



AIROBOTICS

optimus-01



[ABOUT AIROBOTICS]

2014

Founded

250

Employees

30,000+

Automated Flights

3

Facilities

\$71 M

Funding





DISRUPTING DRONE TECHNOLOGY

Airobotics is a market leader in automated industrial drones. Airobotics has developed a completely automatic platform, which provides the accuracy and reliability that users have come to expect from a commercial UAV solution.

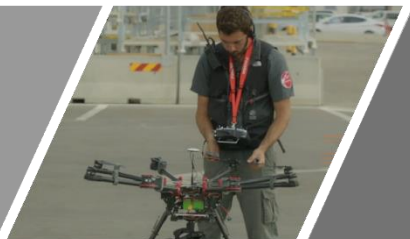
To address the unique needs of the world's most complex industrial environments, Airobotics' industrial grade platform is multi-purpose and available on-demand.

AIROBOTICS

COMMERCIAL DRONE USE

To access valuable aerial data from drones, industrial enterprises currently choose between two models:

Piloted drone services



- ▣ Hired drone operator
- ▣ Arrives on site with equipment to capture requested data
- ▣ May include post-collection data processing and analysis

In-house



- ▣ Purchase hardware and software from providers
- ▣ Operate flights manually, maintain and replace equipment
- ▣ In-house data processing

COMMERCIAL DRONE LIMITATIONS

While hundreds of companies currently providing products and services to support commercial drone operation, neither the piloted service nor the in-house operational models have been able to penetrate the world's largest industrial enterprises.

This is true for two main reasons:

Pilot operator requirement



Extensive training & regulatory certification



Do not allow operations to be on-demand in case of emergencies



High cost of employment



Human error leads to irregular, non-standardized data collection

Technology



Recreational consumer hardware is not designed for routine industrial application



Available drone sensors & software limit application value



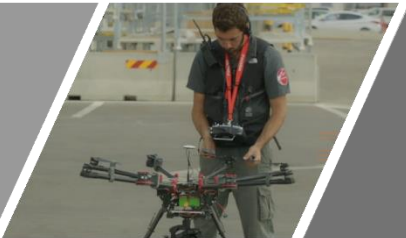
Integration of off-the-shelf software and hardware requires resources & expertise



MARKET OFFERING

Airobotics had essentially introduced a new business model into the market. A fully automated, overhead-free model:

Piloted drone services



- ▣ Hired drone operator
- ▣ Arrives on site with equipment to capture requested data
- ▣ May include post-collection data processing and analysis

In-house



- ▣ Purchase hardware and software from providers
- ▣ Operate flights manually, maintain and replace equipment
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Automated system



- ▣ No pilot required
- ▣ Logistics-free drone operation
- ▣ Complete automated process of launch, land, and maintenance





OUR INNOVATION

Airobotics is reinventing how commercial drones are applied in two ways:

Business Model

Industrial enterprise receives direct access to insightful, routine aerial data without owning, operating, or contracting drones.

Technology

-  Full-cycle automation
-  Application diversity
-  Industrial grade
-  Permanence on site



FULL-CYCLE AUTOMATION



1

Optimus

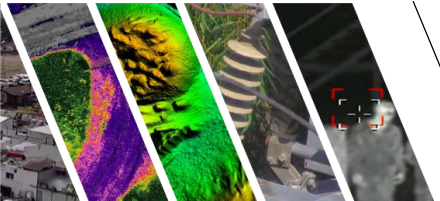
The Optimus drone represents the significant maturation of drone technology, from toy to industrial multitool. Preprogrammed flights throughout the facility provide dynamic sensing, previously unavailable with static sensor systems.



2

Airbase

The Airbase serves as a permanent, onsite data utility, resistant to weather, dust, and harsh industrial elements. A 5-axis robotic arm swaps batteries for rapid flight turnaround and equips the Optimus drone with an array of interchangeable sensors to target specific high-value applications.

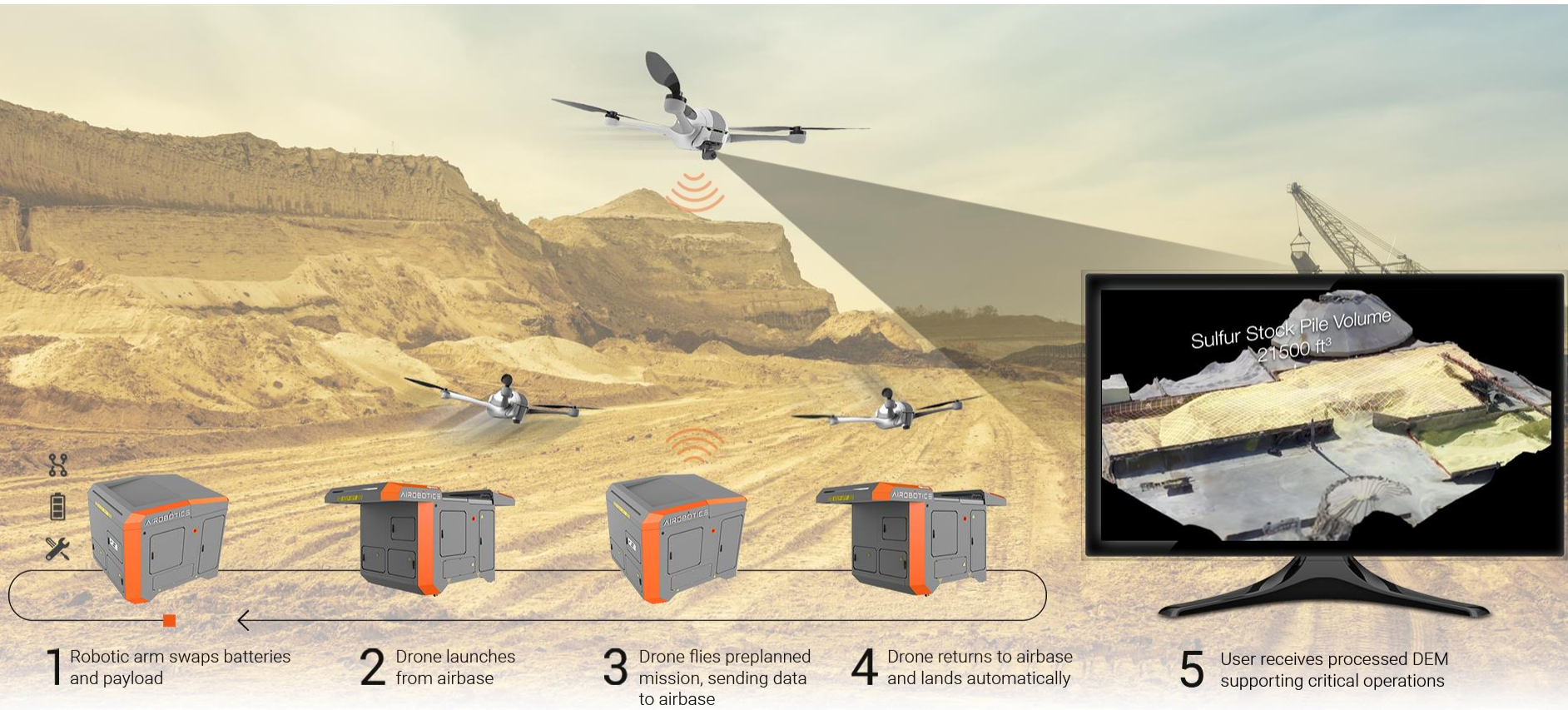


3

Sensing & Software

True value is delivered with application-centric sensors and further processing software, translating raw data into actionable information. A growing profile of sensors, including LiDAR, gas, and thermal sensors provide layers of information per facility.

AUTOMATED CYCLE



POTENTIAL MARKETS



Mining



Oil & Gas



Ports



Paper Mills



Power Plants



HLS



FINDING THE VALUE

Airobotics launched the beta drone system in November 2015 with two design partners, Intel and ICL, in an exercise to discover exactly how routine aerial data can be leveraged to add value to industrial facilities.

Both design partners have become customers and have the system permanently installed on site.

Investigations at Intel and ICL revealed applications of value, in which aerial data improved safety, cost, and performance of onsite processes.

The core business processes impacted were found to be:



Security



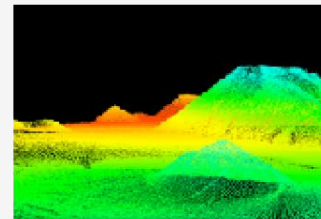
Emergency
Response



Inspection



Mapping



Surveying

AIROBOTICS

VALUE DELIVERED



Value for Airobotics is defined by applications: the ways in which real-world features and events are translated into digital insights which impact the bottom line. Airobotics platform is positioned to become the “pulse monitor” for industrial enterprise.

Airobotics is redefining the ways that drones provide data, using a diversity of sensors and application software to deliver targeted information, from stockpile surveying to gas emissions monitoring.

The new elements of routine aerial data will become a standard tool for industrial enterprise.

AIROBOTICS

DATA DIVERSITY



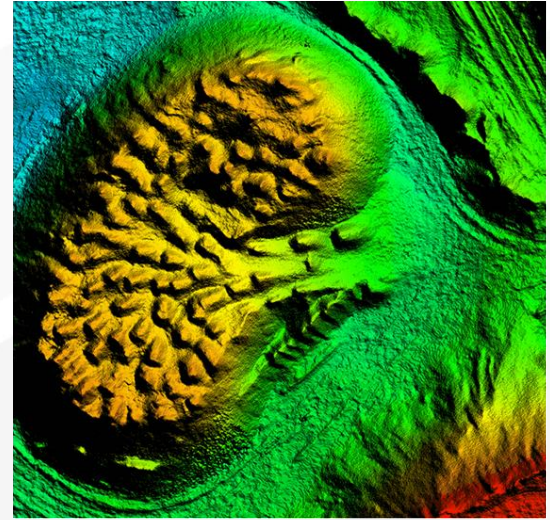
Electro-optical

High Definition Video
30x Optical Zoom
High Resolution Stills



Spectral

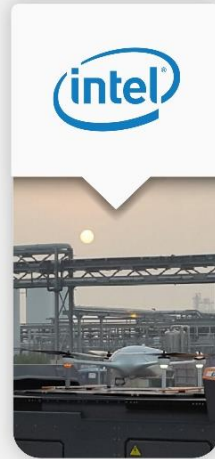
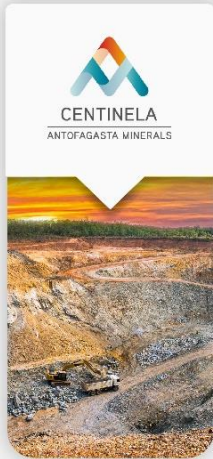
Multispectral
Infrared
Gas Sensing



Spatial

LIDAR
Photogrammetry
Ortho-mosaic

「 CLIENTS 」



TESTIMONIAL - INDUSTRY EXPERT



RICUS GRIMBEEK

Vale Base Metals COO, Canada
Former South32 CTO, Australia



UAVs seem poised to do everything from delivering our e-commerce orders to replenishing remote health clinics to providing Internet connectivity (via high-altitude solar-powered planes). Industry is starting to move to autonomous drones to deliver services and data solutions at a pace that is exceeding even the most aggressive predictions.

In mining we see drones used to do inspections of tailings lines, hazardous areas such as underground open stopes, difficult to reach plant such as stacks and surveying high walls and stockpiles. The use cases will expand over the next years and will include more environmental monitoring and even using UAVs for incident response.

Companies are starting to realize that autonomous drones are a reliable, safe and cost effective way of gathering data to use on their data analytics platforms to run operations more effectively and safely.



DEPLOYMENTS



SOUTH32



Inventory Management



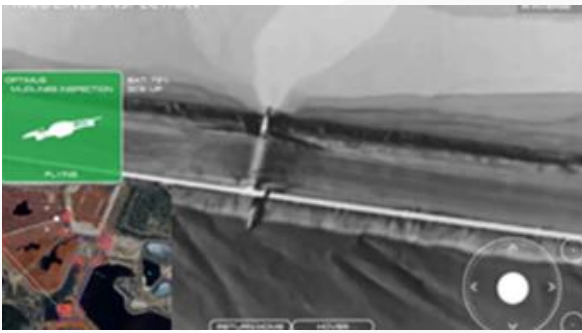
Mud lines Inspections



Surveying & Mapping



Shift Handover



BHP SAN MANUEL



Tailings Dam Inspection
(erosion & moisture)



Rock
Fragmentation



Vegetation
Coverage



Assets & Cracks
Inspection



Security - Fence
Inspection



Ponds' Water Level
Monitoring



INTEL ISRAEL



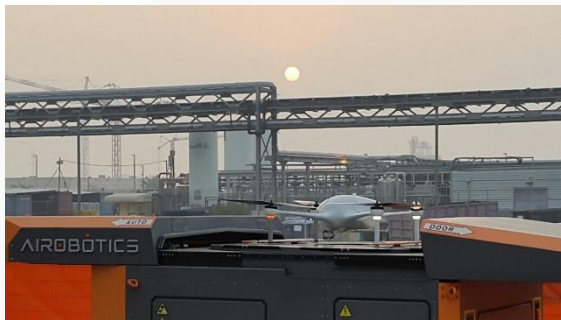
Emergency Response



Vertical Inspection



Perimeter Security



GULF PORT



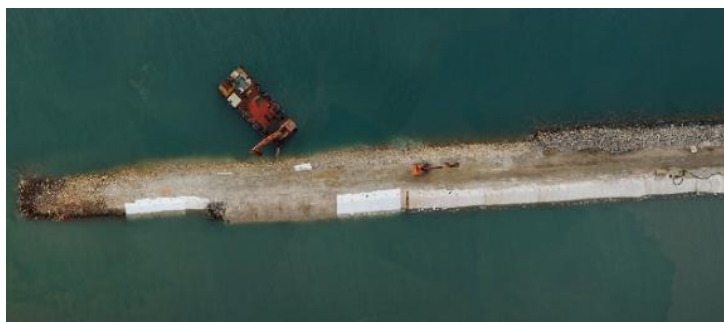
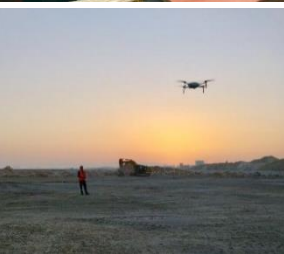
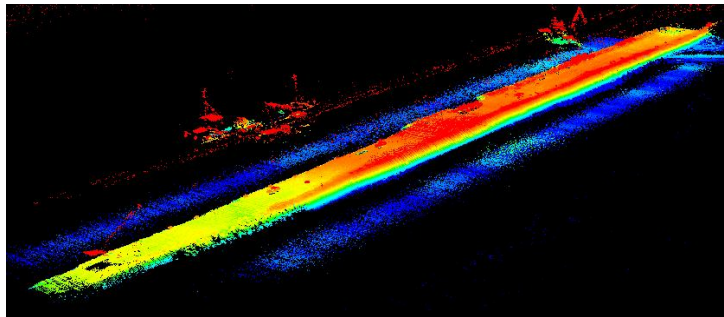
Surveying Reclamation Areas



Monitoring Breakwaters Construction



Stockpile Measurements



ICL ISRAEL



Stockpile Measurements



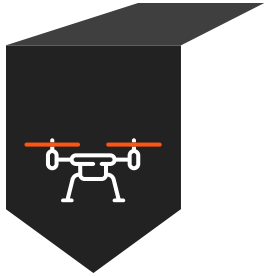
Ecological & Maintenance Inspections



Security & Emergency Response



[BENEFITS AT A GLANCE]



Automation & Digitization

Enabling predictable and repeatable business processes, accurate results and actionable insights



Efficiency & Productivity

Maximizing human resources effectiveness results in an overall lowering of production cost



Safety & Risk Mitigation

Collecting data in a safe manner, reducing risk of human endangerment & facility hazards

BENEFITS & FEATURES



Fully Automatic – Programmable, self-deploying, landing and servicing – no operator required



On-Demand – Always available with a one-click launch



Scheduled – Pre-planned missions, launched at predefined times



Industrial Grade – Durable, weatherproof and corrosion resistant



Customized Missions – According to unique site requirements



Simple Operations – Intuitive operating console and management interface



Continuous Service – 24/7 support and periodic maintenance visits



Safe – Reduced risk of human endangerment



Cost Effective – Unlimited data capture and analysis, reduced operational expenses



Increased Efficiency – Free up experts' time to analyze rather than collect data



Versatile – Expandable platform allows integration of new applications and payloads

AIROBOTICS

ONGOING SERVICE

An end-to-end, premium solution which fuses industrial-grade hardware, intuitive software, and dependable service, including:



Site survey



Access to UAV expertise



Regulatory clearance



24/7 remote support



Installation & configuration



Ongoing maintenance



Training



More...

AIROBOTICS

REGULATION

The world market for commercial Unmanned Aerial Systems (UAS) is rapidly developing, while the regulation in regard to unmanned operations in civilian airspace is still behind. Hence, regulation is widely considered as a great hurdle to the growth of the drone market.

We tackled this challenge by first succeeding at home, in Israel, one of the most crowded airspaces in the world. During March 2017, the CAAI (Civil Aviation Authority of Israel) granted Airobotics with a world-first certification to operate our system with no pilot in command and with no visual line of sight to the drone. The certifications that were obtained in Israel are presented while we engage with other aviation authorities around the world. In that way, the system that was approved in Israel is used as an exemplification and testament of feasibility and therefore, we are seeking for the same level of collaboration with aviation authorities around the globe.

Airobotics holds certifications to operate in Israel, Australia and the US.



REGULATORY EXPERTISE



01

Receive local CAA (Civil Aviation Authority) approval to commercially operate the Airobotics system within the client's site

02

Establish operations at facility, involving manual and automatic flights with local CAA certified Airobotics pilots

03





Receive local CAA approval to operate completely automatic flights at facility

TEST FACILITY



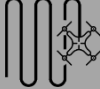


- Real life simulations to ensure safe, successful operations
- Large scale testing and flying automated drones 24/7
- Logged 30,000+ automated flights
- Increase safety & reliability



MARKET OFFERING

Indirect Competition	 <p>Service Company</p>	<p>Hired drone operator arrives on site with equipment to capture requested data. Service may also involve post-collection data processing and analysis.</p>	<p>Inspection</p>
	 <p>Semi-Autonomous No Docking Station</p>	<p>Purchase hardware and software to reduce operator involvement during flight. Users must maintain & replace and handle data upload and processing.</p>	<p>Mapping</p>
	 <p>Semi-Autonomous Docking Station</p>	<p>Mobile docking station supports mapping missions, data download, and System are typically not weatherproof nor are they intended for long-term operation.</p>	<p>Mapping</p>
	 <p>Fully Automated</p>	<p>Remove all logistics from drone operation. Pre-programmed flights are scheduled or launched on-demand with truly autonomous system.</p>	<p>Inspection Mapping Surveillance</p>

OPERATOR REQUIREMENTS

Operator Requirements	 Own and Operate	 Service Operator "Drone-as-a-Service"	 Semi-Autonomous No Docking Station	 Semi-Autonomous Docking Station	 Fully Automated
Train staff in drone safety, flight, and regulations	✗		✗	✗	
File for and receive FAA section 333 approval	✗		✗	✗	
Request drone service provider for job		✗			
Source and purchase safety insurance	✗		✗	✗	
Buy or design correct drone for your needs	✗		✗	✗	
Select scan area	✗	✗	✗	✗	
Charge battery	✗		✗		
Perfect steering and altitude	✗				
Land, swap, and charge batteries	✗	✗	✗		
Download data	✗		✗	✗	
Buy or design correct software for data	✗		✗	✗	
Analyze data	✗	✗	✗	✗	
Act on insights	✗	✗	✗	✗	✗

VISION PHASE 1: INDUSTRIAL



Airobotics' vision spans over 3 phases:
The first phase is in Industrial facilities, featuring unpopulated, flight-safe environments and have immediate demand for aerial data relating to security, inspection, and surveying.



Mining



Oil & Gas



Ports



Paper Mills



Power Plants

VISION PHASE 2: EMERGENCY SERVICES



With accumulated flight hours in remote industrial zones, we will broaden our focus to urban operation, providing time-critical aerial emergency response.



Emergency Services



Transplant Delivery



Fire & Rescue



Police

SAFE CITY APPLICATIONS



Emergency
Response



Transplant
Delivery



Law
Enforcement



Real-Time Disaster
Management

Post-Disaster
Assessment



Safety
Supervision



Evacuation
Oversight



Traffic
Management



VISION PHASE 3: COMMERCIAL



Broad scale drone usage will become a commercial standard, with safe, regulated infrastructure for vast networks of automated drones.

-  Emergency Services
-  Delivery
-  Surveillance
-  Real Estate
-  Industrial

One half second too slow or fast
and you don't quite catch it.
The inches we need are everywhere around us.
They are in every break of the game,
every minute, every second.

On this team, we fight for that inch.
On this team, we tear ourselves, and everyone around us
to pieces for that inch.
We CLAW with our finger nails for that inch.
Cause we know when we add up all those inches
that's going to make the fucking difference
between **WINNING and LOSING**

No unicorns here,
just a bunch
of wild horses

15.03.2017
20:50:43

AIRBÖTICS



[THANK YOU]