



ROPPOR

Version 1.0

Professional Drone Platform

Limitless Remote (LTE Network)

Autonomous Flight

Multiple Drones Simultaneously

Cloud System

Real-time Control and Monitoring

Autonomous Collision Avoidance

LiDAR Photogrammetric Mapping

Customizable Sensors and Units

The drone's
future is here.

www.roppor.com

 **ChemEssen**

Professional Drone Platform

Introducing **Roppor**.

Roppor is the next revolution of drone technology equipped with state-of-the-art data management software applications, full autonomy and simulated piloting, area coverage scalability, and cloud system connectivity.



Limitless **Remote.**

“You can use Roppor as long as you have LTE.”

- Navigate Roppor via LTE (Long-Term Evolution) wireless network from anywhere in the world, even from the other side of the globe.
- Limitless control distance means greater areas explored with ease.





Autonomous Flight.

“Flight autonomy with simulated flight path.”



- Once the flight path is entered in the Roppor software, the drone autonomously flies accordingly.
- Easy to control. No prior experience is needed.
- Setting up a precise scanning area is feasible through the built-in map.

Multiple Drones Simultaneously.

“Multiple drones or swarm flight can be performed by a single operator.”

- Command up to 100 drones simultaneously by single operator, made possible by Roppor’s software and wireless network technologies.
- Mass area and subsections of target area can be scanned efficiently and quickly with group of drones synced.
- Obtain comprehensive report such as geographical and thermal-graphical data in collaboration from multiple drones equipped with unique sensors.



Cloud System.

"All the information acquired from the drone operation is stored automatically on a dedicated cloud server over the LTE network."

- Roppor cloud system collects and transfers technical data, video livestreams automatically over the LTE network.
- The video and data files are permanently stored and never lost even if the drone crashes due to an unexpected accident.
- An advanced information security ensures that the video files and technical data are protected against unauthorized accesses.





Monitor & Control in **Real Time.**

“Multiple drones in-flight operating in different locations can be monitored and controlled simultaneously in real-time.”

- Roppor software provides an integrated control environment that receives multiple video streams transmitted in real-time from multiple Roppor drone sources
- Full HD video streams are provided without interruption for monitoring the various video streams generated from the multiple drones flying different regions at the same time.
- In addition to the video livestreams, attachable sensor equipment measures chemical information and toxicity level in real-time.



Autonomous Collision Avoidance.

“Avoids unexpected obstacles and stays on-course autonomously.”

- 2D LiDAR (LiDAR; Light Detection and Ranging) detects 250 meters ahead in real-time.
- Artificial Intelligence (AI) and Anti-collision algorithm works together with 2D LiDAR to learn and adapt to surroundings during mid-flight.
- Dainindus Inc., Korea Electronics Technology Institute (KETI), Hanyang University has formed an alliance to develop LiDAR technology that is ultra-light material, low-cost LiDAR sensor module. Funded by Ministry of Trade, Industry and Energy of Korea.

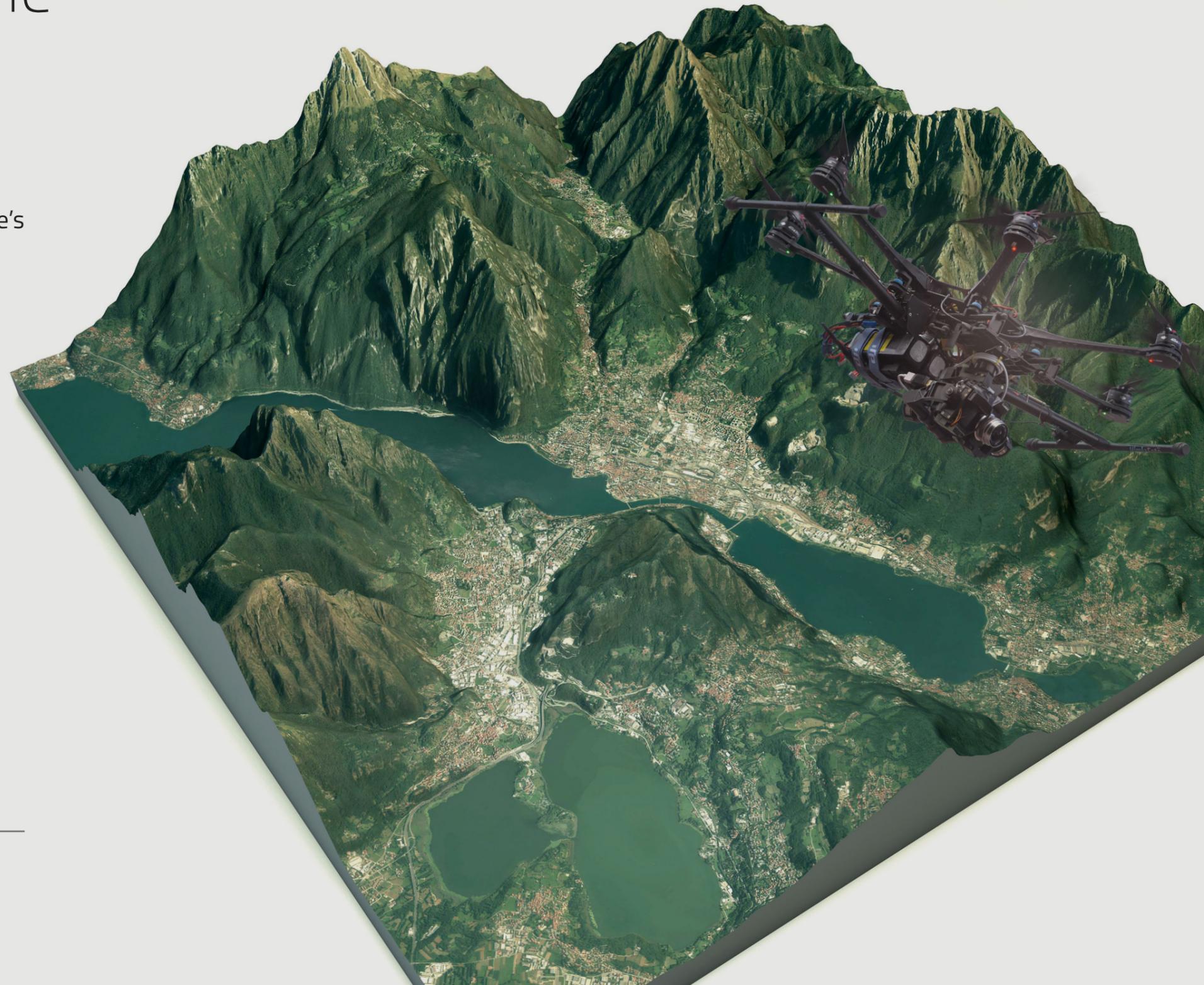
The autonomous avoidance is almost completed and will be commercialized in the second half of 2018 after various tests.

Photogrammetric Mapping

“Precise scale of photogrammetric map of drone’s positioning.”

- Roppor composes a topographic map from aerial photos of drones.
- If your current map (ex. Google Maps) is outdated, Roppor can compose an accurate map that accurately applies the current terrain.
- If your current map (ex. Google Satellite Map) displays low resolution, Roppor can compose high definition photo map of the terrain.

The development is almost completed and will be commercialized in the second half of 2018 after various tests.



Customize Roppor to your need.

“Various attachable sensors and units are available to fit your business needs.”



- Toxicity-level detector
- Chemical plants management.



Gas Sensor

- Heat source detector with night vision
- Human rescue missions



Thermal Imaging Camera

- 3D scanning of spatial information
- 3D modeling of geographical features.



3D LiDAR

- Hyperspectral surface image generator.
- Measuring green tide and red tide mineral deposits.



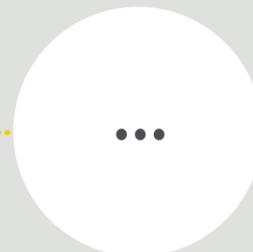
Hyperspectral Camera

- High definition video generator.
- Commercial broadcasting via drone.



Broadcasting Production Camera

- Any Unit can be attached for your purpose.



Other Units

Product Details

“Roppor offers customizable hardware, software and cloud system.”



Roppor Hardware

Roppor 2D LiDAR:

Real-time detection of obstacles in 250 meters.

Roppor Smart Module

Processing complex data for autonomous flights, obstacles avoidance, and video streaming.

Roppor Drone

Fully customizable for each project specification.

Roppor Supplementary Units:

Optional attachable units for variety of purposes.



ROPPOR

Roppor Software

- Autonomous flight setup
- Group / swarm flight setup
- Real-time control and monitoring
- Photogrammetric mapping processor



Roppor Cloud System

- Comprehensive data transmitting and processing.
- Sending, receiving and storing of data, images, and video.
- Security and protection against data loss.



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