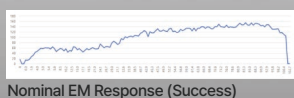(B) Transition Piece
(C) Jacket Structure

LPS (Lighting Protection System) Inspection Solution

Nearthlab's LPS Inspection Solution is a contactless drone inspection method that involves the installation of high voltage generator at the hub and inspections using drones equipped with an electro-magnetic field sensor.
Once installed, the drone will inspect the LPS lines along the leading edge of all three blades of the turbine.
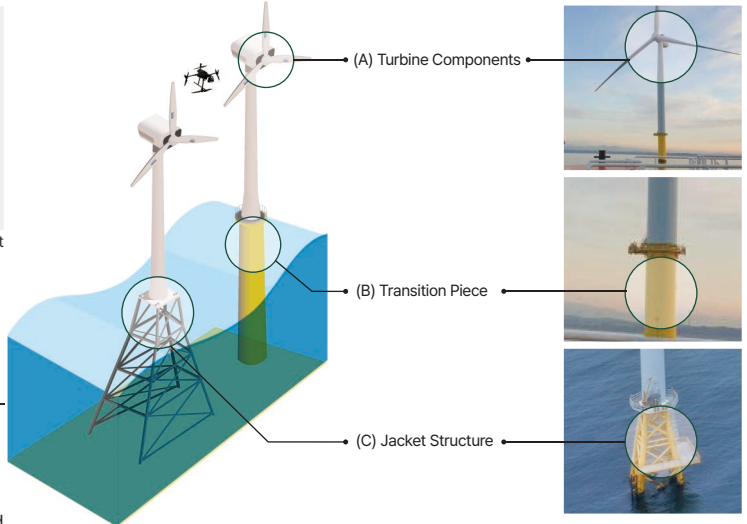

1. Rapid Setup

2. Swift Inspection

3. Sensitive Reports

LPS Inspection Reading Analysis - Success vs Defect

As the drone travels farther down the blade(R-value), an electromagnetic reading that depicts a sudden drop in voltage strengths signifies that there is a disconnected point in the LPS line at the specific location from the root.

Nominal EM Response (Success)

Abnormal EM Response (Defect)

Generator
LPS line
Drone Flight Path

Flexible Options for Clients

	Turnkey Solution	Flexible Leasing	Drone Purchase
Equipment Availability	✓	✓	✓
Training Provided	✓	✓	✓
Pilot Support	✓	⊗	⊗
Prompt Inspection	✓	✓	✓

zoomable™

AI Data Management & Analysis Platform

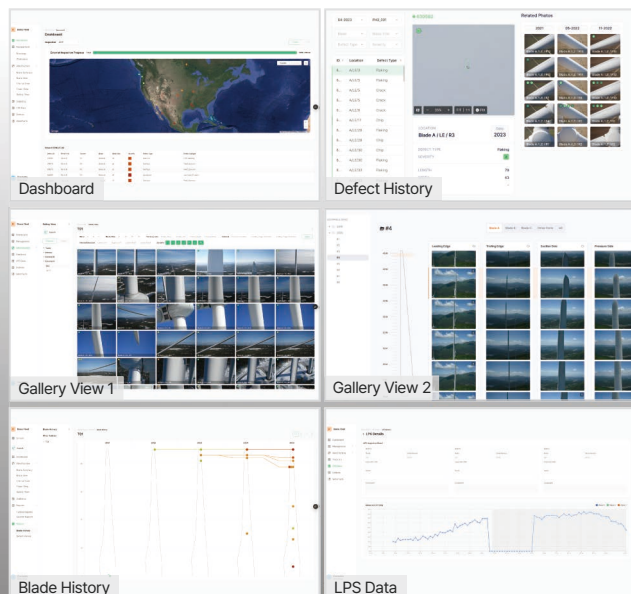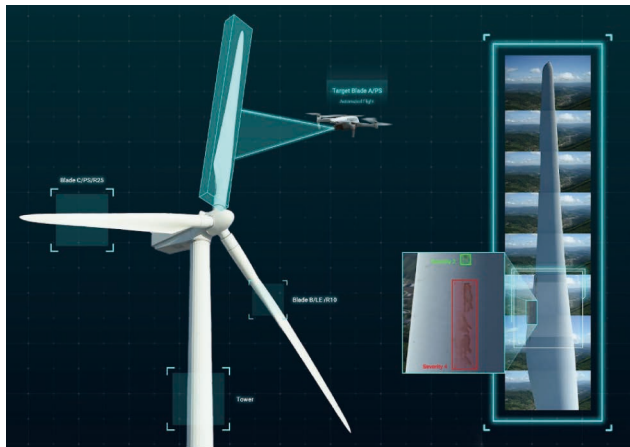| Automated Image Alignment | AI Data Analysis | Report Generation | Flexible Expansion |

Zoomable is a Data Management Platform that automates data analysis with AI, maximizing inspection accuracy and efficiency.

Zoomable supports data management for wind turbines, energy facilities, and industrial infrastructure, enabling comprehensive oversight from individual assets to large-scale sites. AI processes millimeter-level defect detection and automated image alignment. By evaluating risk levels, prioritizing actions, and producing detailed reports, Zoomable ensures a structured and efficient maintenance process.

Zoomable Features

Zoomable revolutionizes wind farm management by transforming safety inspections and defect analysis into actionable insights, empowering operators to make faster, smarter decisions for enhanced efficiency and safety.

Dashboard

Defect History

Gallery View 1

Gallery View 2

Blade History

LPS Data

Smart Capture, Intelligent Analysis, Rapid Reporting

1
15+ min.
Autonomous Inspections within 15 Minutes

2
1 day
Effortless Data Integration with Zoomable

3
10 days
Full Report Generation within 10 Days

Customer Testimonials

"
Zoomable is incredibly user-friendly.
Smooth uploading and tracking make it easy.

Zoomable is incredibly user-friendly. Finding your way around the platform is a breeze. I appreciate how I can easily filter and switch between rotor blades and sides with just a few clicks. Plus, the display of radius is spot on. Uploading metadata on the iPad and then transferring images to Zoomable is smooth sailing. The tracking feature for the 'DIU process' status during annotation is a nice touch it keeps me informed about the progress every step of the way.

Steffen Mueller & Thomas Buske
Professional Drone Pilots — **Deutsche Windtechnik**

"
Navigating the platform is second nature. Flexible and intuitive.

Navigating the platform is so easy to figure out, it's like second nature. I have to give props to how flexible claim creation is, especially the hands-free manual option. It's a game-changer.

Kevin Hauenstien
Blade Expert — **Deutsche Windtechnik**

"
Top-tier photo quality helps us track damage degradation and save costs.

Zoomable gives us incredibly detailed insight into our turbine's exterior blade health. The photo quality is top tier for the industry and makes viewing damages a breeze. With Zoomable, it helps us track damage degradation and repair them when needed which saves us money for the life of the project.

Marcus Correale
Operations Manager — **INNERGEX**

"
Vital tool for streamlining operations and early defect detection.

Zoomable has been a game-changer for us over the last four years. With records from previous years at our fingertips, identifying defects that require immediate attention has become significantly easier. Zoomable makes up for a vital component of our daily operations, streamlining O&M processes and helping us to stay ahead of the curve.

Bjorn Hedges
Plant Manager — **NAES**

iF DESIGN AWARD 2025