GINUS Advanced Drone-based Solutions

Main Activities of GINUS

- Development of advanced mathematics-, IT- and drone- powered technologies and best practices for various industries and areas of application
- Contract-based services, innovative solutions and their implementation

Sustainable Competitive Advantage and Greater Customer Value

Using a synergy of proprietary advanced mathematics-, IT- and drone-based technologies as well as experience-based advanced management practices, GINUS delivers **OUTSTANDING**, often **UNIQUE**, easy-to-understand **TOP-QUALITY** results to their clients with **HIGH SPEED**.

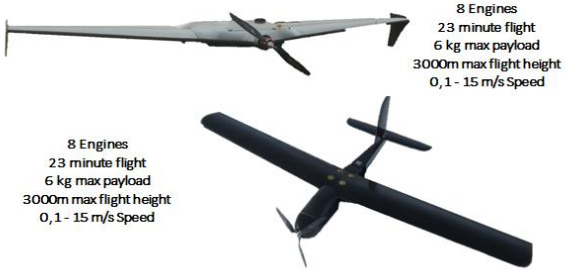
DRONE TYPES

4 Engines
33 minute flight
3,5 kg max payload
3000m max flight height
0,1 - 15 m/s Speed

12 Engines
20 minute flight
16 kg max payload
4000m max flight height
0,1 - 6 m/s Speed

8 Engines
23 minute flight
6 kg max payload
3000m max flight height
0,1 - 15 m/s Speed

WINGED UAV TYPES



8 Engines
23 minute flight
6 kg max payload
3000m max flight height
0,1 - 15 m/s Speed

8 Engines
23 minute flight
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International Projects

GINUS implemented projects in Russia, CIS, Asia, Middle East, Latin America

Examples of Projects implemented by GINUS

Applications	Tasks
Smart City	• Bird-view 3D models of cities / districts / buildings (high resolution, high quality, rotatable) • Video analysis and monitoring of desired areas
Tourism Industry	• Bird-view 3D models of tourist areas / resorts • 3D digital video tours

Agriculture	• More effective land management and cultivation practices • Improving yield of crops due to comparative spectral analysis of early stage results • More effective and cost reducing use of pesticides / fertilizers
Cartography	• Digital maps • Maps of hard-to-reach areas
Land Management	• High-precision 3D maps and 2D surface profiles • Recommendations for problem avoidance and solving
Security / Defense	• Making customized high-precision 3D models of the key areas of police / military / antiterrorist operations • "Serving as eyes" by providing real-time video translation from a desired area for much longer time (very difficult to shoot-down due unpredictable movement trajectory) • Saving lives by using unmanned vehicles when required
Disaster Management	• Monitoring of disaster-potential areas, measuring changes, issuing early warning signals • Discovering new problem areas
Exploration	• Reaching and video recording hard-to-reach areas (e.g. mountains, caves, etc.)
Oil and Gas Industry	• Fast and effective detection of risk areas in pipelines and other metal structures REMOTELY
Transport	• Following moving objects (e.g. cars) automatically, video recording them and telecommunicating real-time videos

ГИНУС

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GINUS
Drone-based Super-Solutions

Sources of Competitive Advantage

- Advanced mathematics and IT solutions
- One person can operate several drones
- Market dominating 'Photoscan'
- Ability to come out with great creative solutions to difficult problems witin a matter of hours

DRONE TYPES

WINGED UAV TYPES

GINUS Drone-based Super-Solutions

EXPANDING
the range of services

by using

Innoball simulation game

and

KoRe 10 Innovative Thinking Tools

GINUS Drone-based Super-Solutions

Agriculture

Helping to increase harvest

GINUS Drone-based Super-Solutions

Cost of a high-quality spectral camera is too high

Modifying a standard camera, thus achieving 10-fold cost reduction

GINUS Drone-based Super-Solutions

Doubts are raised that the modified camera records the right part of the spectrum

To prove the correctness of the results, it's proposed to take a 100% stable source of light, record the results and check which part of the spectrum is recorded

GINUS Drone-based Super-Solutions

There are only two 100% stable light sources in the country, and they both are impossible to get

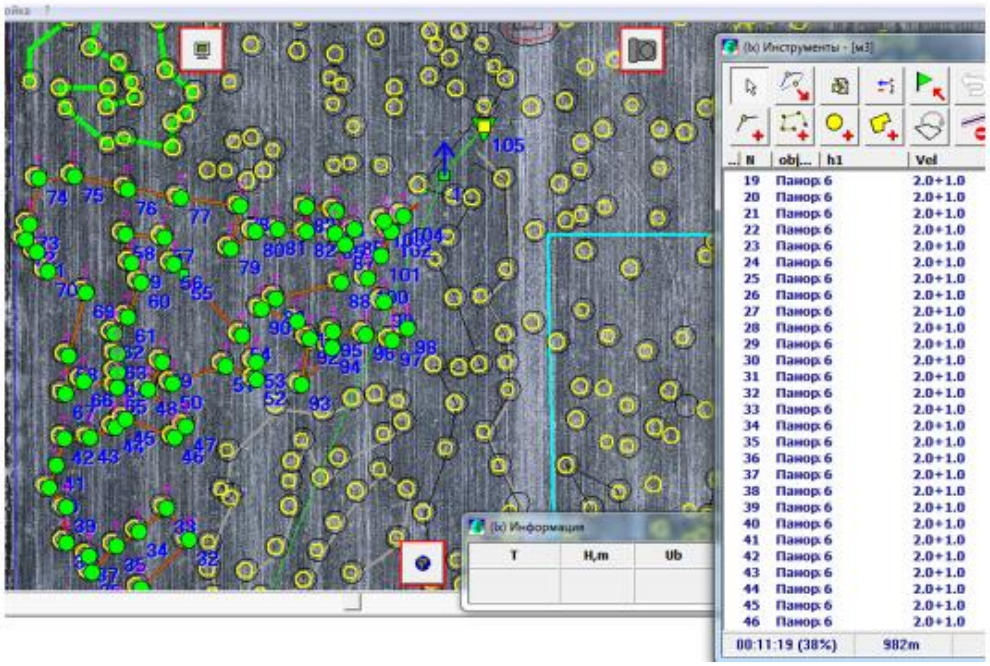
New optical physics solution:
the spectrum of the light is sliced into small parts to prove through a series of measurements that the modified camera records the right part of the spectrum

GINUS Drone-based Super-Solutions

The cost of using drones in agriculture is high compared with airplane-based services

Developing a multi-drone control system for a single operator to make use of drones 3 to 5 times cheaper compared with airplanes.
In addition, drones fly below clouds which is critical for cloudy locations.

Flight Chart: Optimizing Flight Efficiency



GINUS Drone-based Super-Solutions

- **Environmentally sound**
  (use of mouse poison is reduced 3-fold)
- **Cost reduction**
  - Cheaper 3-5 times compared to airplane-based services thanks to the possibility for one person to control a group of drones
  - Use of agrochemicals is reduced 3-fold

Adaptation

to

antiterrorism / defense / police

GINUS Drone-based Super-Solutions

Adapting the “mouse bombing” successful solutions to anti-terrorist and anti-pirates tasks

Pirates and terrorists are not mice – they can fight back and shoot drones down

GINUS Drone-based Super-Solutions

'Smart Flight' anti-bullet solution makes shooting a drone down next to impossible

Pirates and terrorists can disrupt GPS signals thus making drones to fall down

GINUS Drone-based Super-Solutions

'Smart Flight' emergency mode is invented that enables a drone to fly even if GPS signal is not available

+ more solutions for anti-terrorist, anti-pirate and defence applications

GINUS Drone-based Super-Solutions

3D Models

of

cities / areas / buildings

GINUS Drone-based Super-Solutions

Satellite photos are not good enough for many applications such as property tax calculation, property management, disaster prediction, and military / police operations

Drones provide a better bird's eye view; photos/videos taken at 25°-30° angles and from/of hard-to-reach locations help create more precise and useful 3D models and maps

GINUS Drone-based Super-Solutions

Drones are prone to falling down periodically which is unacceptable in highly populated and some other areas

Extra engines are provided so that drones keep flying even if some engines stop working;
additionally GPS-free navigation mode is developed

GINUS Drone-based Super-Solutions

For some time-sensitive applications (e.g. police operations) having just a 3D model is not enough

Mathematics-powered decision support systems are developed for various special applications

Disaster Management

GINUS Drone-based Super-Solutions

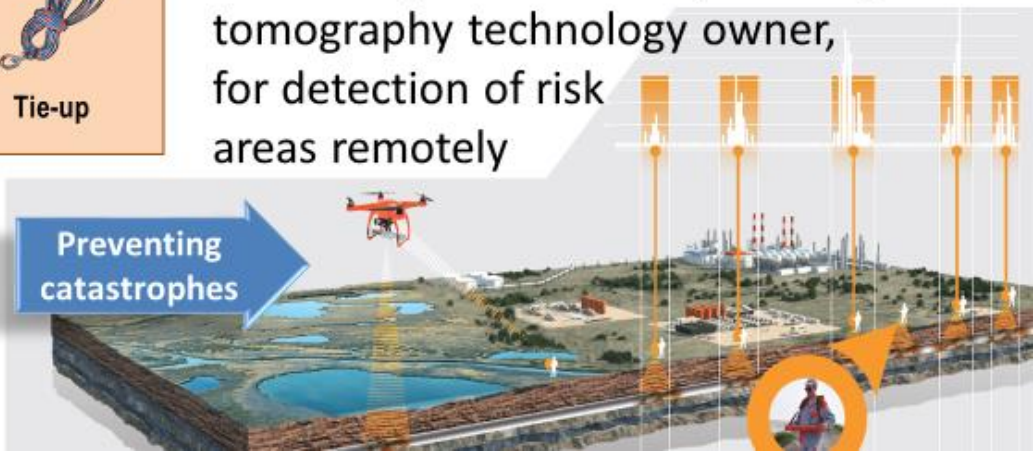
Sudden natural disasters often create severe damages in various disaster-prone areas

Specially programmed drones fly in disaster-prone areas, take photos, compare them with the previously taken photos, identify dangerous changes, and issue early warning signals automatically

GINUS Drone-based Super-Solutions

Hidden defects in oil/gas pipelines result in explosions and huge damages

Partnering with Transkor, the magnetic tomography technology owner, for detection of risk areas remotely



GINUS Drone-based Super-Solutions

Breakthrough Expansion

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Flying time and load limitations don't allow the company to expand into a whole new range of applications

Searching for prospective partners, e.g. manufacturers of new-generation light-weight hybrid energy packs, who could help the company's drones to increase the flying time multifold

GINUS
Drone-based Super-Solutions

Areas of Application	Projects in
• Civil Engineering • Agriculture • Defence • Air Industry • 3D Models • Oil and Gas • Tourism • Land Management	• Russia • CIS • Asia • Latin America • Middle East