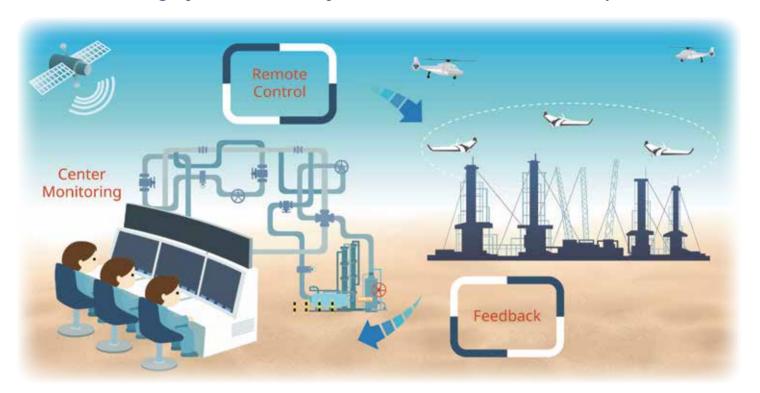


# **Pipeline Monitoring**

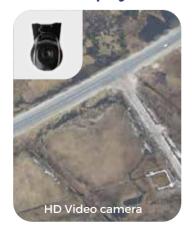
UAV Monitoring System for Safety Production of Oil and Gas Pipeline

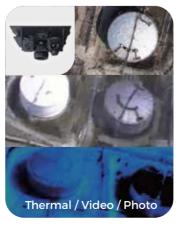


# **System Component**

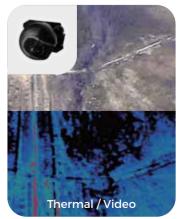


# Possible payload









#### What we can do

#### Monitoring & Survailance

Terra Drone provides long range monitoring solutions for illegal activities. Our solution can detect features of persons or cars that intend to steal resources from the assets. It is also capable of tracking and following the suspected illegal acts.



# **Terrain Analysis**

We provide terrain analysis for pipeline and oil & gas assets construction and managements. These outputs can be used to check ground movements, hazard detection.



Monthly Change Monitoring Early detection of slips, erosion, encroachment, subsidence and geohazard

#### **Project Visualization**

The Viewer processes and analyzes remotely sensed (satellite, airborne, and UAS) information that allows owners and contractors to view their projects in a 2D and 3D web-mapping environment

#### **Hazard Detection**

Hazard Detection combines remotely sensed data with machine learning to identify potential project hazards such as slips, erosion, karst formations, subsidence, etc.

# **Asset Management**



STEP 01 Data Capturing
Terra Drone will capture data for you.



# Flare Stack Inspection

Our Inspections give time effective benefits.

We do not require to stop operation of flare stack.

The inspections detect damages such as rusts, cracks, movements of components installed with the asset.



# **Underdeck Inspection**

UAV Inspection for under deck gives benefits such as time and risk reduction.

Besides, it can also eliminate scaffolding that is usually needed to reach high areas and points.



# **Ultra Sonic Inspection**

Terra Drone can undertake UAV inspections on large industrial assets such as storage tanks, bridges and any other infractures. It measures the thickness of the assets, detect the presence and location of defects.



# Structural Inspection

Terra Drone's UAV inspection technique provides structural inspections of high or difficult to reach structures, which are faster and safer than conventional access methods.



# **Tank Deformation**

Terra Drone uses drones for storage tank strain inspection. By scanning the storage tank with laser drone, we can identify the presence and location of the strain.



### **Jetty Inspection**

Terra Drone has remotely controlled aquatic drones that is flexible and can be quickly deployed. Previously hard and dangerous to reach places due to complex structures and tide can now be possible to be inspected.



STEP 02

#### Data management

Terra Drone will analyze the data for you and share with you.



# **Terra Drone Data Management**

Drones do not provide remote inspection tools, just raw data (photos and videos).

Terra data platform is a platform that uses Machine Learning to allow

Oil and Gas Companies to identify and measure asset anomalies, such as corrosion and cracks.



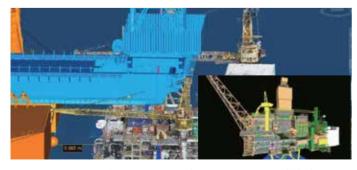
# **Piping Modeling**

LiDAR is particularly useful in power plant renovation projects because it brings the power plant design back to the office rather than requiring work in the field. The laser scan accurately locates existing pipes.



# **Artificial Intelligence**

The AI is trained for various scenarios and can swiftly review all of your images. When a potential problem is detected, the AI marks the problem with an annotation for your approval. If the AI detects the same issue across several images, it will automatically link them together if a 3D model exists. Computer Vision is available by request.



# **Advanced Processing Capabilities**

Terra Drone India data processing team has capabilities to create precise 3D CAD modeling from the point cloud data

- · Enables virtual asset management
- · Creating digitized data to manage on the data platform



# Shareable Reports

We have web-based management system. It's essential to share information about issues with team members, customers and service teams. To accommodate this need, we create the report module.

# **Terra Drone**

# **Terra Drone Product Lineup**





#### **Terra UTM**

Unmanned Traffic Management (UTM) system

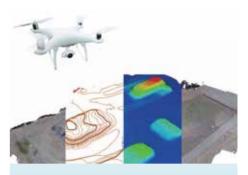
- -Remotely controls multiple drone with single system
- -Real-time monitoring from the control center





#### **Terra Inspection**

Terra Drone Inspection delivers faster and better insights about your assets by using an image optimization engine that automatically organizes, analyzes and selects the best images and vantage points.





#### Terra Mapper

Terra Mapper is a photogrammetric software solution for 2D image processing. It's especially designed for Land surveyors and Civil engineers. They capture data with any drone, any camera.





# Terra LiDAR System

LiDAR is a measuring technology that uses laser beams to measure terrain and object heights. The benefit compared to standard photogrammetry is that the laser beams can detect smaller objects and penetrate vegetation.





# Terra UT Inspection

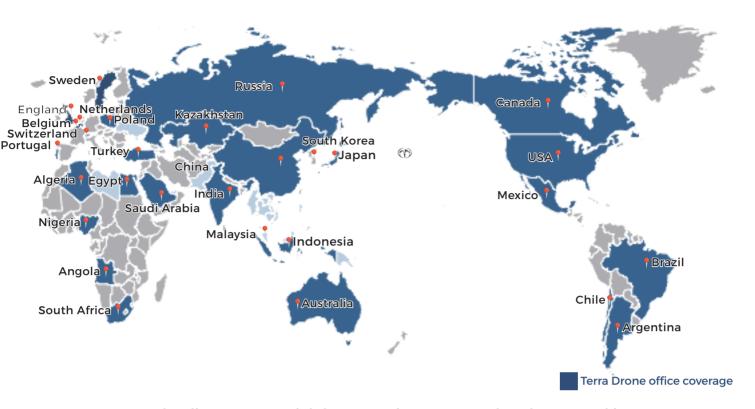
Terra UT Inspection is a laser UT drone solution specialized for the inspection of industrial, hazardous and enclosed spaces such as storage tanks, boilers, super heaters, furnaces and so on.



#### Terra Explore

Inspect dark, hard to access spaces with the drone ball UAV. The 4K camera and thermal camera makes building, wind turbine, and engineering inspections straightforward, without endangering workers...

# Where we are & What we can do



We are a leading commercial drone service company headquartered in Japan and having regional offices all around the world.

We provide out of the box end-to-end solutions across domains.

We also help companies to carry out inspection of complex job sites, such as those in mining, oil and gas extraction, and power line Having successfully completed numerous UAV based projects, we have multiple ongoing Government projects, most of which have not been carried out before.

#### **Our Clients**





# **Terra Drone Corporation**

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