



# Disruptive Technologies and the Convergence Towards Autonomous Systems

**John Wolcott**  
**Founder/Owner Industrial Aerobotics**

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# Introduction

Industrial Aerobotics Profile

A wooden-framed chalkboard is centered on a background of vertical wooden planks. The chalkboard has a black surface and a light brown wooden frame. The text is written in white on the chalkboard.

# Welcome!!

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# Our Services

Where we operate in the UAS commercial space

# Our Services

Where we operate in the UAS commercial space

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# Our Services

Where we operate in the overall UAS commercial space

## ***GOVERNMENT***

- Space
- Defense
- LE

## ***INT. SERVICE PROVIDERS***

- Honeywell
- Precision Hawk
- Measure

## ***REGIONAL ENTERPRISE SERVICE PROVIDERS***

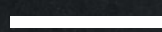
## ***SMALL OR SINGLE VERTICAL SERVICE PROVIDERS***

# A BETTER WHEEL

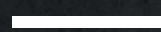
Mankind is always on the lookout for a better wheel



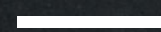
3150 BC



1000 BC



1800



2000





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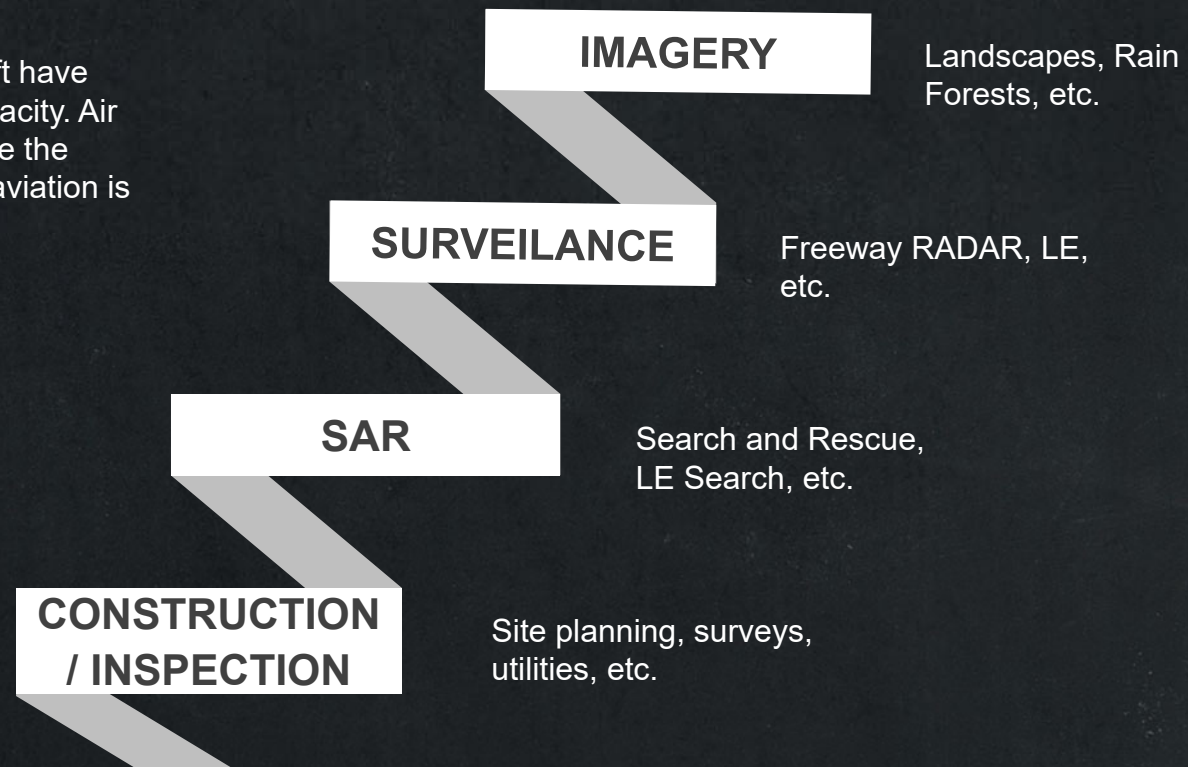
[Contents](#)

# PRE-UAS AVIATION USE CASES

Common, Non-Passenger Transportation, Commercial Uses of Aviation

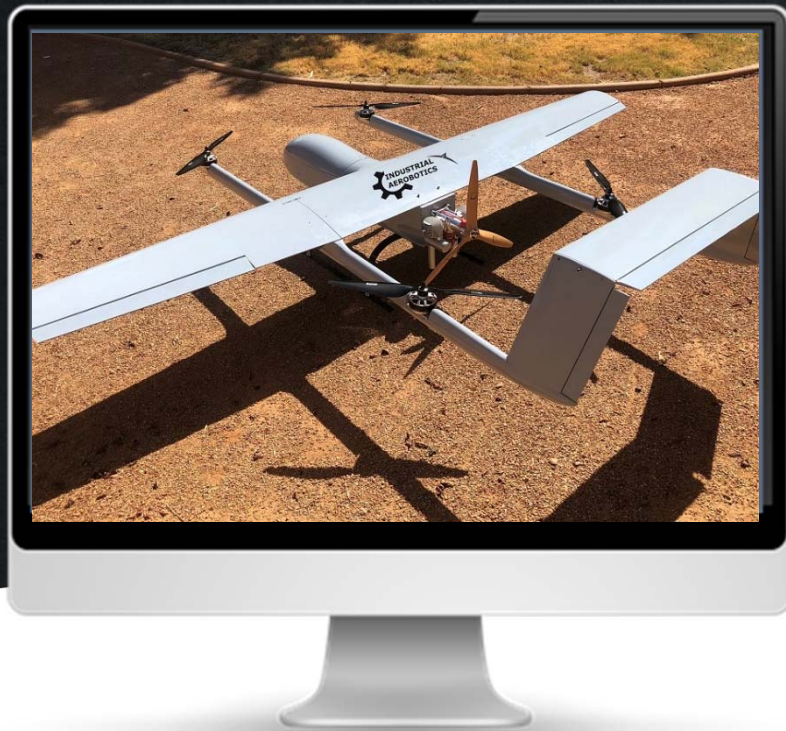
## Manned Aircraft At Work

For many years manned aircraft have been used in a commercial capacity. Air travel and defense are of course the most common uses, however, aviation is used in many other commercial capacities around the world.



# UAS – The Better Wheel?

How UAS complement and replace traditional Manned Aircraft use cases



**Same end GOAL  
with better quality,  
less risk at  
a lower cost**

# MAJOR ACTIVE UAS USE CASES

There are thousands of uses for UAS and more are developed every day. This is a collection of the most common, widely accepted uses of UAS today.

## PUBLIC SERVICE

- Delivery
- Fire Fighting
- Surveillance
- Defense
- SAR

## OPTICAL IMAGERY

- Inspection
  - Powerline
  - Wind
  - Gas and Oil
- Survey
- Mapping
- Storm Assessment

## IR/LiDAR

- Solar Inspections
- SAR
- Farming/Crops
- Mapping/Survey
- Modeling

## CUSTOM

- Gas Detectors
- RF Analyzers
- Magnetometers

# Industrial Aerobotics Core Verticals

The areas we specialize in



## Monthly USE CASE Breakdown

**50%** Utility Inspections

**25%** Solar Inspections

**15%** Survey/Mapping

**10%** All Others

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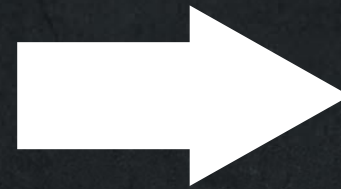


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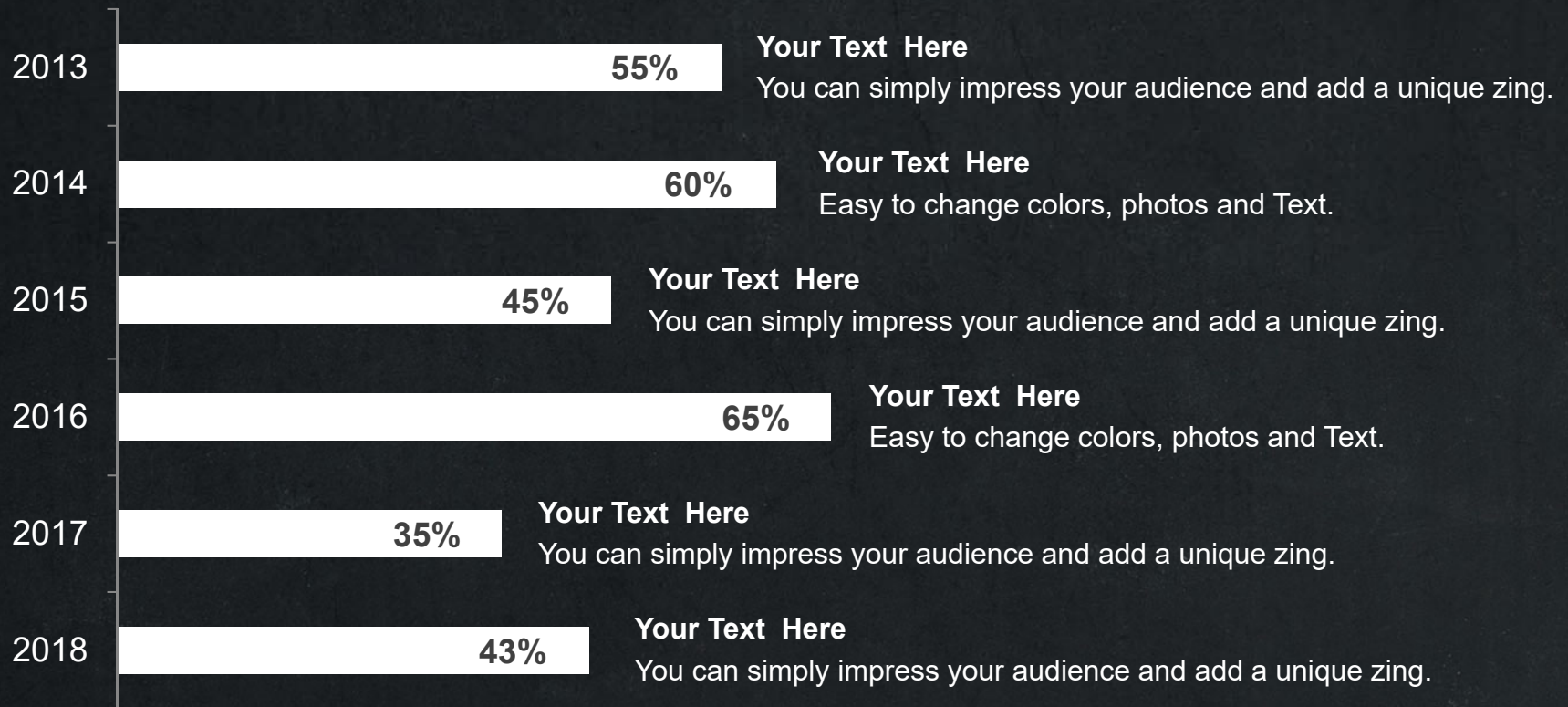
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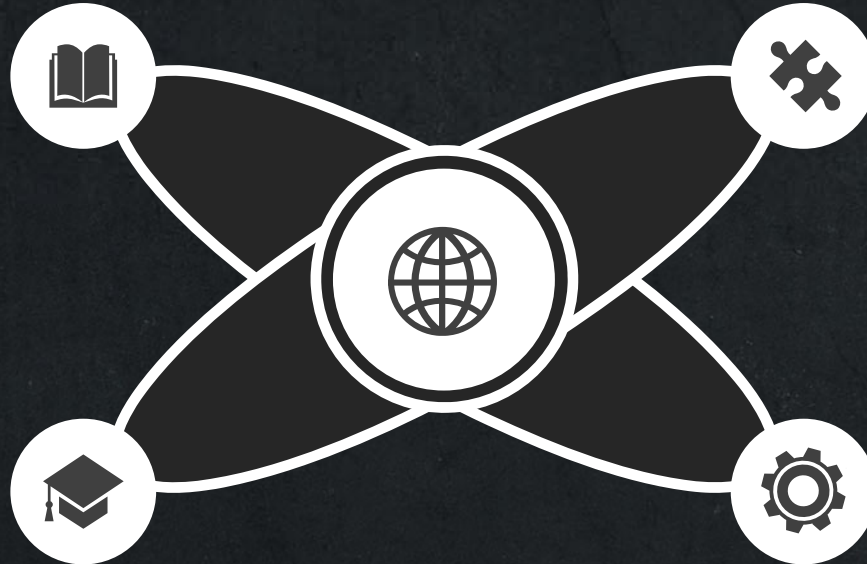


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# USE CASE EXAMPLES

Examples of common UAS use cases and deliverables

## UTILITY WORK



- Substation Imaging/Modeling
- Corridor Mapping
- Tower/Line Patrols
- Line/Pole As-builts for rebuilds

## Solar Inspection



- IR Inspections for faults
- Optical Inspections for Vegetation / Debris
- Ground/Erosion Mapping
- Site as-builts / CAD

## Survey/Mapping



- Construction Planning
- Site Surveys
- Digital Surface Models
- Topography Maps
- Volume Calculations

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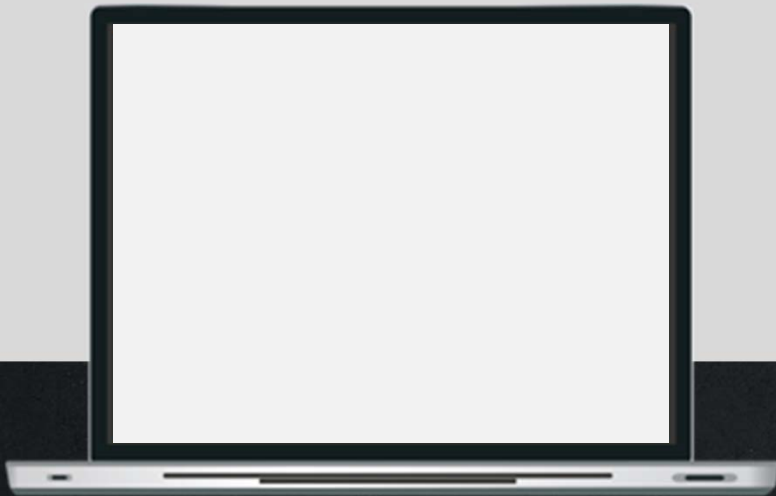


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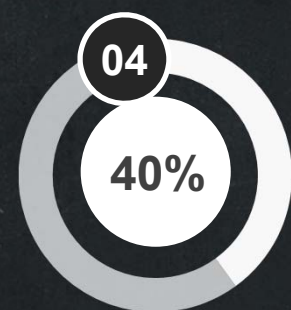
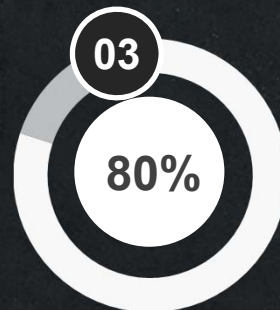
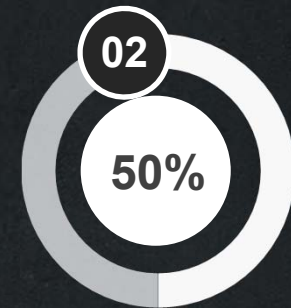
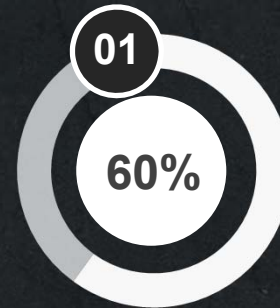
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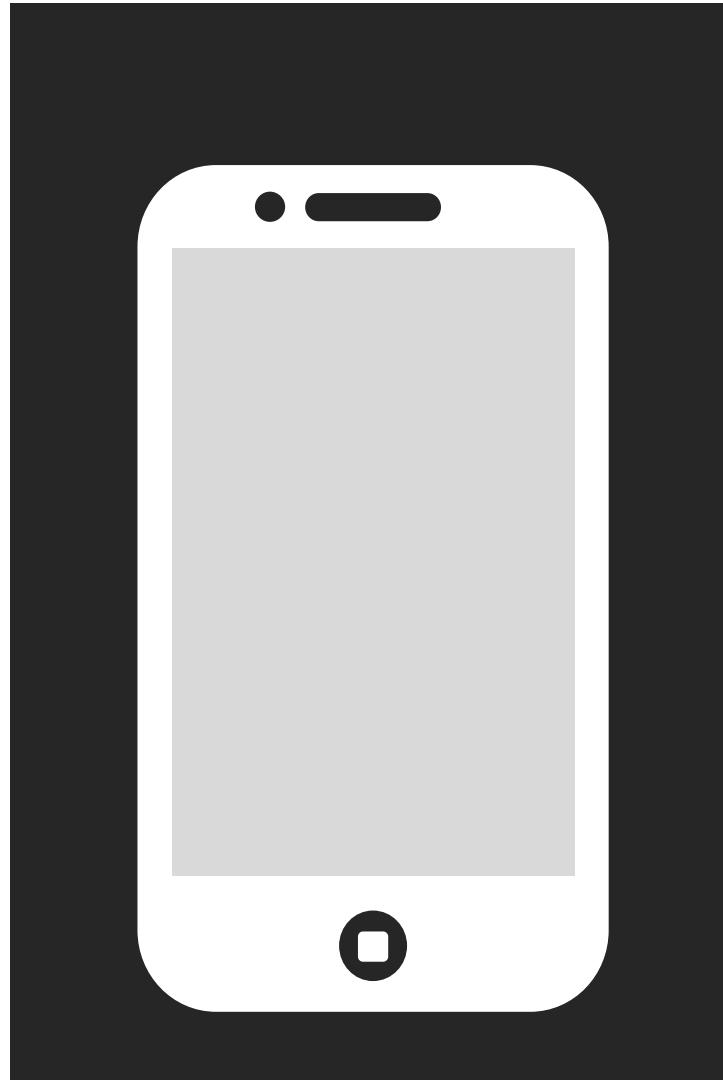
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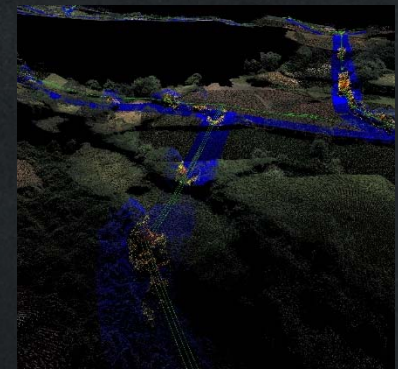
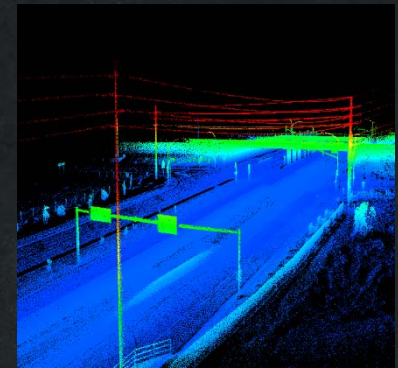
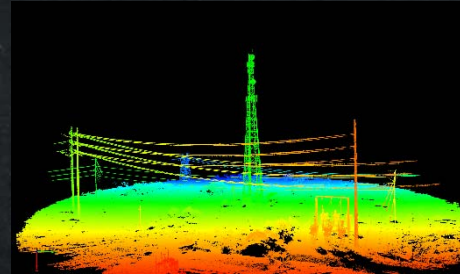
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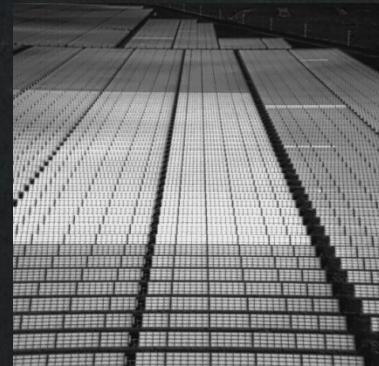
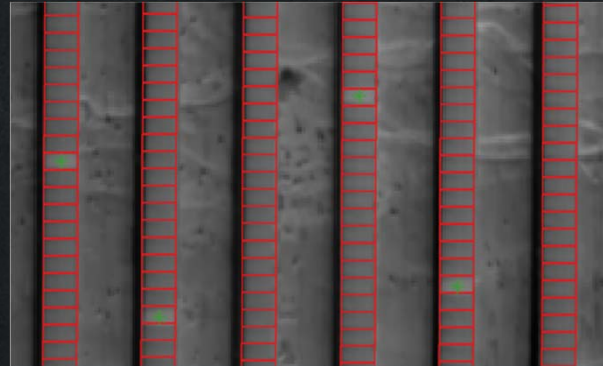
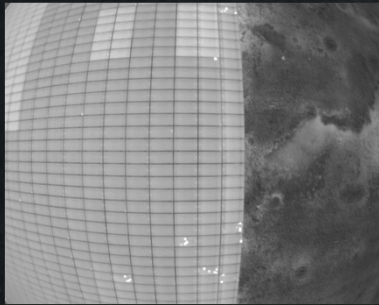
# Examples of common Utility Projects

UTILITY



# Examples of common Solar Projects

SOLAR



**Temperature Rise: 29.2**      filename: 01\_00\_0913R.jpg

**SEVERITY: Repair Immediately**

7/20/2017 11:30 PM

Component Temperature and Rise	
Arl Max. Temperature	131.8 °F
Ref Temp. Temperature	102.6 °F
Temperature Rise - Measured Value	29.2 °F

**Radiometric Thermal Image**

File name	091_00_0913R.jpg
Bx1 Max. Temperature	108.7 °F
Bx2 Max. Temperature	119.1 °F
Bx3 Max. Temperature	107.2 °F
Bx4 Max. Temperature	117.3 °F
Bx5 Max. Temperature	114.1 °F
Bx6 Max. Temperature	131.8 °F
Bx7 Max. Temperature	107.8 °F

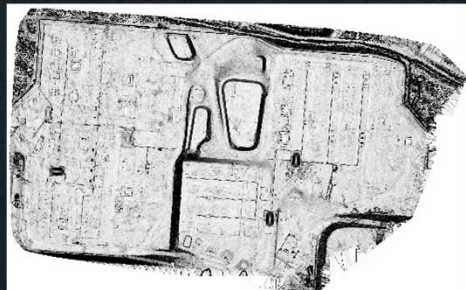
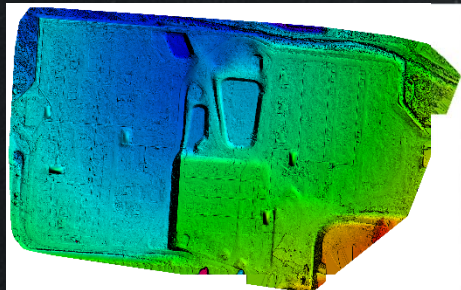
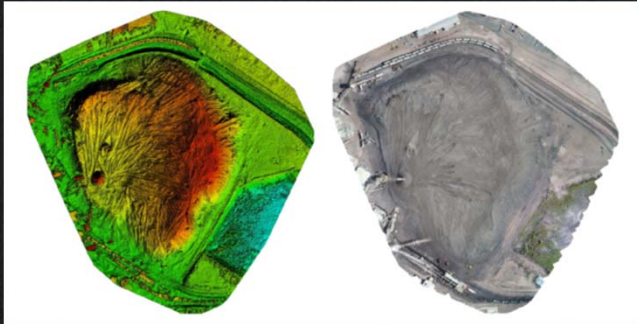
**Comments and Recommendations:**  
 Del-libly broken glass (see optical)

Severity Criteria (based on temperature rise)			
Normal	Investigate	Repair Next Outage	Repair Immediately
< 1.0 °C	1.0 to 5.0 °C	5.0 to 35 °C	> 35.0 °C



# Examples of common Survey/Mapping Projects

## SURVEY/MAPPING



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# Wrap-up

## Conclusion and State of the Industry

01

### **NOTHING NEW**

In almost all cases, UAS do not allow for any new ways to complete work that was unable to be performed before. They merely allow that same work to be done, in most cases, faster, with higher quality, safer and at a lower cost.

02


### **STILL VERY EARLY**

Although for those in the industry, UAS seem to have been around forever and is near “topping out”; UAS is still in its infancy and has a lot of room to grow and expand.

03

### **TECHNOLOGY and REGULATION KEY**

The keys to allowing the UAS industry to continue to grow and mature is mostly based on technology advances in capabilities and reliability; as well as more favorable regulations for flight operations.

A wooden-framed chalkboard is centered on a rustic, vertically-plank wooden background. The chalkboard has a dark surface and a light-colored wooden frame. The text "Thank you" is written in a large, white, sans-serif font, and "QUESTIONS?" is written in a smaller, white, sans-serif font below it.

Thank you  
QUESTIONS?

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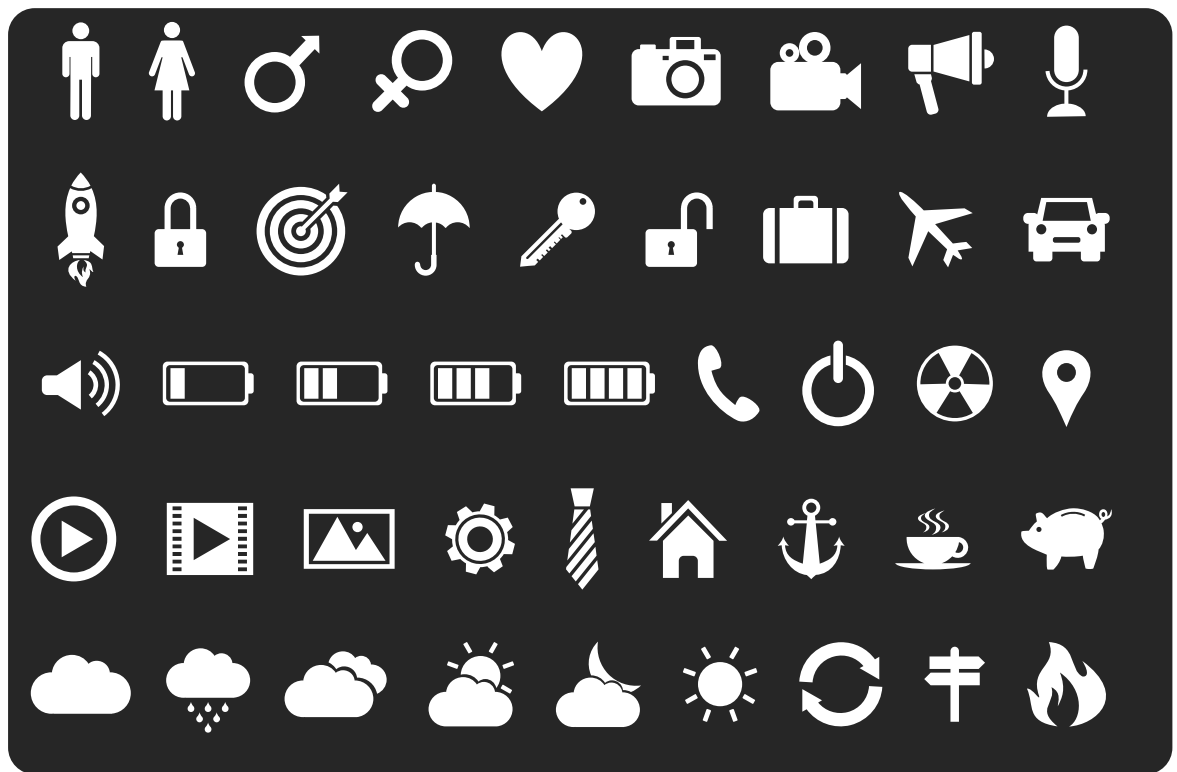
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