

Skyebase turns drone inspections into data-driven maintenance

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Industrial inspections reimagined

In recent years, drones have radically changed the way industrial installations are inspected. What used to take days or even weeks is now done more quickly, more safely and with less operational impact.

For Skyebase, though, the drone is merely a means to an end, not an end in itself. The Antwerp-based scale-up combines industrial drone inspections with software development and artificial intelligence. The company helps organisations to inspect infrastructure more quickly, detect faults sooner, plan maintenance better and make informed decisions based on data.

To take these innovations further, Skyebase is working with partners such as Sirris on AI, anomaly detection and secure digital architectures.


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Carrying out inspections more quickly, safely and efficiently

Skyebase was founded in 2020 by Tom Daniëls, Bart Daniëls and Jean-Louis Weemaes. The company specialises in industrial inspections of critical infrastructure such as harbour cranes, tank installations and pipelines.

Traditionally, such inspections often required scaffolding, rope access techniques or specialist teams working in hard-to-reach locations. This made inspections time-consuming and costly, but also posed safety risks.

With drones, many of these inspections can now be carried out more quickly. Using pre-programmed flight paths, drones collect large amounts of visual and thermal data that are used to detect cracks, corrosion, structural damage, potential leaks and other problems.

Skyebase does not confine itself to outdoor inspections. The company also carries out inspections in tanks and industrial installations and even underwater, where robots are used to survey infrastructure and structures safely.

According to CEO Tom Daniëls, the greatest added value lies not just in the speed of the inspection itself. “The drone is an extra tool in the inspector’s toolbox. It helps to carry out an initial scan more quickly, so that people can make use of their expertise where it is really needed.”

According to Skyebase, drone inspections are still in the early stages of development. The role of drones is increasingly shifting towards measuring, analysing and supporting maintenance processes.

At present, drones mainly inspect infrastructure remotely using cameras and sensors. The next step is already under way: drones and robots make contact with structures to carry out additional measurements of parameters such as wall thickness. In the longer term, Skyebase sees opportunities for interventions such as applying coatings or carrying out minor repairs. This represents a gradual move from simple observation to actively supporting maintenance activities.



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The biggest challenge wasn’t the drone itself

When Skyebase carried out its first inspections, it soon came up against a new challenge. Whereas a traditional inspection might once have yielded just a few photographs, a drone inspection today generates thousands of images and tens of gigabytes of data.

“We were delivering reports running to dozens of pages, along with USB sticks full of photos and 3D models. Customers were being given more information than ever before, but they weren’t always able to process it efficiently. That soon became a problem,” says Daniëls.

To tackle this challenge, Skyebase decided to develop its own software platform. What began as an in-house solution grew into iSpect, an inspection platform that centralises, visualises and analyses inspection data. This allows inspectors to:

- Record faults
- Compare inspections
- View 3D models
- Plan maintenance better
- Monitor historical developments

As a result, the focus is shifting from data collection to evidence-based decision-making.


SKYEBASE | Asset Inspection Platform
iSPECT
Inspections
Assets
Subcontractors
CREATE ASSET
Name
Owner
Address
Type
Brug
Kerkstraat 16
2000 Antwerpen
Infrastructure
Shipping 1
Haven 24
2000 Antwerpen
STS Harbour Crane
DBD Kanalen
Hendriklaan 3
2660 Hoboken
Pipelines
STS - Block
Rijnkaai 114
2000 Antwerpen
Tank 23.501
Scheldelaan 402
2030 Antwerpen
Tank
Tank - LLV
Wolfaertshoflaan
2630 Aartselaar
OVS Pipelines
Lievekaai 236
9030 Gent
Previous
1
© Mapbox © OpenStreetMap Improve this map
DRONE
CAM 1

© Skyebase

From images to data insights

Collecting data is one thing; gaining useful insights from the data is another. That’s why Skyebase invested in AI and data processing at an early stage, developing models that can automatically detect corrosion, cracks and other defects based on inspection images. This makes it possible to identify potential problems more quickly and plan maintenance more effectively.

When the same infrastructure is inspected at regular intervals in exactly the same way, this provides a historical overview of the condition of an asset.

A fault may be only minor today, but comparison with previous inspections can show whether the damage is remaining stable or rapidly worsening. This shift towards data-driven maintenance is becoming increasingly important for companies that want to keep their assets operational for longer and avoid unexpected downtime.

Accelerating innovation through AI and partnerships with Sirris

To develop new applications further, Skyebase is actively investing in innovation projects. It first started working with Sirris when more and more customers began asking for automated anomaly detection at industrial sites. Companies wanted not just to carry out inspections, but to be able to respond more quickly to undesirable situations such as vehicles in unexpected locations or people in prohibited zones.

AI for anomaly detection

Through the Sintra project, various partners are working together on technologies capable of automatically detecting anomalies. Skyebase is contributing its expertise in the following areas:

- Inspection technology
- Software development
- AI models
- Operational applications

Sirris provides support in areas including AI modelling, cyber security and secure system architectures. *“For us, an innovation project like this reduces the risk involved in exploring new technologies. At the same time, we can draw on the expertise of partners such as Sirris,”* says Daniëls, confirming the good working relationship.

Sirris has connected Skyebase with further expertise in the fields of AI, cyber security, secure digital infrastructures and reliable systems, thereby supporting the development and validation of innovative solutions. The collaboration is not confined to a single project. The two organisations are now also working together in a European innovation project focusing on infrastructure inspections, data fusion and advanced monitoring.

From isolated inspection data to a 360° view of infrastructure

In its new projects, Skyebase is also investigating how data from different sources such as drone footage, fixed cameras, sensors and other measuring instruments can be brought together.

Bringing this data together provides a single, integrated picture of the condition of critical infrastructure. Instead of analysing individual datasets, Skyebase combines different sources of information into a single overview. Drone footage, thermal cameras, sensors and other measurement data complement one another. This provides a more comprehensive picture of an asset’s actual condition and allows anomalies to be detected more quickly.

This approach helps asset managers to plan maintenance more effectively and identify problems sooner. For Skyebase, this fits perfectly with its vision: not to collect as much data as possible, but to help organisations make better decisions.



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Drone-in-a-box makes inspections scalable

The technology continues to evolve in operational terms as well. One significant development is the emergence of so-called ‘drone-in-a-box’ solutions. Here, a drone is permanently stationed in an automated docking station and can be deployed remotely.

This makes it possible to carry out regular inspection rounds, respond quickly to incidents and monitor multiple sites from a single control centre.

For organisations with extensive infrastructure, such as ports, energy companies or public authorities, this creates new opportunities to organise inspections more efficiently. Thanks to this approach, inspections can be carried out more frequently and companies can access up-to-date data on the condition of their infrastructure more quickly.

Conclusion: from data to better decisions

Skyebase demonstrates how industrial inspections are evolving from visual checks to data-driven maintenance. Drones are now generating huge amounts of information. The real added value is created when organisations use that data to make better maintenance decisions.

Combining images, measurements and different data sources shifts the focus from reacting to predicting. Together with partners such as Sirris, Skyebase is working on technologies that make inspections more efficient and enable infrastructure to be managed more intelligently.



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Working on smart and secure inspection technology?

Would you like to use drones, AI and sensor data for safer inspections and better monitoring? Sirris supports companies in the development and validation of innovative applications. Within SINTRA, we also work with international partners on anomaly detection, trustworthy AI and secure data exchange.

Discover the SINTRA project Contact our expert



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