

Extending Security to the Airspace



Top Drones



Total Number of Alerts

852

AVG Alerts per Day

8.7

Days with Alerts

98

Max Alerts per Day

19

Alerts by Date



Counter UAS Airspace Protection



A Leader in Drone Detection and Airspace Security

- Detect, Analyze and Mitigate sUAS Threats
- Scalable and Enterprise-Ready
- Cloud-Based AI/ML Engine
- Smart City Infrastructure / UTM
- Mobile Edge Computing

400+

Installations
Globally

175%

YoY Growth

Large Addressable Markets



Federal and
Military



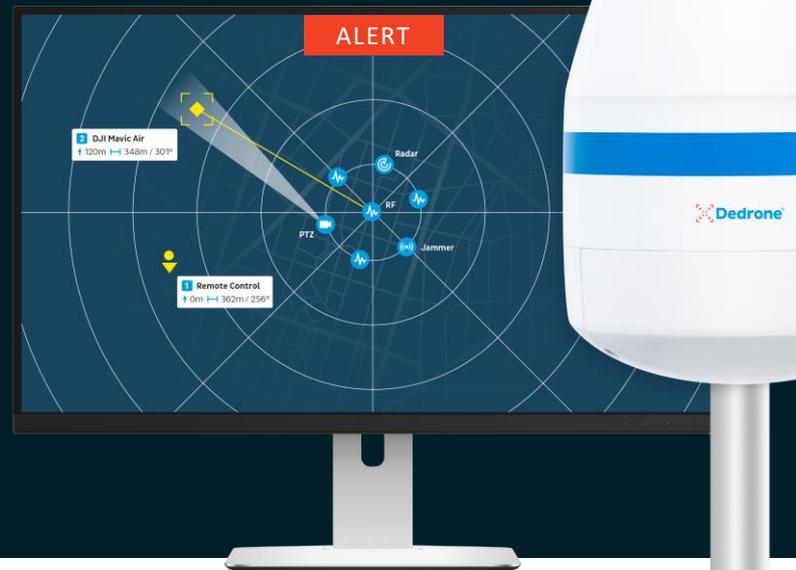
Critical
Infrastructure



Correctional
Facilities



Airports



Marquee
Customer
Base

Top Tier
Investors



GENERAL
DYNAMICS

Felicitis Ventures

M
Menlo

Drones: Nearly Zero Barrier to Entry



Speed up to

50

mph

Range up to

5

miles

Payload up to

10

lbs

Price from

500

dollar

How many unwanted drones
are in your airspace?

Data is the foundation to solving this asymmetric threat



ALERTS BY DATE

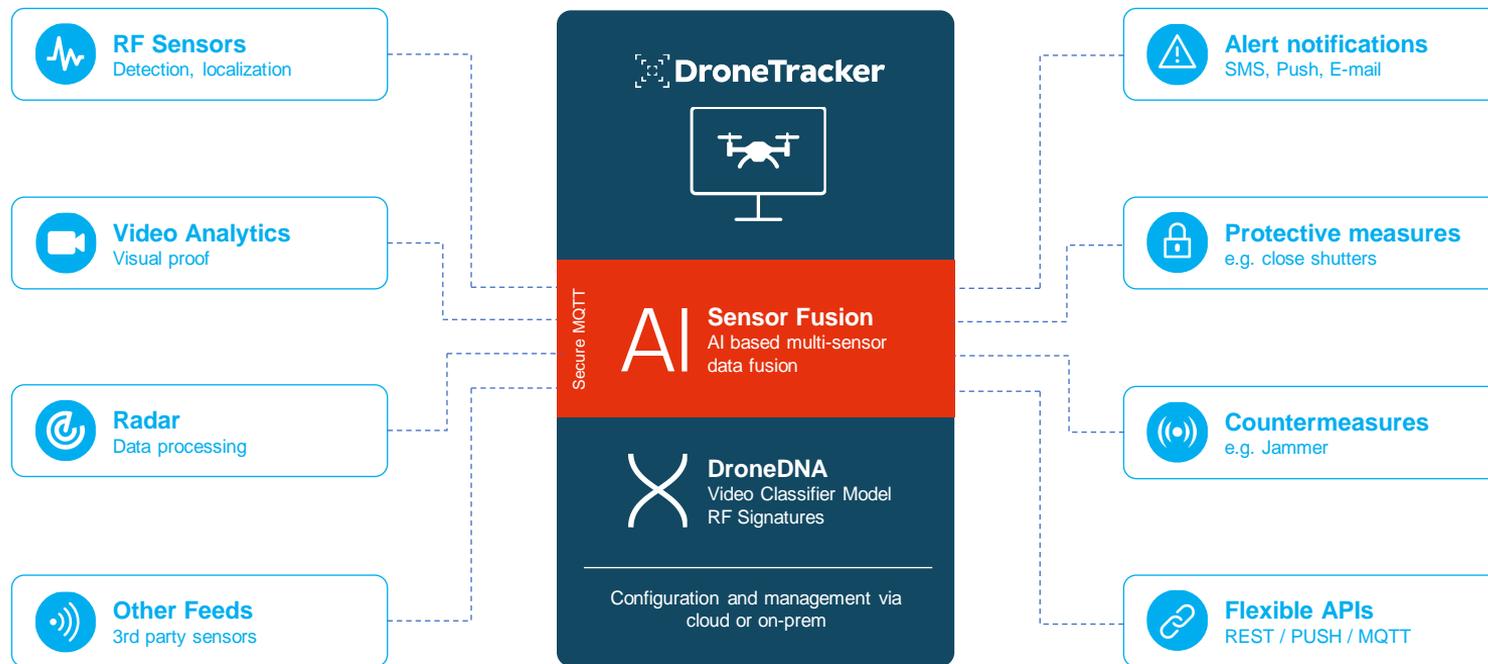


ALERTS BY HOUR AND DAY OF WEEK

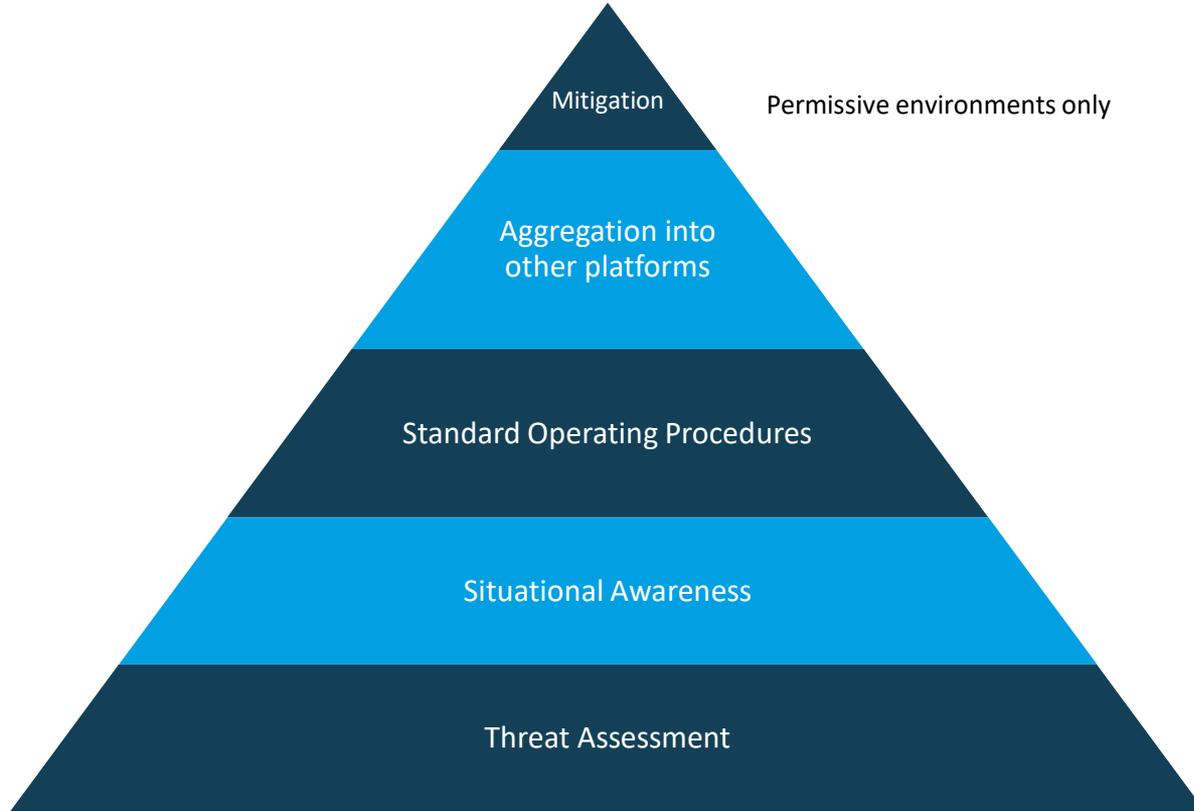
Monday	2	5	4	1	1	3	8	11	6	22	36	25	33	21	53	65	46	44	78	51	46	11	13	2
Tuesday	3	8	6	6	0	0	1	6	67	35	17	62	46	27	19	19	55	126	70	44	27	7	5	11
Wednesday	3	4	1	3	5	5	17	11	31	27	30	39	38	36	58	70	45	92	53	50	37	26	22	2
Thursday	7	5	0	8	5	3	2	17	6	13	17	50	74	53	91	44	60	61	92	79	65	13	10	31
Friday	6	5	4	2	2	4	7	5	15	54	48	61	43	41	43	56	77	117	119	52	64	17	14	6
Saturday	12	1	5	6	1	2	8	19	23	41	54	48	53	61	80	137	91	72	77	63	44	25	20	7
Sunday	5	8	2	2	4	2	7	4	17	22	43	89	95	48	101	117	75	109	117	68	38	16	6	1
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23



DroneDNA and AI-Based Sensor Fusion



Phased Approach to Airspace Security



Phased Approach to Airspace Security

1

Threat
Assessment

2

Situational
Awareness

3

Counter-
measures

Threat Assessment

RF-160

- Fast, easy and inexpensive way to start discovering drone activity using one sensor
- Early-warning
- Provides meaningful data for risk assessments
- Fast installation and start-up thanks to integrated LTE
- Completely passive



Drone Detection with RF-160

SCREENCAST

Small deployment

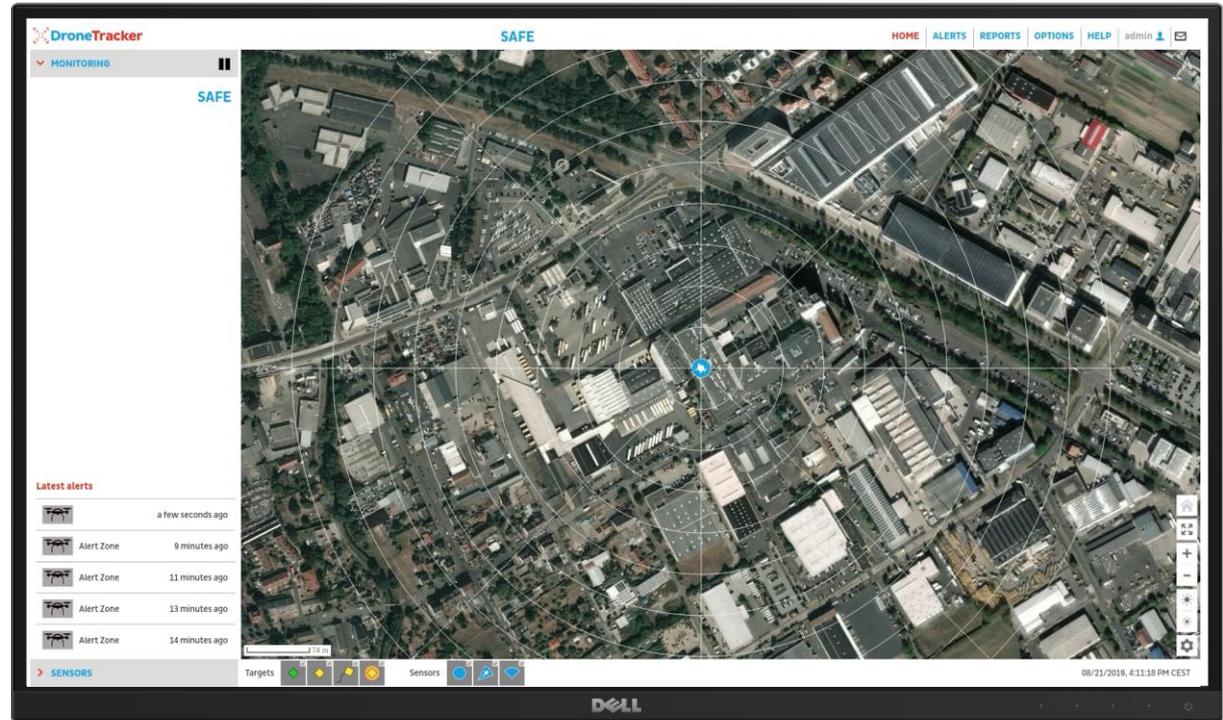
 1 RF-160

 1 Drone detected

Click display to start video
(Video: Double speed)



Drone DJI Spark

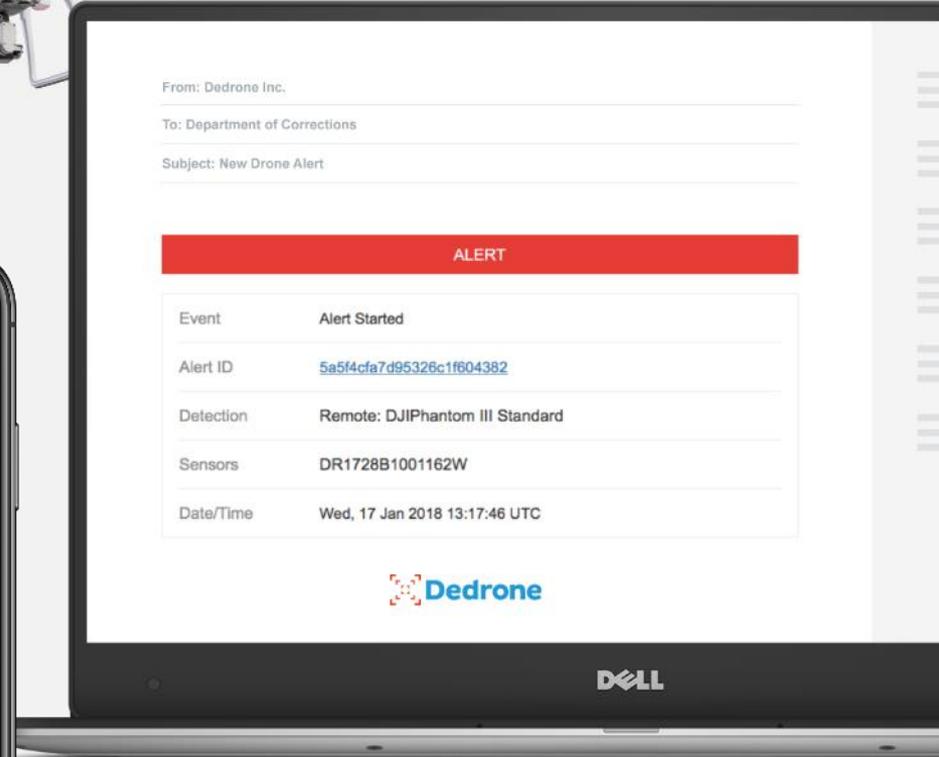


The screenshot shows the DroneTracker web interface. At the top, there is a navigation bar with 'HOME', 'ALERTS', 'REPORTS', 'OPTIONS', 'HELP', and 'admin'. The main content area features a satellite map of a city with several concentric circular detection zones centered on a blue dot. A 'SAFE' status indicator is visible in the top left of the map area. On the left side, there is a 'MONITORING' sidebar with a 'SAFE' status. Below the map, a 'Latest alerts' section lists several 'Alert Zone' events with timestamps: 'a few seconds ago', '9 minutes ago', '11 minutes ago', '13 minutes ago', and '14 minutes ago'. At the bottom of the interface, there are 'SENSORS' and 'Targets' sections with various icons. The Dell logo is visible at the bottom center of the monitor frame, and the date '08/21/2019, 4:11:39 PM CEST' is in the bottom right corner.

Early Warning Alerts

Alert sent via SMS or email as soon as remote or drone are detected

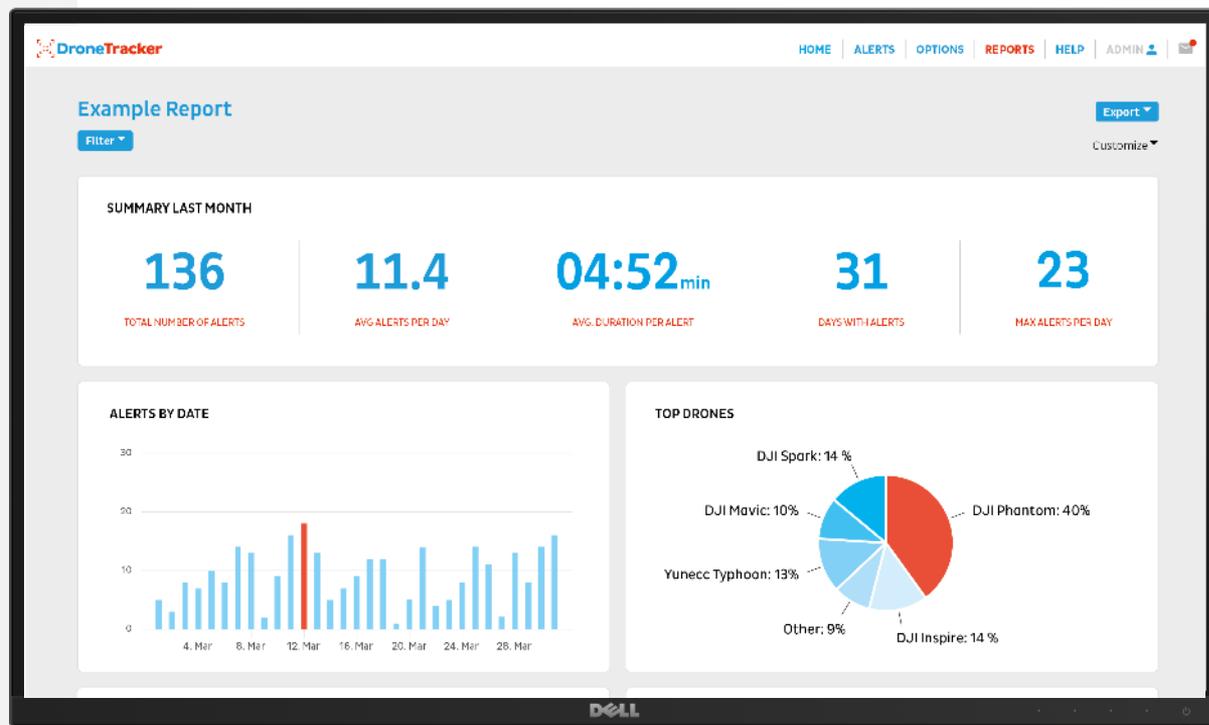
- Gives security teams extra time to react
- Keeps groups informed as required
- Additional notifications available through API



Airspace Analytics Drive Security Decisions



- Extent of drone activity in the vicinity
- Type of drones
- Suspicious patterns
- Time of day
- Anything at night is a threat
- Did an event happen?



Phased Approach to Airspace Security

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Situational Awareness

RF-300

- Localizes and tracks drones using multiple sensors
- Automatically tracks and plots flight and pilot position on map
- Provides information on "hotspots" of drone activity
- Completely passive
- Supplements RF-160 sensor



A combination of multiple RF Sensors allows a very large perimeter coverage.

Drone Detection with RF-300

SCREENCAST

Small deployment

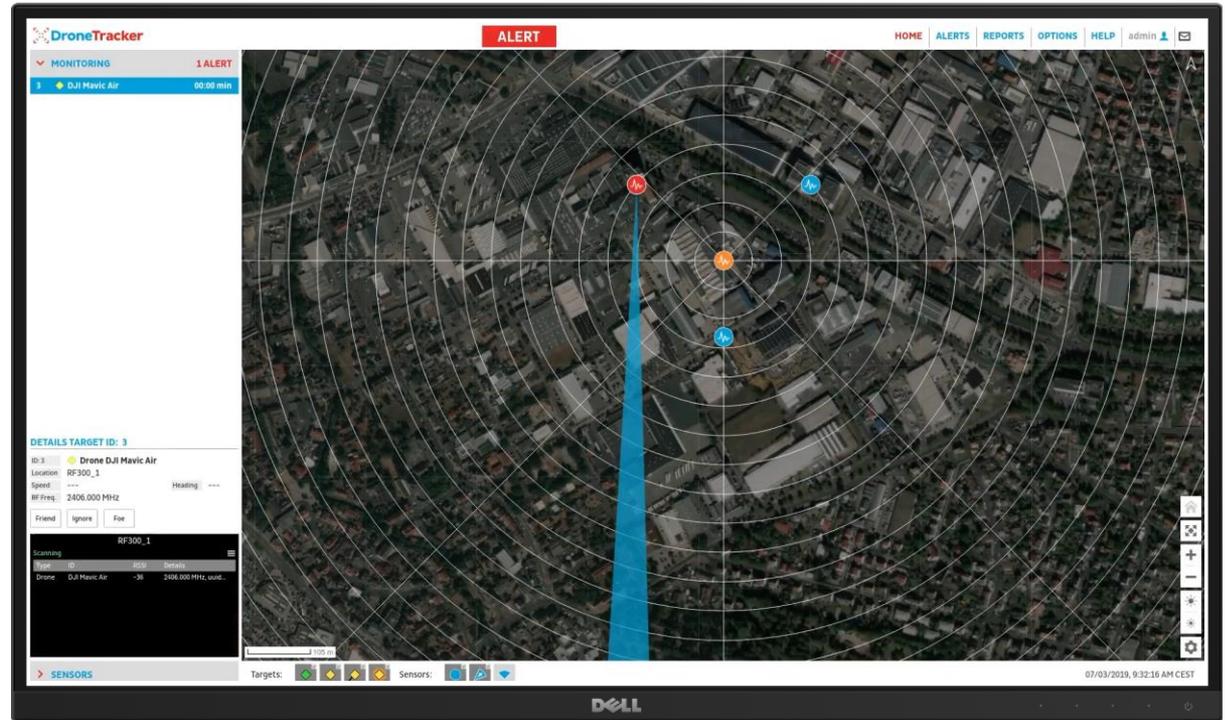
 3x RF-300 / 1x RF-160

 1 Drone detected

Click display to start video
(Video: Double speed)



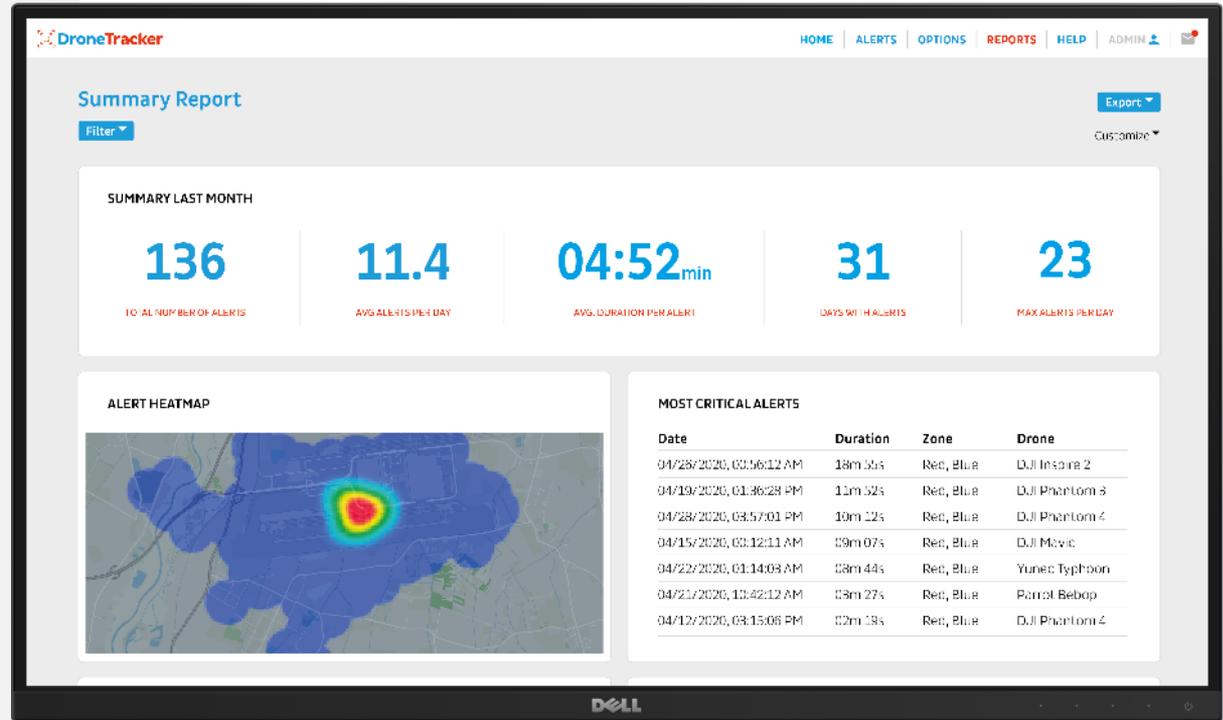
Drone DJI Mavic



The screenshot displays the DroneTracker web application interface. At the top, a red 'ALERT' banner is visible. The main area features a satellite map with a grid overlay and a large blue beam pointing to a detected target. The interface includes a navigation menu (HOME, ALERTS, REPORTS, OPTIONS, HELP) and a user profile (admin). A sidebar on the left shows 'MONITORING' with '1 ALERT' and a list of detected drones, including 'DJI Mavic Air' with a 00:00 min duration. Below the map, a 'DETAILS TARGET ID: 3' panel provides information for 'Drone DJI Mavic Air', including its location (RF300_1), speed, RF frequency (2406.000 MHz), and heading. A 'Scanning' table lists the drone and its frequency. At the bottom, there are 'Targets' and 'Sensors' status indicators, and a timestamp of 07/03/2019, 9:32:16 AM CEST.

In-Depth Tools Uncover High-Risk Areas

- Understand patterns in drone activity
- Quickly uncover concerning airspace activity
- Stay up-to-date with critical information



Multi-Sensor Fusion for Complex Threats

Extended Awareness

PTZ Cameras

- Optical verification
- Localization of drones
- Detection of autonomous drones
- Visual auto-tracking
- Payload identification
- Recording of forensic evidence
- Complement of RF sensors



Depending on the application, Dedrone integrates one or more PTZ cameras with different performance into the Dedrone platform.

Extended Awareness

Radar

- Detection of autonomous drones
- Simultaneous detection of multiple drones
- Independent of light and weather conditions
- Localization including determination of the altitude
- Complement of RF sensors



Since they emit radiation, they are subject to approval and price-intensive to purchase compared to other sensors.

Drone Detection with Radar and PTZ camera

SCREENCAST

Extended deployment

 3 RF-300 / 1 RF-100

 1 Radar

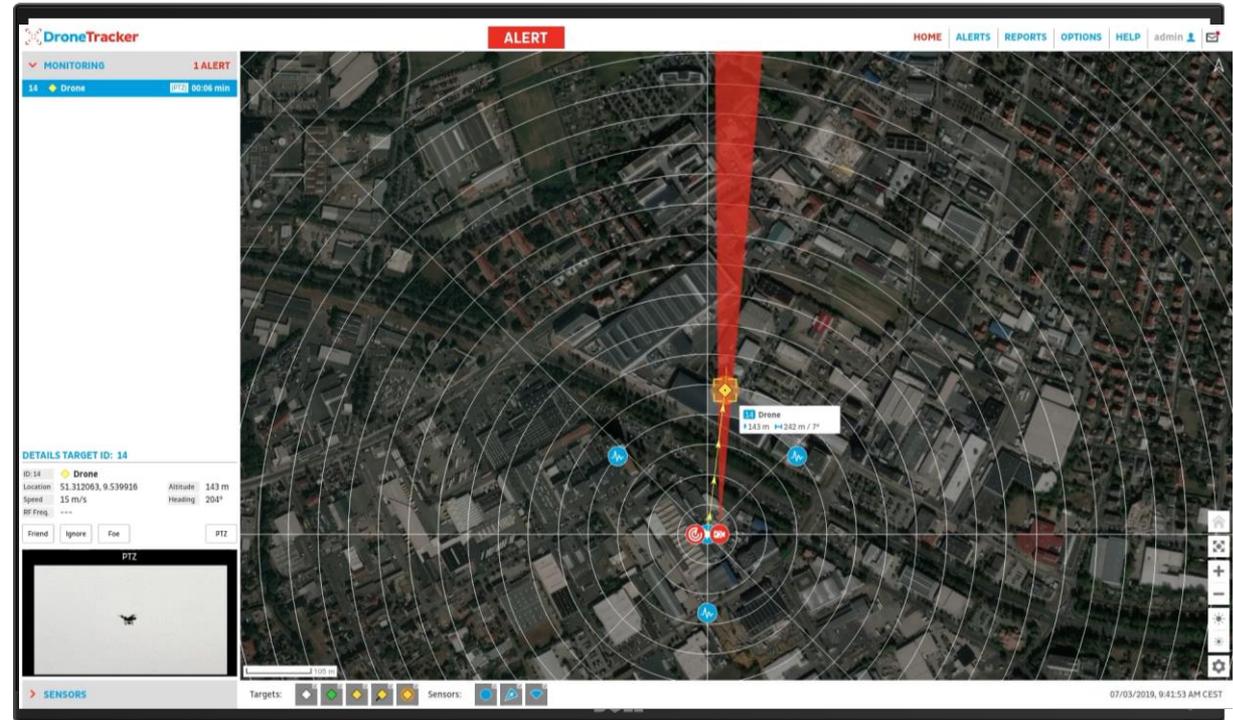
 1 PTZ camera

 1 Drone detected

Click display to start video



Drone DJI Phantom 4



The screenshot displays the DroneTracker web application interface. At the top, there is a navigation bar with 'HOME', 'ALERTS', 'REPORTS', 'OPTIONS', and 'HELP' menus, along with an 'admin' user profile. A red 'ALERT' banner is visible in the top right. The main area features a radar map of a city with concentric circles representing detection ranges. A red vertical beam highlights a detected drone target. A tooltip for this target shows: 'Drone', '1143 m', and '4242 m/3°'. On the left side, a 'MONITORING' panel shows '14 Drone' with a '00:06 min' timer. Below this is a 'DETAILS TARGET ID: 14' section with the following data: ID: 14, Location: 51.312063, 9.539916, Altitude: 143 m, Speed: 15 m/s, heading: 204°, and RF Freq: ---. There are buttons for 'Friend', 'Ignore', 'Foe', and 'PTZ'. A small PTZ camera view is shown in a window below the details. At the bottom, there are 'SENSORS' and 'Targets' sections with various icons. The bottom right corner shows the date and time: '07/03/2019, 9:41:53 AM CEST'.

Phased Approach to Airspace Security

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2

Situational
Awareness

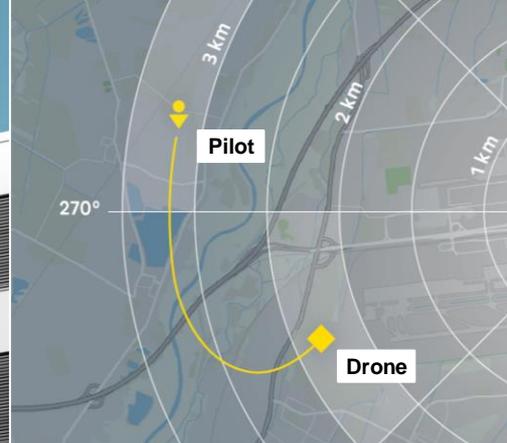
3

Counter-
measures

Countermeasures

Defensive Measures

- Track drone in real-time
- Trace flight back to pilot
- Inform security staff
- Block view, lock down areas
- Record video evidence



Countermeasures

DroneDefender

- Multifrequency disruption to block remote control communication and neutralize drones. No remote action, including detonation, can occur.
- Satellite signal disruption to disable use of automated navigation
- Mobile and fixed installations
- Range up to 400 meters



How can I start protecting my airspace?

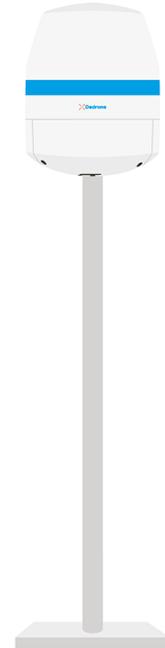
1. Start with Threat Assessment

10
MIN

- Easier than building an IKEA shelf
- Only one person needed
- No Dedrone engineer required on site

Out of the box solution

- Place the RF Sensor on a pole. We'll support you with a manual, video tutorial and are available via phone or video chat.
- All you'll need is a power supply – no further technical knowledge is needed.



2. Browser-Based Software



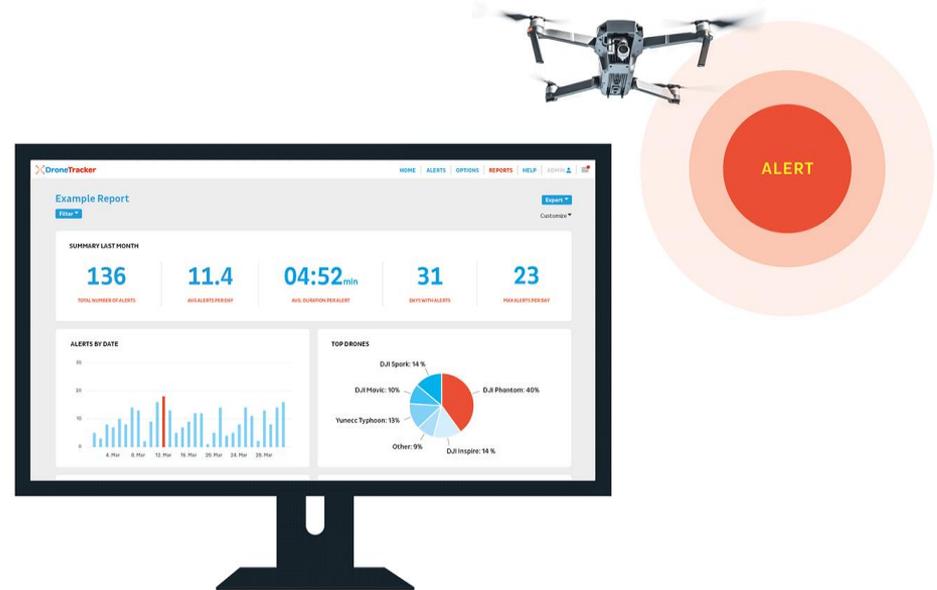
- Login to DroneTracker with your credentials that we have sent you by email.
- The RF Sensor connects automatically.
- You can access DroneTracker on your desktop or via mobile interface.



3. Get Drone Alerts and Insights



- You'll get drone alerts immediately in your preferred channels - via web, email, mobile or API.
- All drone intrusions and corresponding data are saved and analyzed automatically.



Congrats. You are safe now.

Questions to consider

- Are you prepared for the emergence of drones?
- What is your strategy to defend your critical assets against drones?
- Can you really afford to do nothing?

Thank you

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