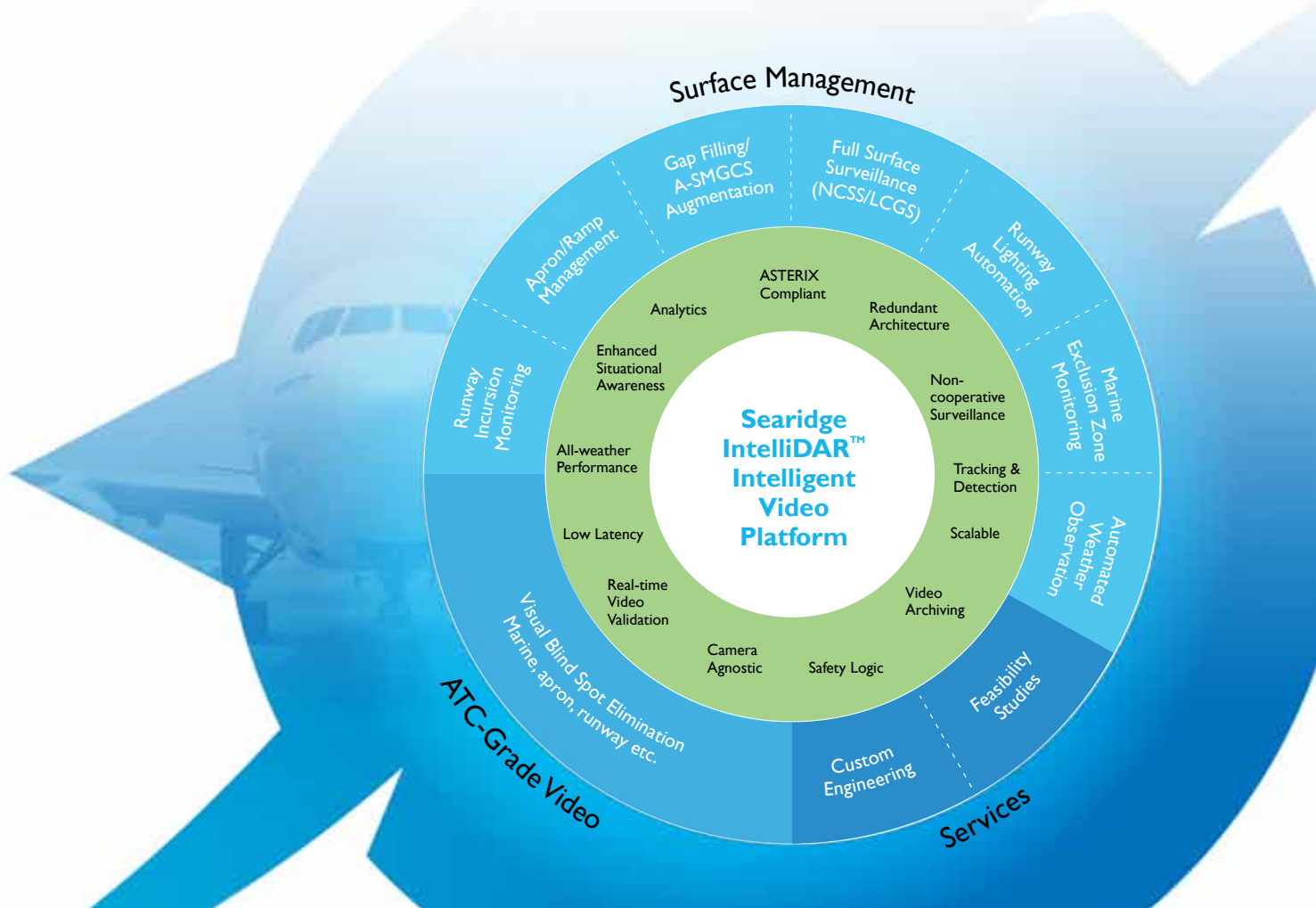


# Searidge Technologies Solution Portfolio

As airports grow and evaluate their surface management needs, Intelligent Video is emerging as the right technology to help Air Navigation Service Providers (ANSPs) and airports:

- Comply with NextGen and SESAR program initiatives
- Increase safety
- Improve security
- Enhance Collaborative Decision Making (CDM)
- Augment existing surveillance
- Develop and evaluate remote tower capabilities
- Mitigate new tower construction
- Enhance tower visibility.
- Deploy remote apron management capabilities

Searidge Technologies provides intelligent video solutions to ANSPs and airports to help them cost effectively increase safety and efficiency of surface management operations. Core to the Searidge ATC-grade video and surface management solutions is the IntelliDAR™ intelligent video platform, the first operational system of its kind in an air traffic control tower to provide detection, tracking and positional references of non-cooperative targets.



# IntelliDAR™ Intelligent Video Platform

The Searidge intelligent video platform, IntelliDAR™, is a robust Non-Cooperative Surveillance System (NCSS) that provides detection, positioning, classification and tracking of all targets on an airport surface.

## Real-time Positioning

The system processes video from a series of video sensors networked together to provide real-time geospatial positioning of all targets in a given area. The video captured by the cameras is then processed using state-of-the-art computer vision algorithms in order to provide: non-cooperative target detection, continuous tracking, geospatial positioning, and a variety of target attributes.

## ASTERIX-Compliant Output & Video Archiving

IntelliDAR outputs surface movement reports in ASTERIX format for seamless integration with existing systems. Video information can be viewed in real-time and can be archived for post-event analysis and record keeping.

## Coverage in Low Visibility Conditions

The IntelliDAR system uses commercial-off-the-shelf (COTS) cameras to allow for a highly scalable and robust platform while remaining extremely cost effective. Camera sensor sets incorporate the use of daylight/lowlight cameras and thermal infrared cameras for continuous monitoring of ground traffic in inclement weather and low visibility conditions providing comprehensive radar-like coverage. In addition, the cameras can be deployed around buildings and gate areas where radar-based coverage is typically problematic.

## Versatile Display Options

Detection and tracking data can be displayed on a stand-alone 2-dimensional airport schematic, or fused with peripheral surface surveillance technology such as surface movement radar or multilateration. An out-the-window (OTW) view is also possible by using video from cameras deployed parallel to each other and “stitching” them together to provide a single panoramic view of an area.

The ATC-grade digital display can also be upgraded to provide digital video zooming functionality allowing users the ability to pan, tilt and zoom any video streamed from high definition video sensors.

## Flexible Deployment Options

IntelliDAR can be deployed as a stand-alone system or can augment existing surveillance and control systems. The flexibility of the system allows airports to deploy the platform to address specific problem areas initially, and easily add more sensors to provide additional coverage as required.

## Features

- Enhanced situational awareness
- Non-cooperative surface surveillance
- Detection and tracking
- Video analytics
- Video archiving
- All weather performance
- ASTERIX compliant
- Real-time video validation
- Redundant architecture
- Low latency
- Camera agnostic
- Safety logic
- Scalable

## Benefits

- Radar-like coverage of all targets, including non-cooperative
- Real-time video for visual confirmation of targets
- Supports remote monitoring operations
- Effective blind spot gap filling
- Easy integration with existing systems
- Flexible deployment options
- Scalable system to expand as airports grow
- Real-time video validation:
  - Alerts for camera failure
  - Alerts for latent/stale video data
  - Will not show frozen video data to ATC
- Video Stitching: Alignment and transformation of video panels in a 3D environment to provide seamless overlapping video



Out-the-window view with panoramic video stitching



Target tracking with contextual video (2D display)

# Searidge Solutions

## ATC-Grade Video

### Visual Blind Spot Elimination

The Searidge ATC-Grade Video solution is a system that helps eliminate blind spots (marine, runway, apron etc.) by supplying real-time ATC-grade video directly to a situation awareness display.

The system continuously monitors and presents real-time video feeds from digital camera sensors to a one-look display. In cases of ambiguity, full visual confirmation of the situation helps controllers effectively manage the ground traffic with a high degree of confidence.

Providing surveillance through ATC-grade video is a cost-effective approach to handling ground traffic whether as a primary system or in conjunction with other surface management systems.

### Benefits

- Advanced video diagnostics including video time stamp analysis, stale or invalid data warnings, and camera malfunction warnings
- Visual confirmation in case of ambiguity
- Enhances the effectiveness of air traffic controllers and increases traffic throughput
- Reduces the amount of radio communications especially during inclement weather conditions

- Continuous video archiving and playback for use in incident review
- All-weather performance
- Redundant architecture
- Contributes to the safety and overall efficiency of airport operations
- Modular and flexible design allows airports to prioritize problem-specific area(s) first

The ATC-Grade Video solution can be easily expanded to include tracking and detection of targets to provide full surface surveillance.

## Surface Management

IntelliDAR offers comprehensive surface surveillance via intelligent video. The versatility of the system solves a variety of issues on the airport surface including gap filling, apron management and runway incursion monitoring.

### Gap Filling / A-SMGCS Augmentation

The Searidge Gap Filling solution can compliment an existing surface radar or MLAT system to provide a cost effective, real-time view of blind spots, coverage gaps, and hot spots. It provides the controller an accurate view of a specific area and acts as a secondary surveillance option, allowing them to make timely traffic management decisions with confidence.

### Benefits

- Cost effective
- Monitors all targets, including non-cooperative
- Increases situational awareness
- Presents target information to an existing display, eliminating the cost and need for additional training
- Can correct false or multiple target reporting when deployed at taxiways and runways
- Enhances the coverage of high-traffic areas or areas prone to high-incursion rates
- Target data can be fused and fed into existing surveillance systems acting as a “gap-filler”.

## Apron Management

The Searidge Apron Management solution uses passive technology to provide comprehensive surveillance of all ground traffic. It provides controllers and operators with complete situational awareness of the non-movement area and offers airports a reliable method of capturing block on/off times.

Data gathered from the Searidge Apron Management solution can be linked to airport operation control systems to be shared with users such as ANSPs and aircraft operators.

### Benefits

- Provides air traffic controllers with complete situational awareness including non-cooperative target monitoring
- Provides airport operations with billing and business intelligence information by tracking unlit aircraft, and monitoring aircraft gate usage times – during the day and overnight parking
- Increases security by monitoring unidentifiable vehicles or persons around parked aircraft

## Runway Incursion Monitoring

The Searidge Runway Incursion Monitoring solution helps prevent runway incursions by providing localized surveillance data including detection of position, speed of target, and alerts to the tower and airfield.

### Benefits

- High update rates (up to 20 hertz)
- Velocity measurement
- Interfaces directly with runway and taxiway lighting
- Visual confirmation
- Video archiving for incident review and training
- More accurate detection, faster response time
- Increases safety of operations
- Improves traffic flow
- Increases airport movement capacity
- Future expansion leverages existing hardware
- Modular design allow for flexible deployment options



Remote apron management



Gate time usage monitoring



### Marine Exclusion Zone (MEZ) Monitoring

The Searidge MEZ Monitoring solution provides visual confirmation of vessel activity in and around the marine zone of an airport. It is critical that all vessels operating in the marine zone be detected and tracked. Data is fed directly into the air traffic control tower providing controllers with real-time situational awareness of the monitored zones before issuing clearance to departing and arriving aircrafts.

#### Benefits

- Visual confirmation when tower view is obstructed or in low visibility conditions
- Video archives for incident review

### Automated Weather Observation

The Searidge Automated Weather Observation solution is a modernized, digital-weather-camera system that provides sector visibility via intelligent video. The system helps to promote flight safety by providing current weather conditions to pilots, assisting them in making timely weather-related decisions with confidence.

#### Benefits

- Real-time weather data, with constant updating of video information
- Integrates with METAR/TAF data
- Long range visibility detection (greater than 15 statute miles)
- Real-time visibility alerts (up to 5 updates per second)
- Visual confirmation of weather conditions
- Multiple camera views to provide prevailing visibility
- Historical view of weather data, as far back as 2 hours
- Includes overlay images to provide pilots with predetermined reference points

### Runway Lighting Automation

The Searidge Runway Lighting Automation solution automates the activation/deactivation of centerline runway lights in displaced thresholds. Because of the tracking capabilities of the system, it is able to make on/off decisions based on the position of the aircraft.

#### Benefits

- Increased safety and efficiency
- Low cost
- Flexible

## Professional Services

Searidge Professional Services specialize in the design, analyses, testing, and integration of a variety of digital video systems and image processing techniques in support of complex air traffic control and airport operations functions.

The professional services team offers custom engineering services to develop solutions specific to ANSP and airport needs (e.g. wildlife management, Foreign Object Debris (FOD) detection). They also conduct detailed on-site feasibility studies to assist in the evaluation of ATC-grade video and intelligent video solutions.

## About Searidge Technologies

Searidge Technologies provides intelligent video solutions to Air Navigation Service Providers and airports to help them cost effectively increase safety and efficiency of surface management operations. The company's intelligent video platform IntelliDAR™ is a robust Non-Cooperative Surface Surveillance (NCSS) system and the first operational system of its kind in an air traffic control tower to provide detection, positioning, and tracking of all targets on an airport surface. Searidge is helping its customers with ATC-grade video, gap filling/A-SMGCS augmentation, apron management, and remote tower capabilities.

Working with industry leaders such as DFS, EUROCONTROL, FAA, and NAV CANADA, Searidge solutions are installed in sites throughout Europe, Middle East and North America. Founded in 2001, Searidge is a privately held company based in Canada's Capital region.

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