Workshop on multicopters for inspection
How to see the birds eye view
What is Traditional Remote Visual Inspection?

“The ability to inspect inaccessible / dangerous environments, whilst minimising the risks to your Personnel and Assets”

“Making a Visible Difference”
What is OUR Remote Visual Inspection?

“The ability to inspect inaccessible / dangerous environments, visualise emissions and monitor safety, whilst minimising the risks to your Personnel and Assets”

“Making a Visible Difference”
UAV Applications
UAV Applications

Energy Sectors
- Oil & Gas
  - Refineries
  - Offshore Assets
  - Flare Surveys
  - OGI Surveys
- Power Utilities
  - Power Distribution Network
  - Solar Panels
  - Wind Power
- Building Inspection

Emergency Services
- Fire Fighting
  - Fires
  - Forest Fires
  - Other major incidents
- Emergency Rescue
  - Mountain Rescue
  - Search & Rescue

Agriculture, Forestry and Fisheries
- Environmental monitoring
- Crop dusting
- Optimising use of resources

Earth Observation and Remote Sensing
- Climate monitoring
- Aerial photography, mapping and surveying
- Major incident and pollution monitoring

Government
- Military
- Law enforcement
- Border Security
- Coastguard

Communications & Broadcasting
- Proxy-satellites
- Short term local communication coverage
- Aerial Imaging
UAV Applications

UAV Payloads

Visual

Thermal

Airborne OGI

Lidar

Hyperspectral

Photo Measurement Software

Air Monitoring

“Making a Visible Difference”
## UAV Applications

### Aerial Thermographic Applications

<table>
<thead>
<tr>
<th>Application</th>
<th>Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utility Inspection</td>
<td><img src="image1.jpg" alt="Utility Inspection" /></td>
</tr>
<tr>
<td>Home Inspection</td>
<td><img src="image2.jpg" alt="Home Inspection" /></td>
</tr>
<tr>
<td>Building Diag.</td>
<td><img src="image3.jpg" alt="Building Diag." /></td>
</tr>
<tr>
<td>Fire</td>
<td><img src="image4.jpg" alt="Fire" /></td>
</tr>
<tr>
<td>Solar Panels</td>
<td><img src="image5.jpg" alt="Solar Panels" /></td>
</tr>
<tr>
<td>Airborne OGI</td>
<td><img src="image6.jpg" alt="Airborne OGI" /></td>
</tr>
<tr>
<td>Agriculture</td>
<td><img src="image7.jpg" alt="Agriculture" /></td>
</tr>
<tr>
<td>SF-6</td>
<td><img src="image8.jpg" alt="SF-6" /></td>
</tr>
</tbody>
</table>

“Making a Visible Difference”
Inspectahire has a variety of UAVs including the Following:-

Skyeye T-Series

Mammoth

"Making a Visible Difference"

Falcon 8

Flyability Elios
UAV Capabilities

- Photography
- Videography
- Thermography
- Optical Gas Imaging (OGI)
- Topography
- Hyperspectral

- 15 – 40 Minute Flight Times
- Longer Duration Flight time with Tethered systems
- Over Pressurised body
- Thermal Sensor on board
- Thermography – Radiometric data
- Optical Gas Imaging (Detection)
- On Board PC to control camera functions
- Parachute Safety System
- Non Spark Safety Battery connectors
- High load capabilities including GF 320 Cameras
UAV Thermal Inspection
See in the Total Darkness
UAV Thermal Inspection

The technique is non-invasive designed to pinpoint the exact location of system deficiencies using heat responsive thermal imaging equipment.

Since this method of inspection is non-contact it can be carried out when a system is live, meaning no downtime costs. It also means that when faults are found corrective maintenance strategies can be planned and implemented before system failure occurs.
UAV Thermal Inspection

FLIR VUE
336x256 Resolution
13 mm Lens

Easy, Affordable Thermal Imaging for Commercial sUAS

"Making a Visible Difference"
UAV Thermal Inspection

FLIR T-Series: The Most Flexible, Innovative and Highest Quality Professional-Grade Handheld Thermal Cameras Featuring the New T660 with 640 × 480 Thermal Resolution

"Making a Visible Difference"
Energy Sectors
UAV Inspection
Flare Visual & Thermal inspection
UAV Inspection

Flare Visual & Thermal inspection (Video)
UAV Inspection

Flare Visual (Video)
Building Inspection

Easily located failed argon gas windows on office buildings.

Find invisible water damage in seconds.

“Making a Visible Difference”
Building Inspection

Acquire the Full roof image in one Thermal Image

- Reduce Roof Surveys from hours to minutes.
Building Inspection

Get a wide-angle view of the whole roof while keeping the details you need for accurate analysis.

“Making a Visible Difference”
Building Inspection

ADVANTAGES OF AIRBORNE THERMAL IMAGE ACQUISITION - AC

Acquire the Full roof image in one Thermal Image

Maximize angle of acquisition and target emissivity

“Making a Visible Difference”
Building Inspection

ADVANTAGES OF AIRBORNE THERMAL IMAGE ACQUISITION

Acquire the Full roof image in one Thermal Image

Improve Resolution and overlay architectural drawings

“Making a Visible Difference”
Building Inspection

ADVANTAGES OF AIRBORNE THERMAL IMAGE ACQUISITION

Acquire the Full roof image in one Thermal Image
Post Processing software will “stitch” multiple Images together

B & W Thermal Image
Architectural Drawing with leaks highlighted
Visual with leaks highlighted

“Making a Visible Difference”
ADVANTAGES OF AIRBORNE THERMAL IMAGE ACQUISITION

The angle of image acquisition impacts the ability to identify temperature variations on a roof surface

- Angle of acquisition optimized
- Time Savings for multiple image acquisition reduces labor costs
- Time Savings makes it easier to justify a baseline survey
- Ease of Multiple Image Collection improves resolution
- Software compatibility reduces “image stitching” effort

"Making a Visible Difference"
UAV Inspection

Solar Panel inspection

“Making a Visible Difference”
UAV Inspection

Pipeline inspection
UAV Inspection

Pipeline inspection
UAV Inspection

Internal Tank inspection

“Making a Visible Difference”
UAV Inspection

Offshore Inspection

“Making a Visible Difference”
UAV Inspection
Offshore Inspection

“Making a Visible Difference”
Emergency Services
First Responder

See through smoke and guide water application for efficient attacks.

Find lost hikers or accident victims night and day.

“Making a Visible Difference”
Agriculture, Forestry and Fisheries
Earth Observation and Remote Sensing
Aerial Photography
Surveying and Mapping

"Making a Visible Difference"
FLIR OPTICAL GAS IMAGING CAMERAS
OPTICAL GAS IMAGING

GF320
- Gas imaging of VOC gas (Methane, Propane, butane etc)
- Upstream & Downstream Oil, Natural Gas Industry, Petrochemical & Chemical Industry
- IR Spectra 3.2 – 3.4 µm

GF304
- Gas imaging of SF6, Ammonia, Propylene & Ethylene
- Power Utility Industry & Petrochemical Industry
- IR Spectra 10.3– 10.7 µm

GF306
- Gas imaging of Refrigerants (R134a, R404A, R407C, R410A)
- Food industry, Air conditioning systems, District heating system (heat pumps)
- IR Spectra 8.0– 8.6 µm

GF343
- Gas imaging of Carbon Dioxide
- By product of a production process, a trace gas used to detect leaks from power generators, or as part of an Enhanced Oil Recovery program
- IR Spectra 4.52– 4.67 µm

GF346
- Gas imaging of Carbon Monoxide
- Steel Industry
- IR Spectra 4.52– 4.67 µm
With thermal imaging cameras like the G300 you can mount onto an airborne platform to monitor your vital gas pipelines or installations 24/7.

You will immediately see if a dangerous and costly gas leak appears.

No more relying on periodic inspections.

Monitoring is done from a safe distance without the need to send technicians into a potentially dangerous areas.
The GF343 you can mount onto an airborne platform to monitor for CO2!

One of a range of leading edge optical gas imaging cameras

Assist monitoring for Environmental Compliance.

Monitoring is done from a safe distance without the need to send technicians into a potentially dangerous areas.
Contact

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