Dedrone

The Leader in COUNTER DRONE Security

Top Drones

Total Number of Alerts	AVG Alerts per Day	Days with Alerts	Max Alerts per Day
852	8.7	98	19

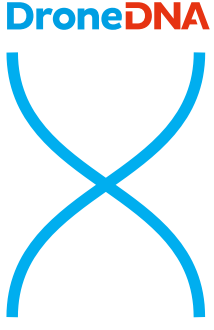
Alerts by Date

Who is Dedrone

- Over **250** successful installations
- Protecting **80** Global Prisons
- Securing **15** International Airports
- Protecting the **World Economic Forum** for the past 4 years

Who is Dedrone

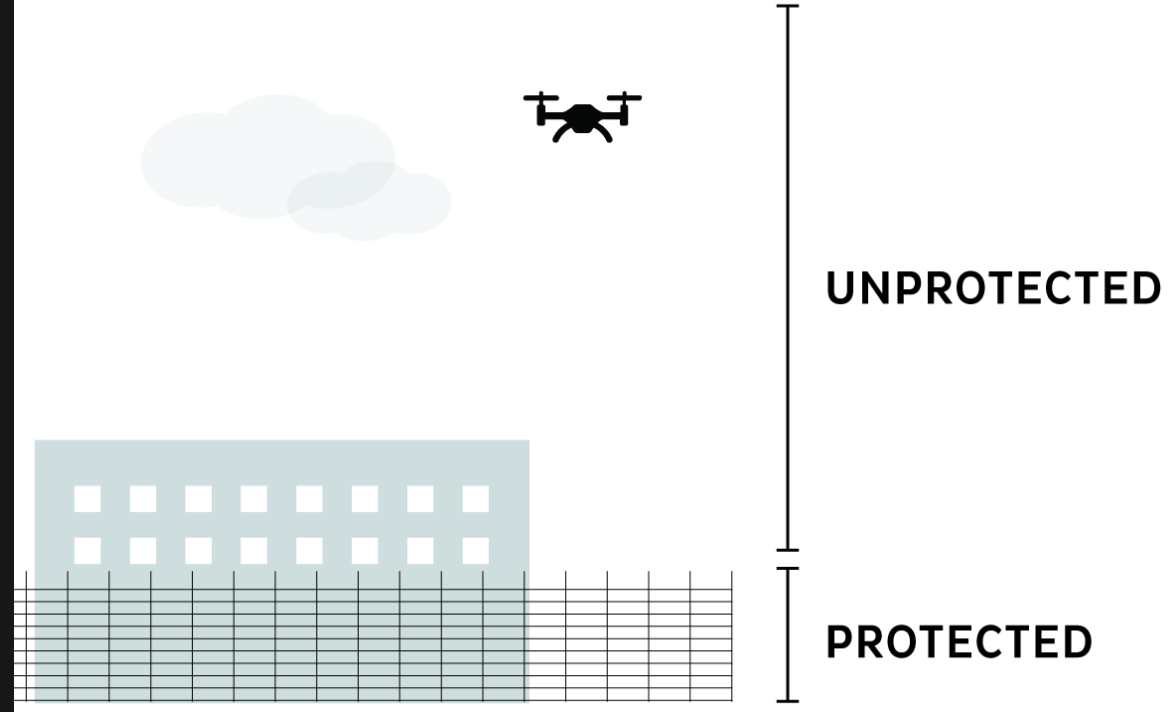
- The largest investment in Counter Drone Security Measures of over **$43 million USD**
- **40+** Research and Development Engineers
- Average **130% growth** year over year
- Largest database of drones in the World



Traditional Security is Helpless against Drones

Completely blind to airborne threats:

- Smuggling
- Spying
- Terror



Malicious drones threaten business and society

Dedrone

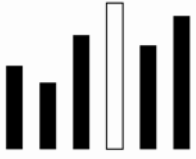
Product Overview

Open Systems Architecture

Phased Approach to Airspace Security

1

Threat Assessment



2

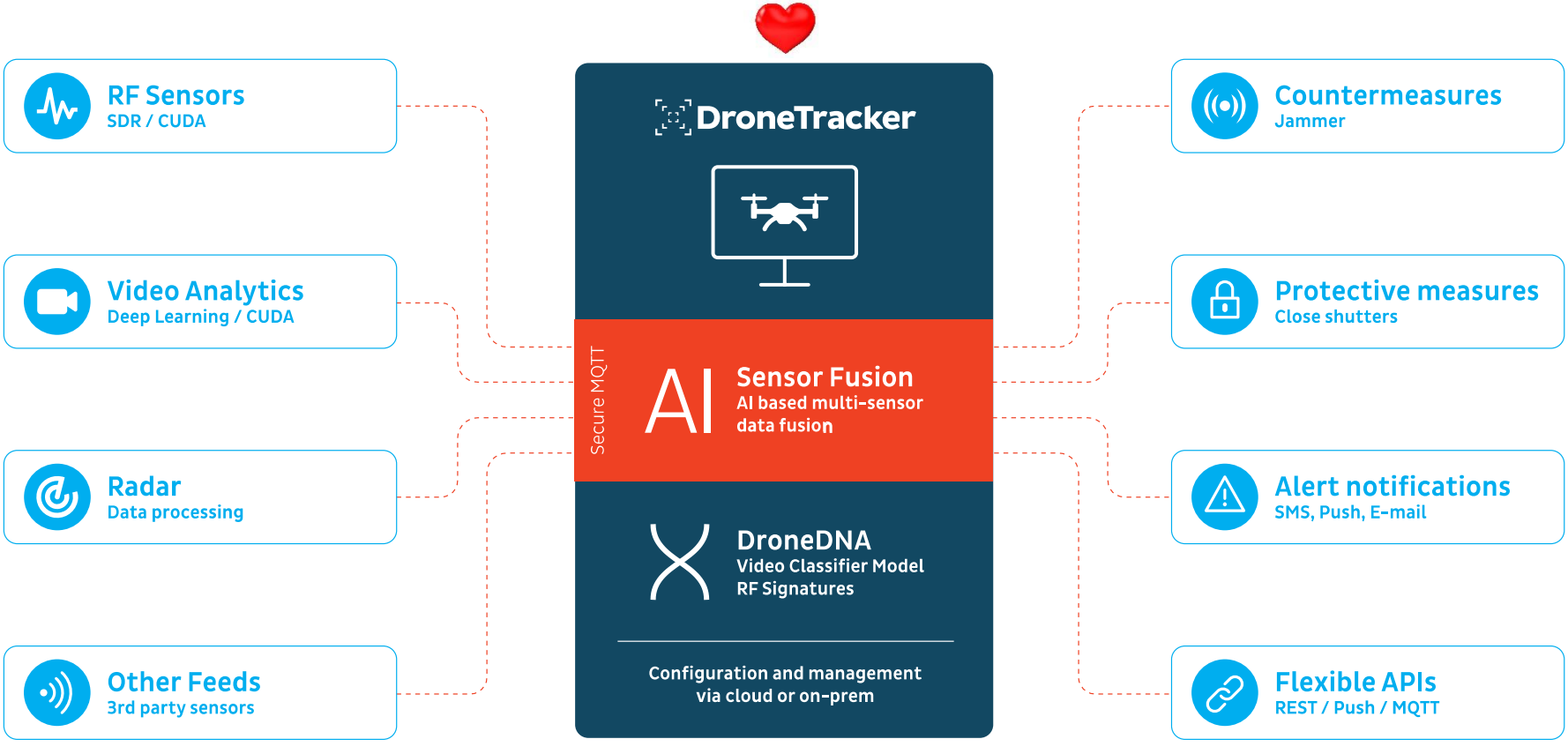
Situational Awareness

3

Counter-measures

Machine Learning Based Sensor Data Fusion

Processing events from all sensors, sensor fusion, localization, trigger alerting and automated countermeasures.



Radio Frequency (RF) Sensors

DEDRONE'S OWN PRODUCTS

RF-160: Detection and classification

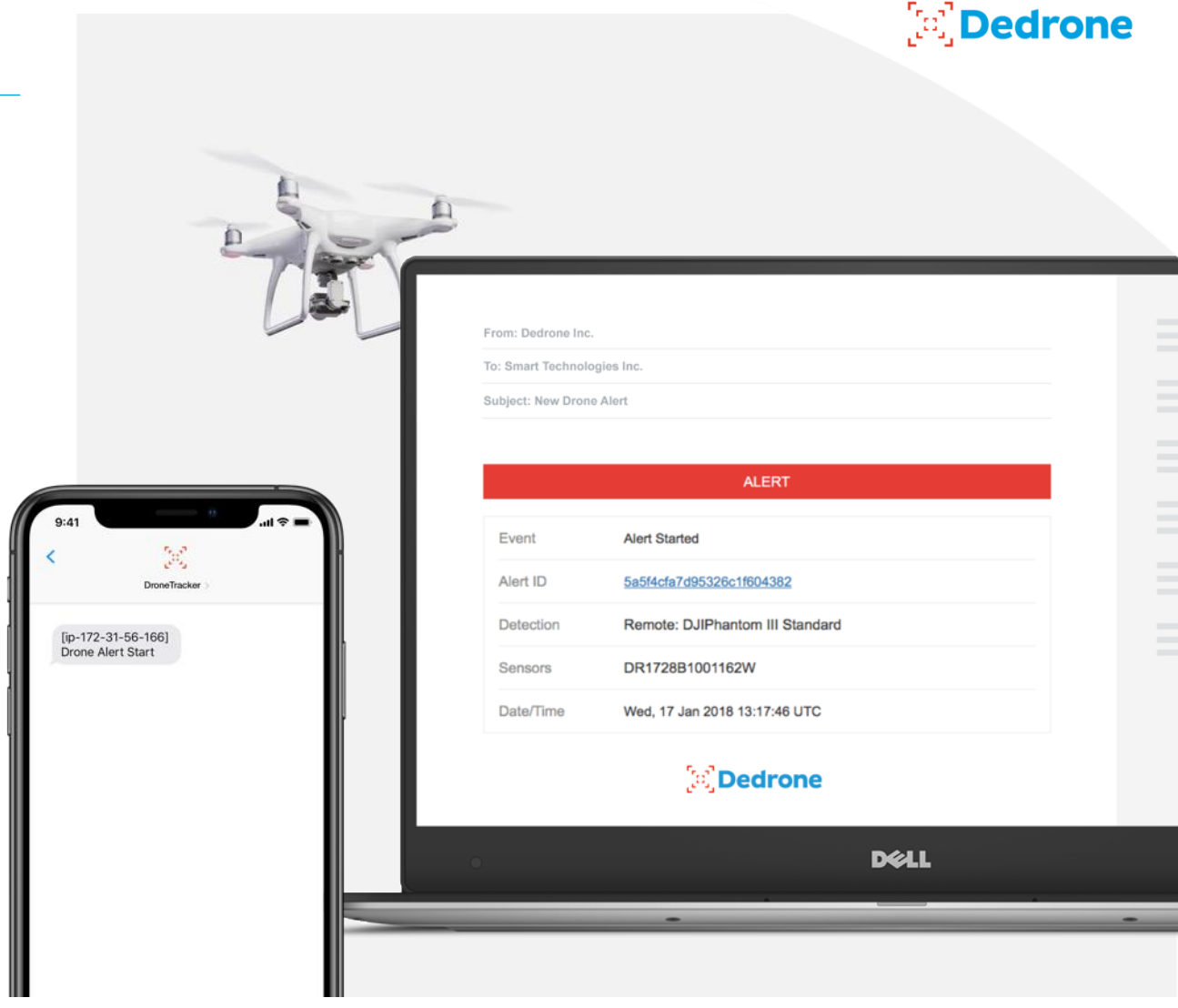
- Fast, easy and relatively inexpensive way to start discovering drone activity within perimeter of POI
- Range up to 3.1 miles

(5 Km)

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

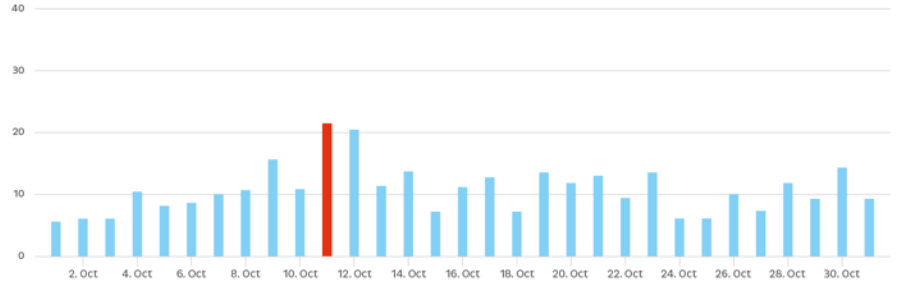
- Understand patterns in drone activity
- Quickly uncover concerning airspace activity
- Stay up-to-date with critical information

Dedrone

SUMMARY

136	19.4	08:58 min	31	23
TOTAL NUMBER OF ALERTS	AVG ALERTS PER DAY	AVG. DURATION PER ALERT	DAYS WITH ALERTS	MAX ALERTS PER DAY

ALERTS BY DATE



ALERTS BY HOUR

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Monday	0	2	0	0	2	1	2	0	0	4	3	0	0	0	0	0	0	1	2	1	0	0	0	1
Tuesday	1	1	1	0	0	0	0	0	0	0	5	0	0	5	4	0	0	0	0	1	1	0	0	0
Wednesday	0	2	0	0	0	0	0	0	1	3	8	0	0	0	2	2	0	0	0	0	0	0	0	0
Thursday	0	1	0	0	0	0	0	0	0	0	5	3	2	0	0	2	1	0	0	0	0	1	0	0
Friday	0	2	1	0	2	0	1	0	0	5	2	1	0	0	0	3	1	2	0	0	0	0	1	0
Saturday	1	0	1	1	1	0	2	1	0	2	0	0	1	0	1	2	1	5	1	0	0	1	0	0
Sunday	0	1	0	0	2	0	0	1	0	1	1	5	3	0	0	0	4	3	0	0	2	0	0	0

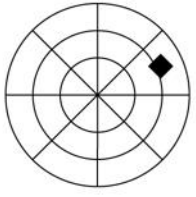
Phased Approach to Airspace Security

1

Threat Assessment

2

Situational Awareness



3

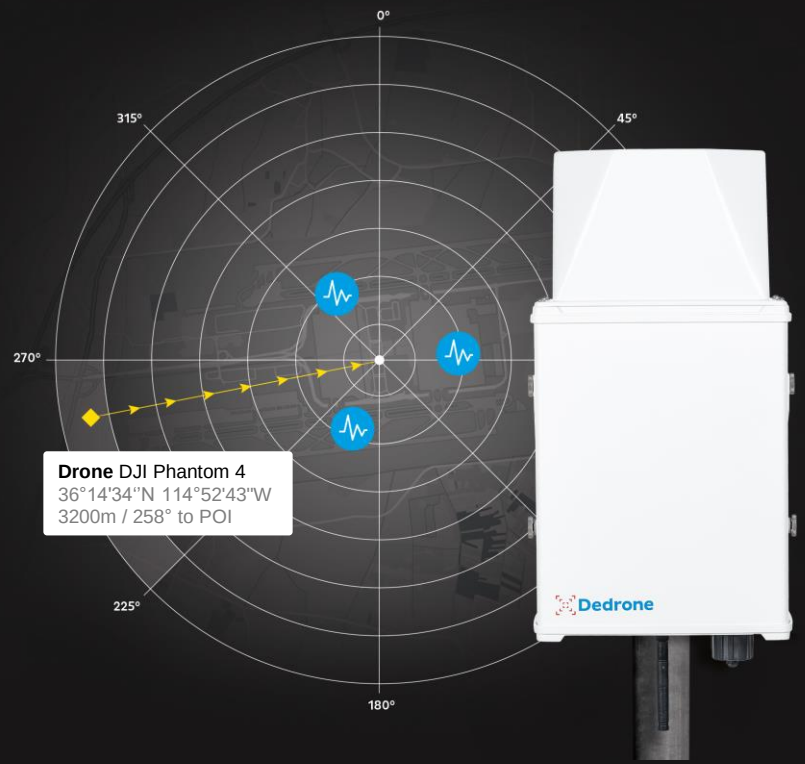
Counter-measures

Dedrone RF-300

DEDRONE'S OWN PRODUCTS

Main Functions in the Platform

- Localizes and tracks drone using three sensors
- Completely passive direction-finding
- Supplements RF-160 sensor
- Discreet form factor
- **1.6 Km range**



Swarm Drone Detection with RF Sensors

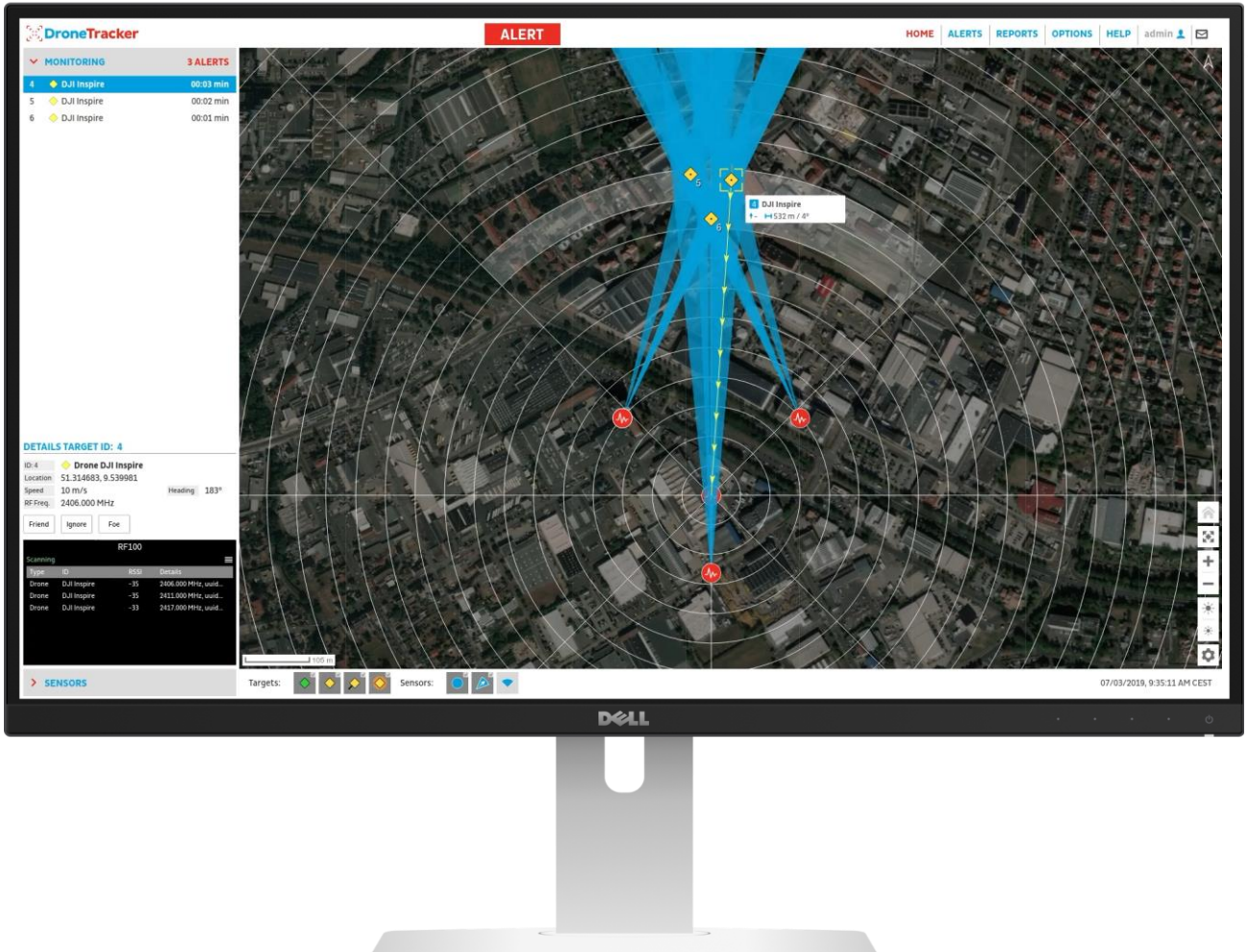
SCREENCAST

Small deployment

- 3 RF-300 / 1 RF-160
- 3 Drones detected

Click display to start video
(Video: Double speed)

Drone DJI Inspire



Pan-Tilt-Zoom (PTZ) camera

3RD PARTY PRODUCT

Benefits

- Optical verification
- Visual auto-tracking
- Determines the flight altitude
- Discovers autonomous drones
- Identifying of payloads
- Significantly reduces radar false alarms
- In combination with RF Sensors drones can be classified
- Range up to 12 miles

Dedrones open software platform allows the implementation of any kind of sensors, regardless of the manufacturer.

Radar

3RD PARTY PRODUCT

Benefits

- Detects up to 512 threats simultaneously
- Determines the flight altitude
- Discovers autonomous drones
- Range up to 6 miles
- In combination with a PTZ camera false alarms are significantly reduced
- In combination with RF Sensors drones can be classified

Drone verification and alarm only in combination with a second device.

Drone Detection with Radar and PTZ camera

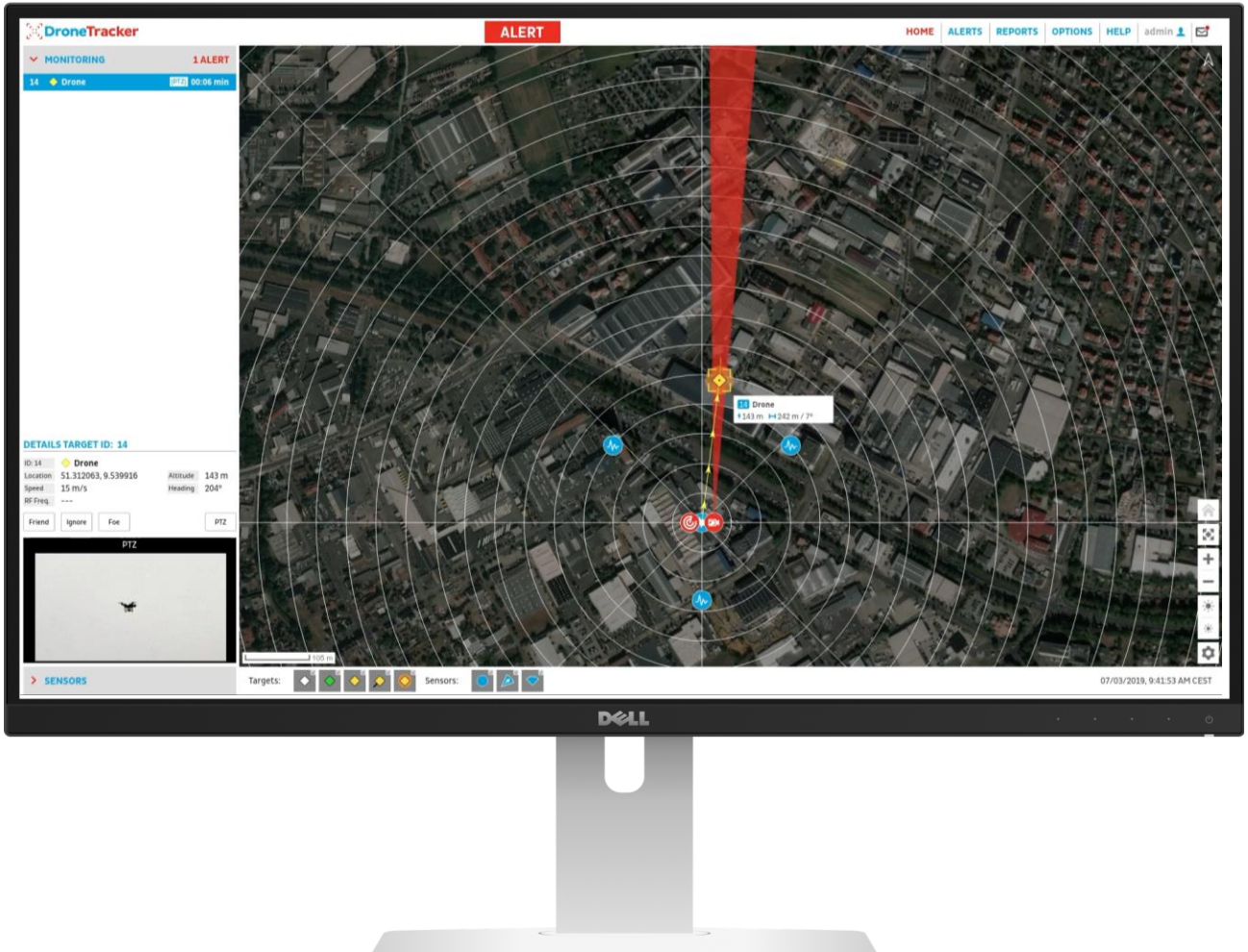
SCREENCAST

Extended deployment

- 3 RF-300 / 1 RF-160
- 1 Radar
- 1 PTZ camera
- 1 Drone detected

Click display to start video

Drone DJI Phantom 4



Phased Approach to Airspace Security

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Threat Assessment

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Situational Awareness

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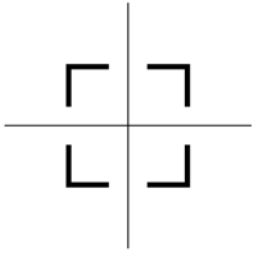
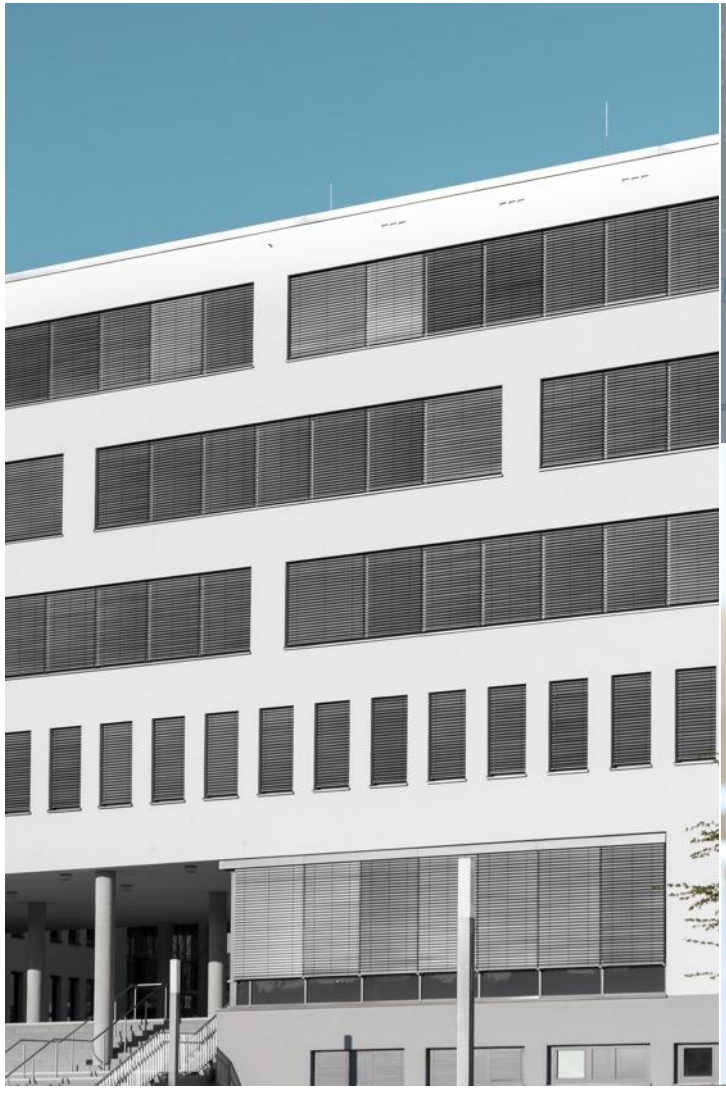
Counter-measures

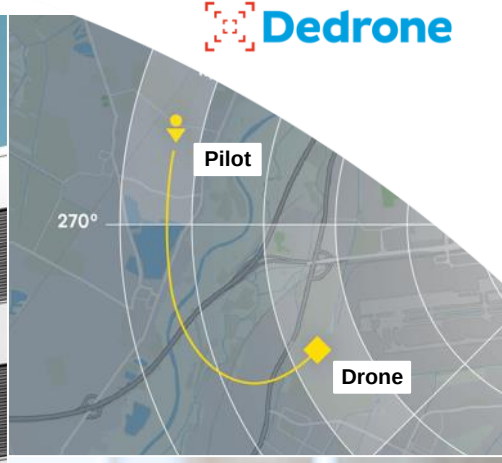


Mitigating Drone Threats

Defensive Measure

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





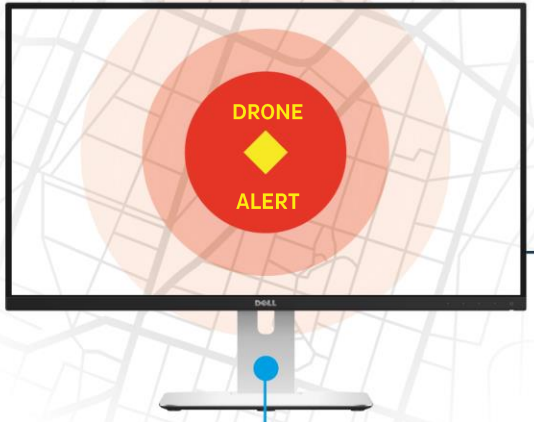
Jammer

DEDRONE'S PRODUCT

DroneDefender: Benefits

- 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

Overall Summary - Multi-Sensor Platform



RF-160
Detection and Analytics

Step 1
Threat assessment

RF-300
Localization and Tracking

Step 2
Situational awareness

PTZ Camera
Optical Verification

Step 3
Extended detection

Radar
Detection of autonomous drones

Step 4
Complete detection

Jammer
Disruption of drone frequencies

Step 5
Countermeasures

Nuclear plant
Case Study

Sensors installed

3 RF-300 + 1 RF-100

Monitored from Dedrone Ops

24/7

Initial contract annually

$210k

Future proof due to

Open platform

No active sensors or signals

100% passive

Airport
Case Study

Sensors installed

16 RF-300 + 3 RF-100

Monitored from Dedrone Ops

24/7

Fully autonomous

No operator needed

Future proof due to

Open platform

No active sensors or signals

100% passive

Only power and poles

Does not need IT

Thank you

Drone: DJI Inspire 2
Altitude: 57m
Speed: 17 mph
Distance to POI: 734m
Location: 51.314303, 9.437907

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