UNITED VEHICLE ROBOTICS

United Vehicle Robotics

MULTI-PURPOSE UNMANNED AIRCRAFT

Powerful, reliable, accessible drone

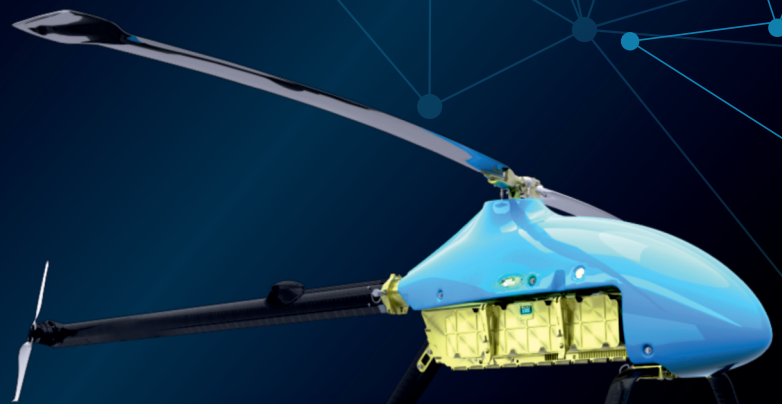
United Vehicle Robotics

More data per flight

up to 120+min

Safe flights

- minimal operator involvement
- duplication of critical components and systems
- special autopilot functions for emergency situations

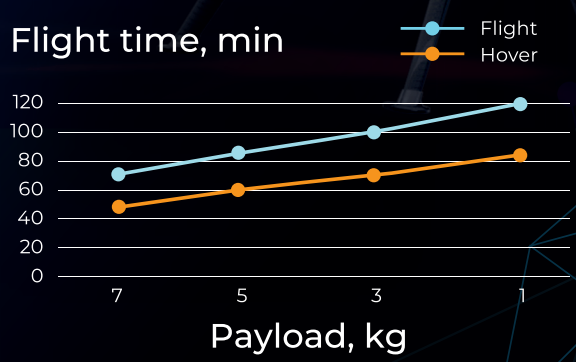


Outstanding versatility

- compatible with any payload up to 7 kg

Low maintenance costs

- electric batteries require no maintenance during their lifetime
- no need to hire large service personnel
- easily transported in a car



Complete Unmanned Aircraft System

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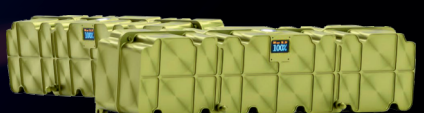
Functional ground control station:

- easy setting of a flight task
- possibility to change the route / task and control a payload during the flight
- possibility to extend the functionality under the customer's requirements

Long-endurance helicopter +

Redundant autopilot

Payloads for various tasks



Smart batteries with optimum capacity

- fast charging in the special case within 2 h
- displaying the charge level
- extended storage in the case

Modular Platform for Multiple Tasks

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for cargo transportation

- fragile loads in the mount
- temperature sensitive loads in the box
- external mounts featuring smooth release of the load

for industrial inspections

LiDARs and gimbals for images, orthophoto, and 3D models

for special tasks

- scientific equipment in the custom mount
- agricultural equipment for crop spraying, aerial topdressing and seeding

Helicopter as an Optimal Mode

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UVR helicopter drones under 25 kg	Professional multicopters	Fixed wings and hybrid drones
Able to takeoff and land vertically, hover and climb	Able to takeoff and land vertically, hover and climb	Unable to takeoff and land vertically, to hover and climb
Able to deliver fragile loads safely	Able to deliver fragile loads safely	Unable to safely deliver fragile loads
Long flight time with payload	Short flight time with a payload	Unable to fly at low speeds
Reliable even in harsh weather and climate conditions	Non-operating or unreliable in harmful weather conditions	Vulnerable to strong winds

Use cases

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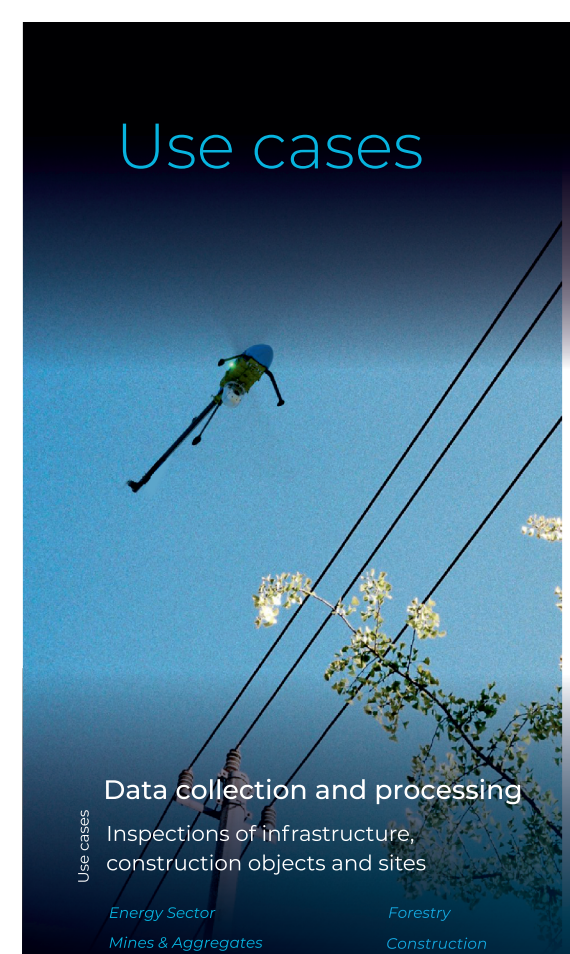

Data collection and processing

Inspections of infrastructure, construction objects and sites

Use cases

Industry

Energy Sector
Mines & Aggregates
Transport Infrastructure
Telecommunications
Mapping & Surveying
Environmental Management
Forestry
Construction
Insurance
TV & Cinema
Agriculture
Public Safety

Special missions

Evaluating the effectiveness of emergency response actions

Search-and-rescue operations

Ice patrol

Fire detection and firefighting

Aerial chemical works

Emergency Management
Maritime & River Shipping
Agriculture

Transportation of a cargo

Urgent delivery of 7 kg loads

Logistics
Healthcare
Oil & Gas
Maritime & River Shipping

Benefits of UVR Solutions

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No ground operations:

- acquisition of relevant and comprehensive data about hard-to-reach, large-scale infrastructure and areas
- fast delivery of fragile and dangerous cargo irrespective of road infrastructure

No labor-intensive inspections:

- rapid tasks execution
- acquisition of timely and precision data
- labor costs reduction
- no risk to life and health of personnel

No piloted helicopter missions:

- reduction in costs associated with training flight personnel and maintenance
- no in-flight incidents and accidents involving people

Recent Projects in Central Europe

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Joint tests with leading Telecom and DaaS companies

May-July 2021

Solar power plant inspection via 5G

May-August 2021

Completed projects in the Energy sector

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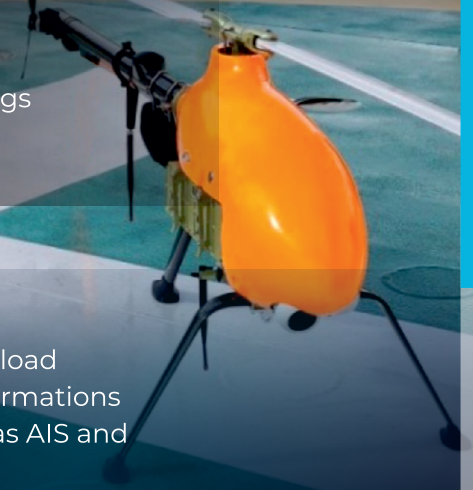
Ice exploration in the Arctic Ocean

Project time: July-September 2020
End customer: oil company
Drone mission: to detect drifting ice that is potentially dangerous for oil rigs platforms, and to mark the ice formations with tracker radars



Our team's mission:

- development from scratch of a payload for safe descent and marking ice formations with radio beacons-trackers (such as AIS and ARGOS)
- integration of unmanned system with customer communication equipment

Technical complexity of the project:

- offshore conditions of use
- large water area
- unstable operation of satellite navigation in the circumpolar areas
- magnetic interference on takeoff and landing

Result:

- 35+ successful missions
- perfect performance of 2 UVR unmanned aircraft systems
- prevention of accidents and downtime of the drilling platform

The solution to delivering oil samples

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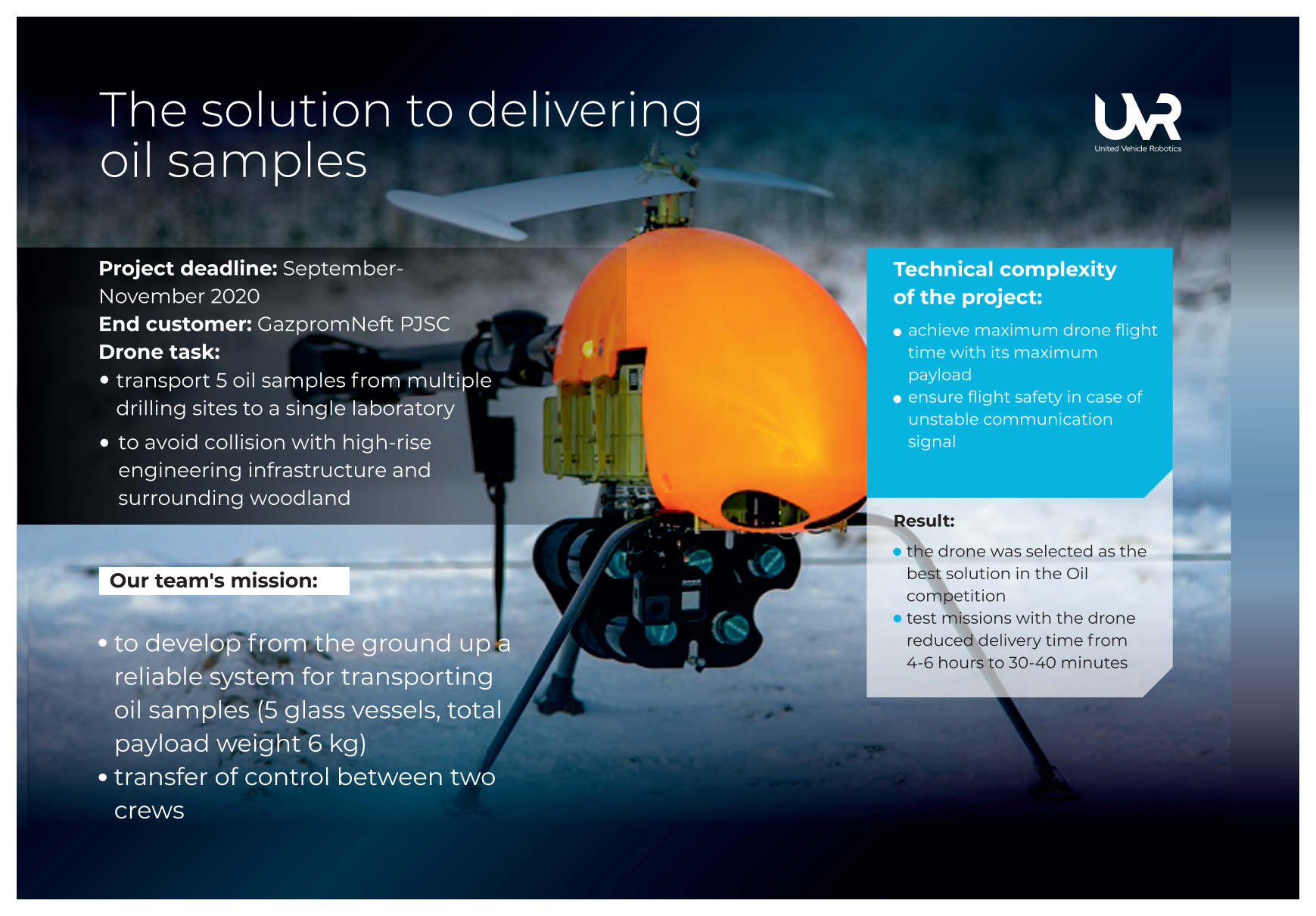
Project deadline: September-November 2020
End customer: GazpromNeft PJSC
Drone task:

- transport 5 oil samples from multiple drilling sites to a single laboratory
- to avoid collision with high-rise engineering infrastructure and surrounding woodland

Our team's mission:

- to develop from the ground up a reliable system for transporting oil samples (5 glass vessels, total payload weight 6 kg)
- transfer of control between two crews



Technical complexity of the project:

- achieve maximum drone flight time with its maximum payload
- ensure flight safety in case of unstable communication signal

Result:

- the drone was selected as the best solution in the Oil competition
- test missions with the drone reduced delivery time from 4-6 hours to 30-40 minutes

A complete solution for oil company

Project time: December 2020 - up to date
End customer: Tatneft PJSC
Drone task:

- transport oil samples from the booster pump station and the extra-viscous oil treatment unit to the laboratory
- perform pipeline monitoring with a thermal imaging video camera

Our team's mission:

- to create two unmanned aircraft systems:
  1) with a third-party thermal video camera
  2) with a self-manufactured suspension system
- to conduct field tests at the customer's site in Almetyevsk, Tatarstan

Technical complexity of the project:

frequent operation of the drone in critical conditions for the technology; in particular, tests were conducted at -28°C (with an acceptable minimum of -30°C) and winds of 12 m/s (with an acceptable maximum of 15 m/s)

Result:

- completed phase: successfully field trials were conducted
- current stage: Customer develops technical task for the implementation of droneservice in their business processes

Completed projects in logistics

Transportation of a medical box

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Project timeline: November 2020 (Russia).
End customer: Tomsk administration as part of the federal Taiga project
The drone's mission: to cover a distance of 28 km with a 7-kilogram medical box and deliver the cargo to a remote settlement in the Tomsk region

Technical complexity project:

- to achieve the maximum drone flight time at its maximal loading
- ensure the safety flight in case of unstable communication signal

Result:

- a successful flight in difficult meteorological conditions across the Ob River
- the drone covered distance 3 times faster than traditional ground transport (30 min vs. 1.5 hours one way)

Our team's mission:

Payload integration of a third-party manufacturer

Notes

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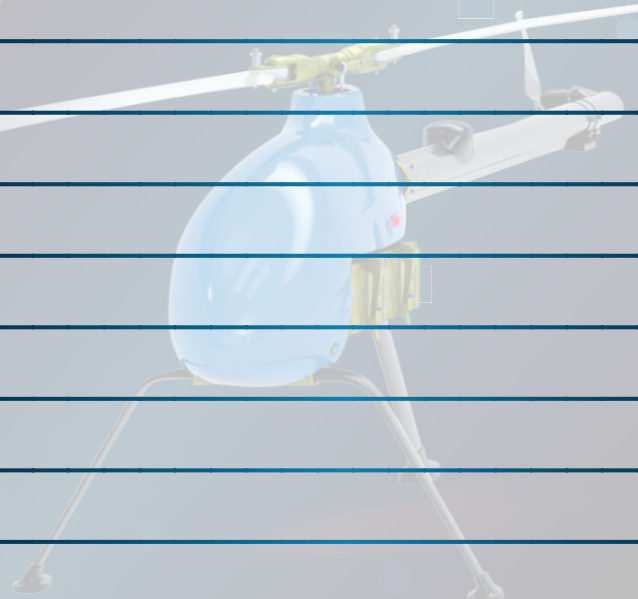

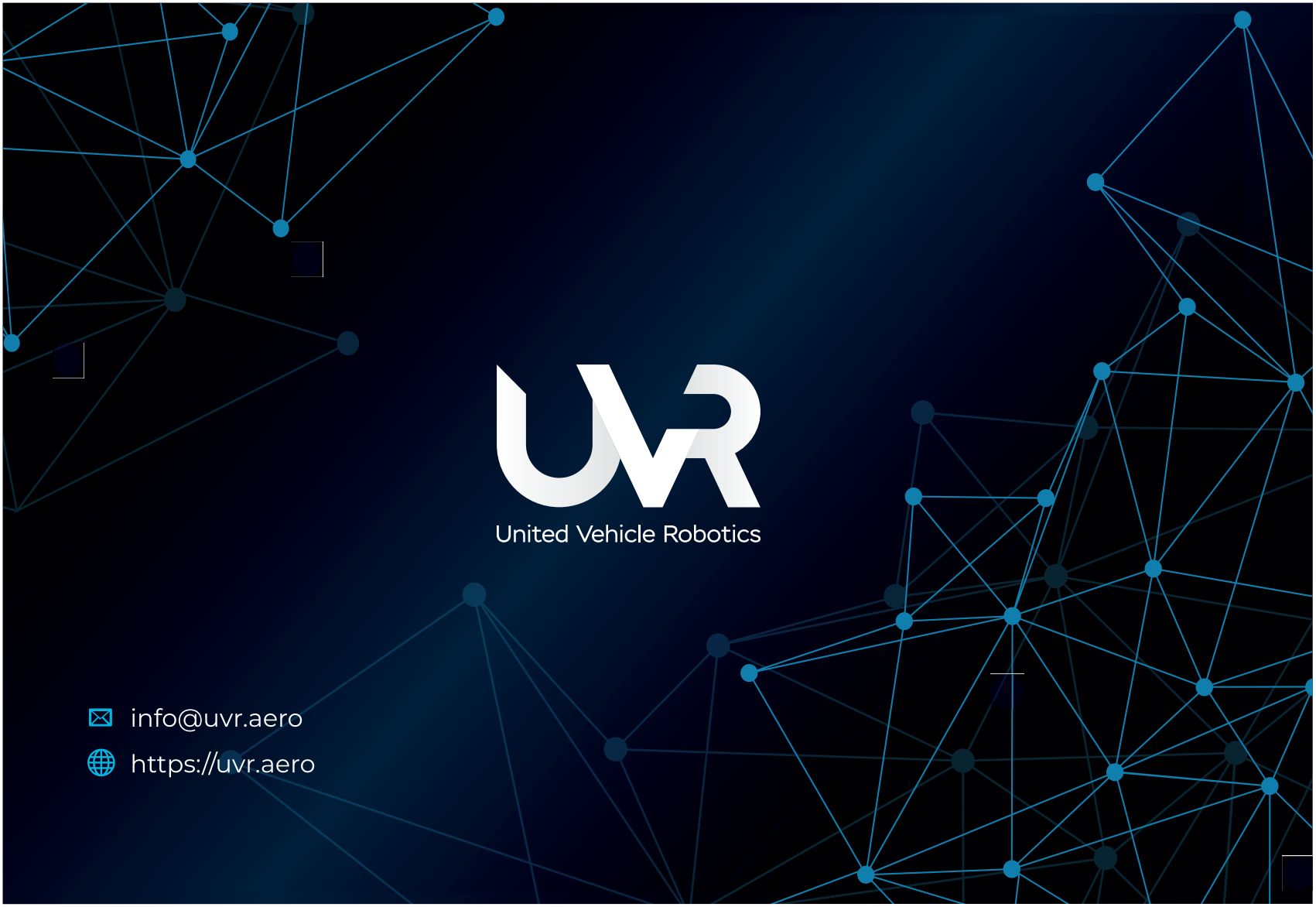
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