

# UNITED VEHICLE ROBOTICS

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MULTI-PURPOSE UNMANNED  
AIRCRAFT



# Powerful, reliable, accessible drone

More data per flight  
up to 120+min

## Safe flights

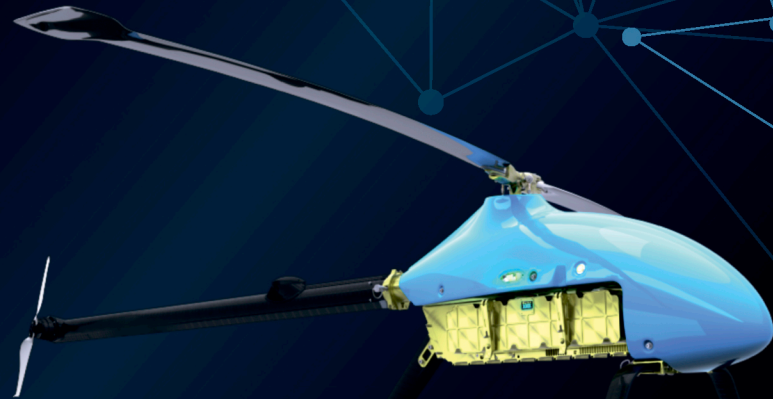
- minimal operator involvement
- duplication of critical components and systems
- special autopilot functions for emergency situations

## Outstanding versatility

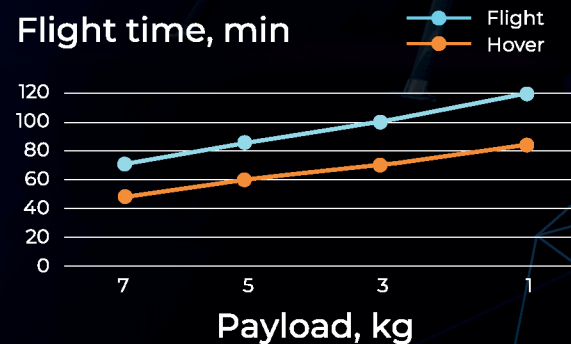
- compatible with any payload up to 7 kg

## Low maintenance costs

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



Flight time, min



# Complete Unmanned Aircraft System



## 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



## 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

Long-endurance  
helicopter +

Redundant  
autopilot



# Modular Platform for Multiple Tasks



## 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



## UVR helicopter drones under 25 kg

Able to takeoff and land vertically, hover and climb

Able to deliver fragile loads safely

Long flight time with payload

Reliable even in harsh weather and climate conditions



## Professional multicopters

Able to takeoff and land vertically, hover and climb

Able to deliver fragile loads safely

Short flight time with a payload

Non-operating or unreliable in harmful weather conditions



## Fixed wings and hybrid drones

Unable to takeoff and land vertically, to hover and climb

Unable to safely deliver fragile loads

Unable to fly at low speeds

Vulnerable to strong winds



# Use cases



Use cases

Industry

## Data collection and processing

Inspections of infrastructure,  
construction objects and sites

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




## 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



**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

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:

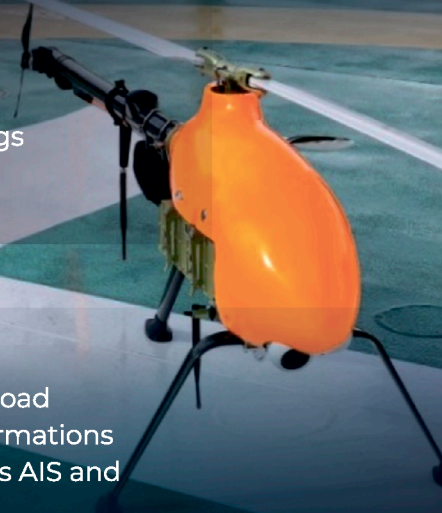
- development from scratch of a payload for safe descent and marking ice formations with radio beacons-trackers (such as AIS and ARGOS)
- integration of unmanned system with customer communication equipment

## 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



**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 Almet'yevsk, Tatarstan



**Technical complexity of the project:**

frequent operation of the drone in critical conditions for the technology; in particular, tests were conducted at  $-28^{\circ}\text{C}$  (with an acceptable minimum of  $-30^{\circ}\text{C}$ ) 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



**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:

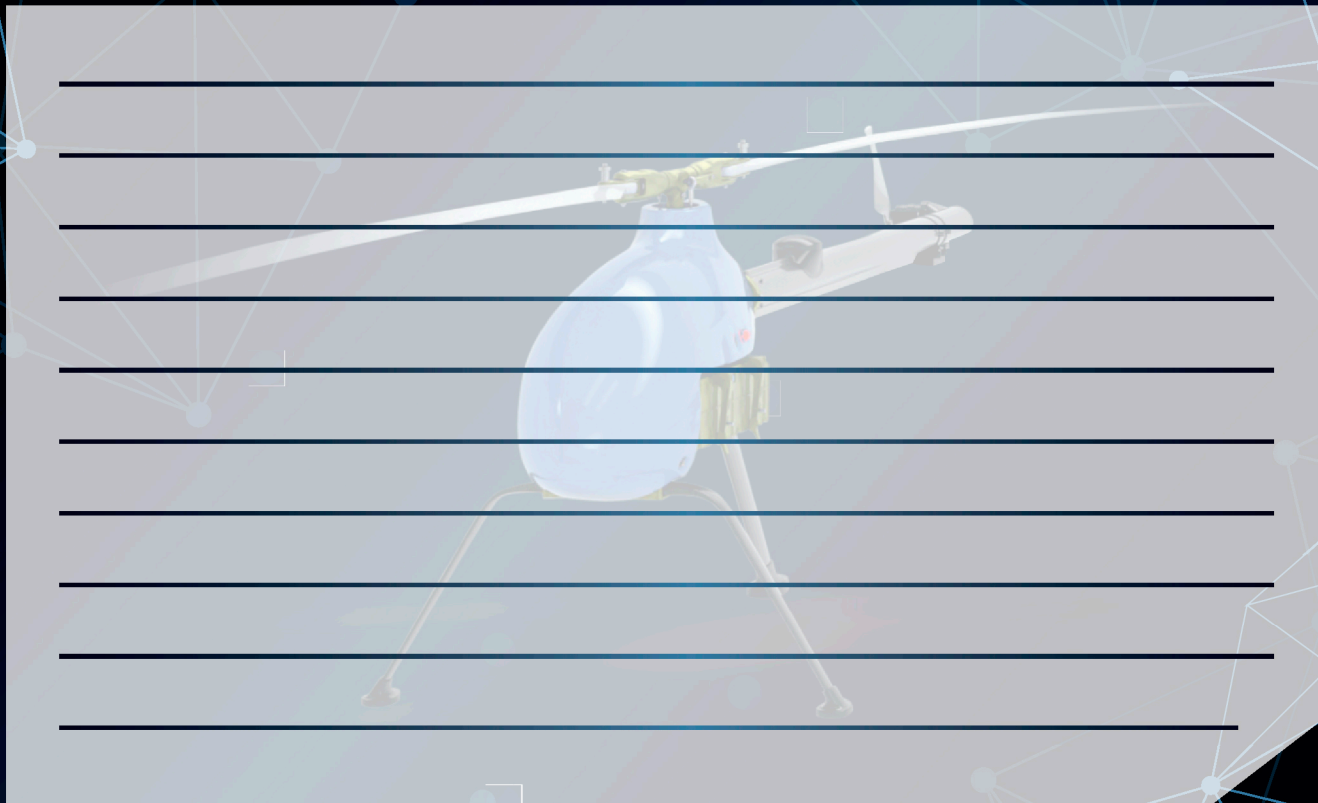
- a successful flight in difficult meteorological conditions across the Ob River
- the drone covered distance 3 times faster than traditional ground transport (30 min vs. 1.5 hours one way)

## Our team's mission:

Payload integration of a third-party manufacturer



# Notes





United Vehicle Robotics

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🌐 <https://uvr.aero>