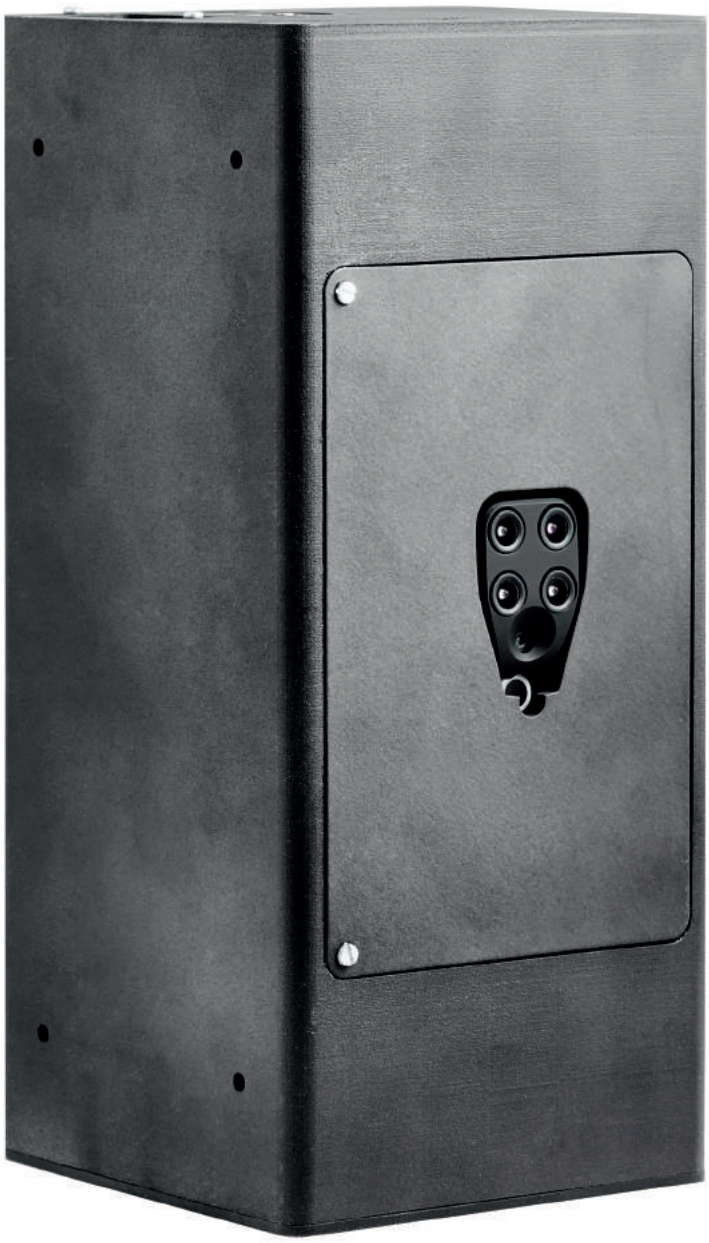
Łukasiewicz
Institute
of Aviation



A proprietary, patented real-time object detection and automatic analysis system

REAL-TIME OBJECT DETECTION SYSTEM (RTSENSE)

CHARACTERISTICS

Łukasiewicz – Institute of Aviation specialists have developed a remote sensing system that allows automatic detection of features based on comparative analysis and developed machine learning algorithms. The result of the study is an anomaly report. The system, along with cameras, can be used on manned and unmanned aircraft, pseudo-satellite systems or high-altitude platforms.

TECHNICAL DATA

- Multi- or hyperspectral sensor captures narrow spectral ranges of surveyed data:
  - non-blue (VIS) from 400 nm to 500 nm,
  - green (VIS) from 500 nm – 600 nm,
  - red (VIS) from 600 nm to 700 nm,
  - near infrared (NIR) from 700 nm to 1000 nm,
  - shortwave infrared (SWIR) from 1000 nm to 2000 nm
- Data transmission using a wireless network.
- Data presentation is done using a dedicated application.

KEY FEATURES

- Modular design allowing interchangeable use of different sensors.
- The signal detector is a multispectral sensor.
- The system can be equipped with an array that records the visible (VIS), near infrared (NIR) band, as well as a fragment of the shortwave infrared (SWIR), thermal infrared, and active sensor – LIDAR.
- Multispectral or hyperspectral analyses, are performed on the basis of comparison of the acquired data with reference data, and based on proprietary machine learning algorithms. Real-time results obtained.

BUSINESS CASE

The object monitoring support system, due to its modular design, can be used in various scenarios and in different industries. The basis of the system's application was the agricultural industry. The dedicated software was equipped with a pathogen database including reference data in the form of spectral signatures of developmental phases of healthy plants and those infected with the pathogen. An alternative use s in the energy industry infrastructure monitoring.

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al. Krakowska 110/114, 02-256 Warsaw, Poland
e-mail: info@ilot.lukasiewicz.gov.pl / www.ilot.lukasiewicz.gov.pl