Avular™
Building Imagination

Drone surveillance in the industry

Avular

8th March 2022

We believe in mobile robots

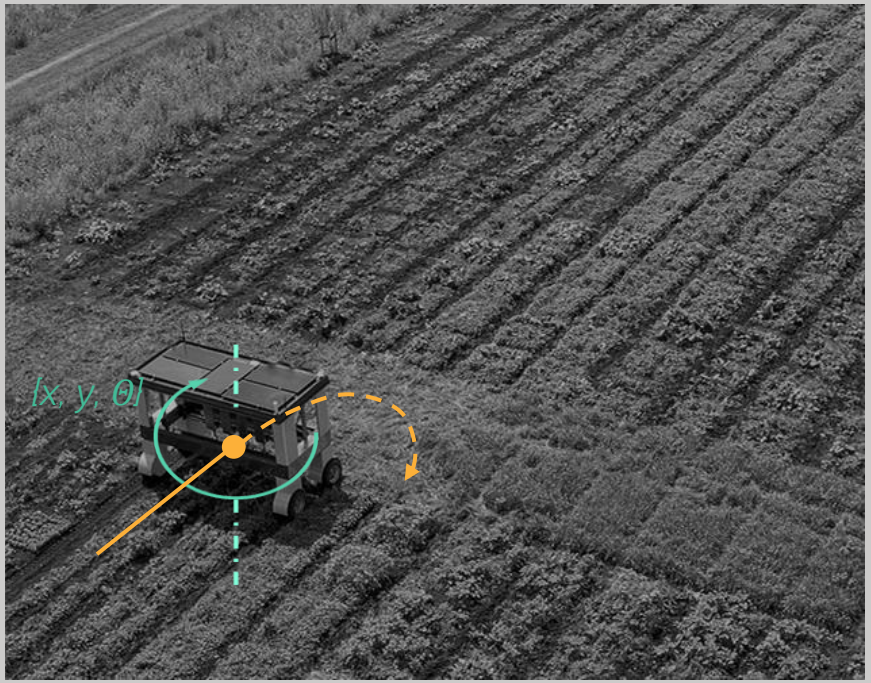
Mobile robots will help us solve the world's toughest challenges

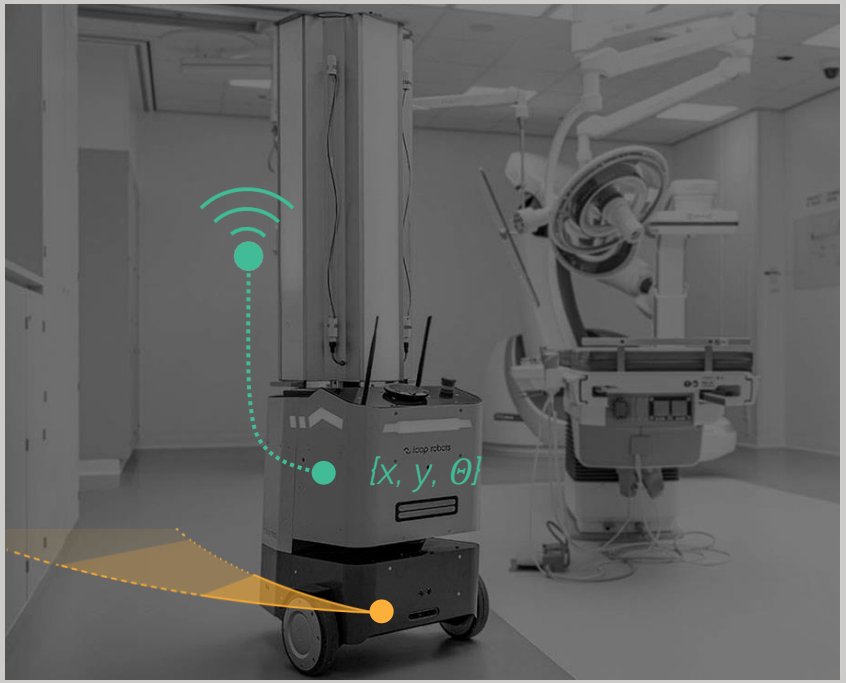
Building robots is hard

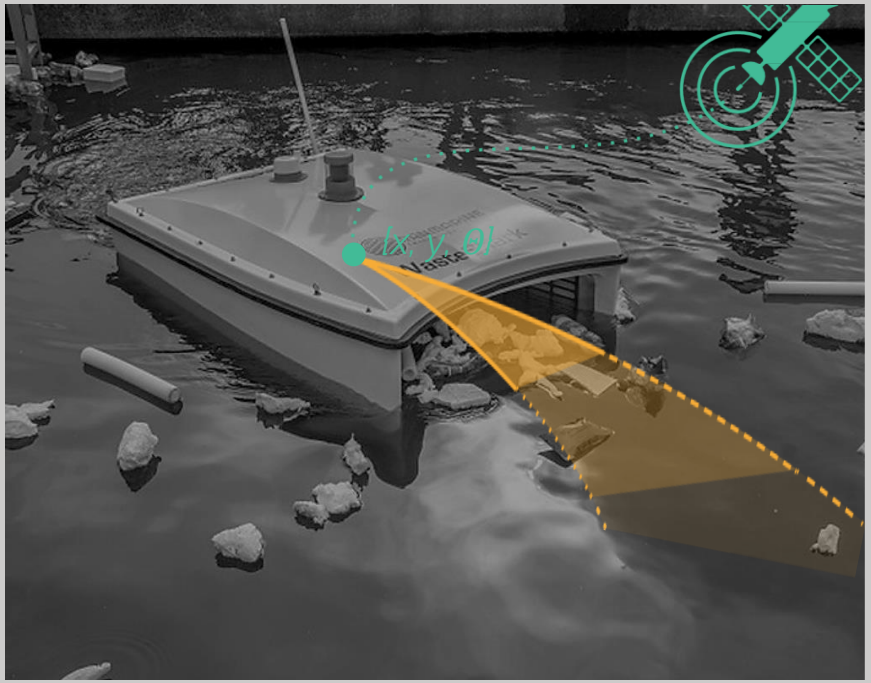
Teams spend years and years developing the basics

Commonalities

Though these robots are very diverse, they all need to be aware of their environment and move around safely







Mission

We help partners and clients create mobile robots through our modular hardware and software and development services

Through our **modular** hardware and software **building blocks,** and **services**

Both **rapid prototyping** as well as **industrialized solutions** and **low-cost mass-production**

We accelerate the creation of mobile robots that shape a brighter future

Being able to **operate safely on its own** (autonomously)

Such that **anyone** with a **world-improving robot idea** can implement new mobile robots applications

Team

Founded and based in Eindhoven (NL), we are part of the world's top region for robotic control systems

Albert Maas
CEO & founder
MSc mechanical engineering and co-founder TUeInMotion and Formule-Bio

Yuri Steinbuch
Business Director
MSc control engineering and former strategy manager at STORM

Koen Evers
Managing Director
MSc and MBA; Former General Manager (FLEET by Vanderlande)

Tom Krieckaert
CFO
RA, Lumipol Group CEO and former audit manager (EY)

Joop aan den Toorn
Head of Essentials
MSc electrical engineering and former electrical engineering lead

Rogier de Rijk
Project manager
MSc systems and control and MSc business administration

Niels Finkenflügel
Manager mobile robot platforms
Embedded systems expert and manager at TomTom, Sogeti, and DAF Trucks

Pasquale van Heumen
Sr. embedded systems engineer
MSc electrical engineering

Lisa Janssen
Marketing manager
BA trend research and former branding (REV'IT!) and marketing (Siemens) expert

Loek Jongen
Business developer
MSc and former sr. strategy consultant (Monitor Deloitte)

Our entire team currently consists of 45 people (as of Feb 1st 2022)

Products and services

Clients build mobile robots through our hardware, software, and engineering services

Essentials

Building blocks for new robots

Pioneers

Ready-to-use robot platforms(1)

Cerebra

Software suite to configure robots

Services

Co-developing new robots or making machines autonomous (1)

Note: (1) contain Essentials and configured through Cerebra

Essentials

The Prime, our modular robot brain

- Developing the basics usually takes **one year**; with our Essentials it will take just **one month**
- Easily add modular **auxiliaries** to integrate new functions (e.g., computing power, I/O, navigation systems, power management, etc.)

Pioneers

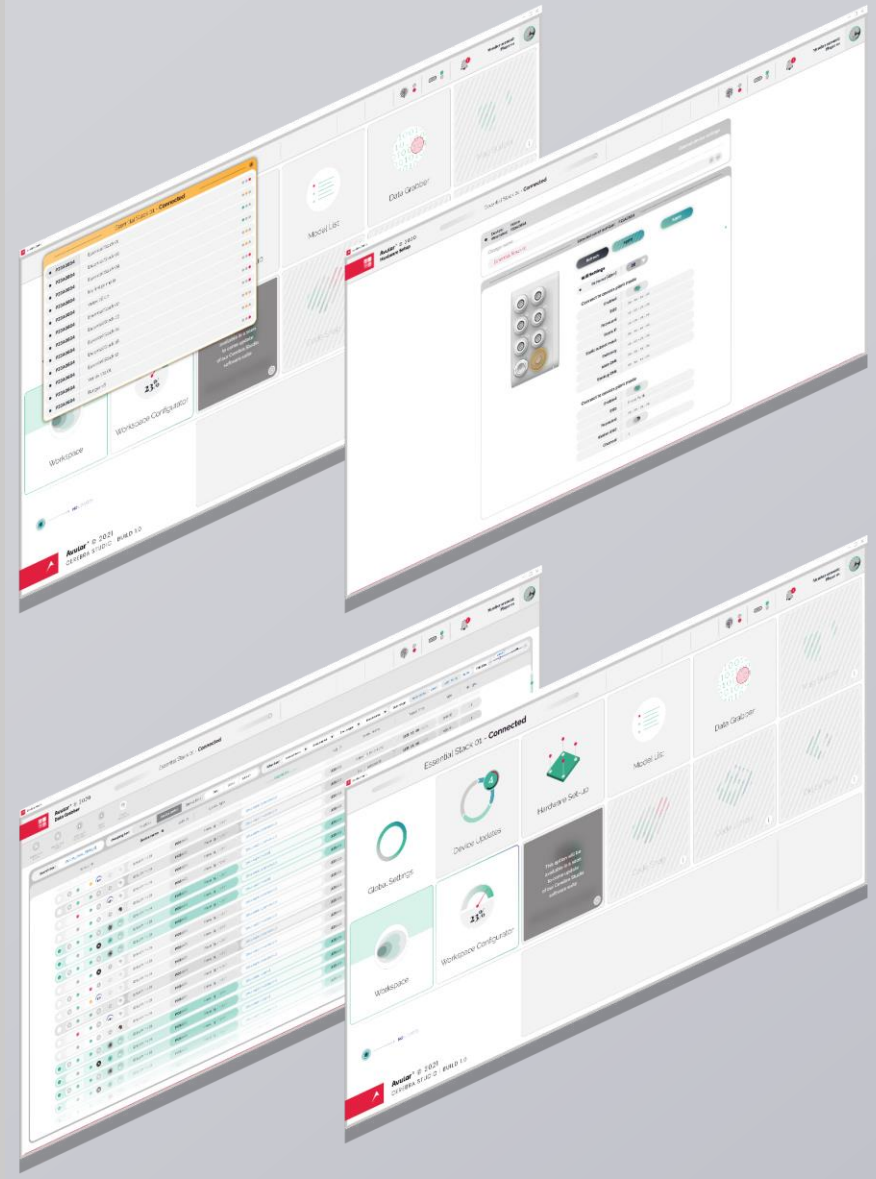
New robots are developed even faster using our pre-configured, modular, and ready-to-move robot platforms

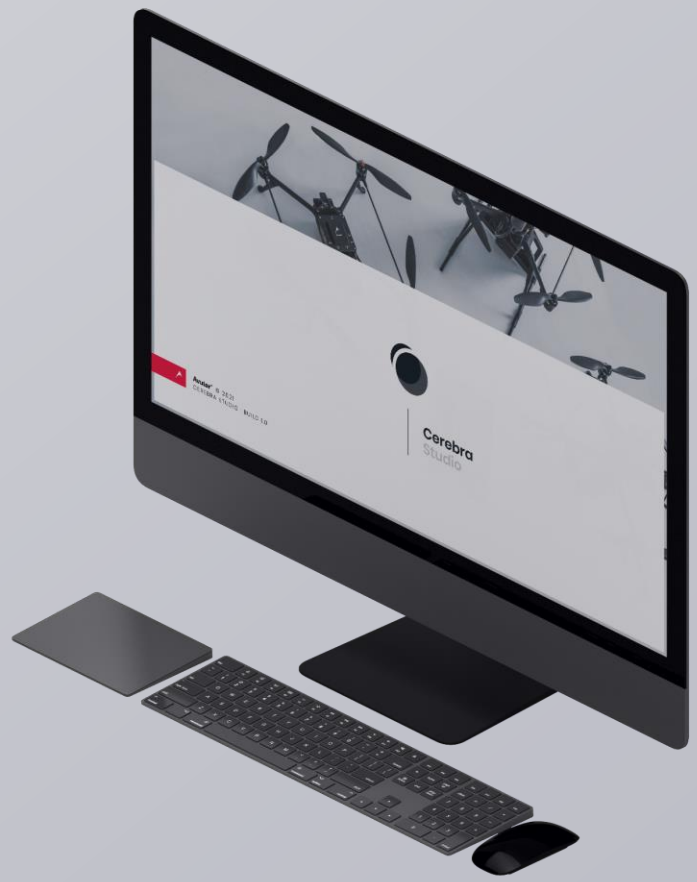
Ranger & Vertex

Modular robot platforms that can easily be customized to specific use cases

Cerebra

You can use our desktop software to manage, monitor and configure robots, using our MATLAB Simulink toolchain (visual programming)





Services

Next to supplying the building blocks for new robots, we co-develop them with our partners

Vertex drone platform

Our modular Vertex drone platform can be customized to any use case

Unique set of characteristics suited for a wide range of real life applications

We can customize the drone platform to **meet your requirements**, including max. payload, flight time and distance, indoor and outdoor application environment (e.g., weather conditions), interoperability, etc.

Weight:	1.6 kg
Size (incl. props)	0.75 x 0.75 x 0.30 m
Prop size:	15" (optional: 13")
Payload:	1.5 kg max.
Flight time:	35 min. – no payload 30 min. – 0.6kg payload
Battery capacity:	5650 mAh, 6S, lithium-ion
Flight controller:	Cortex M7 MCU
IMU:	Redundant ICM42688P (4x)
Communication:	WiFi, 4/5G (cellular), P2P
External communication ports:	UART, USB-C, SPI, I2C
External power ports:	5V (4A)
Optional hardware extensions:	- Nvidia Jetson computer - RTK-GPS integration - Starling indoor navigation system - RealSense stereovision

Application

Automatic inspection of large industrial chimneys

Highlights:

- Custom navigation system (incl. lidar and stereovision) for accurate positioning inside large chimneys
- Interface with high-resolution camera system
- Robust camera livestream for real-time data capture and monitoring

Application

Mapping and analysis drone for commercial forestry

Highlights:

- 3D lidar scanner and four RGB cameras for accurate forest mapping.
- Onboard high-performance computing platform for data gathering and processing
- RTK-GPS positioning data

Application

Monitoring growth and health of orchids

Highlights:

- Avular's Starling system for sub-centimetre indoor positioning
- High-resolution image camera for crop monitoring
- Automatic indoor data capturing at regular intervals

Thank you!

What drone would you want for your industrial application?

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