

# AUTOMATED DRONES FOR SOLAR

July 2020

## THE SCOUT SYSTEM

An overview of the **American Robotics** Scout System, and how it serves the solar industry.

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# THE NEXT GENERATION OF DRONES IS AUTOMATED



## THE NEXT GENERATION OF DRONES

For the past decade, the solar industry has been promised drones to unlock new efficiencies and value. The reality is that without automation, that promise was little more than hype and misinformation. The only way drones find their place in this industry is if humans are removed from the loop, unlocking the next generation of data collection, analytics, and automation.



## ABOUT AMERICAN ROBOTICS

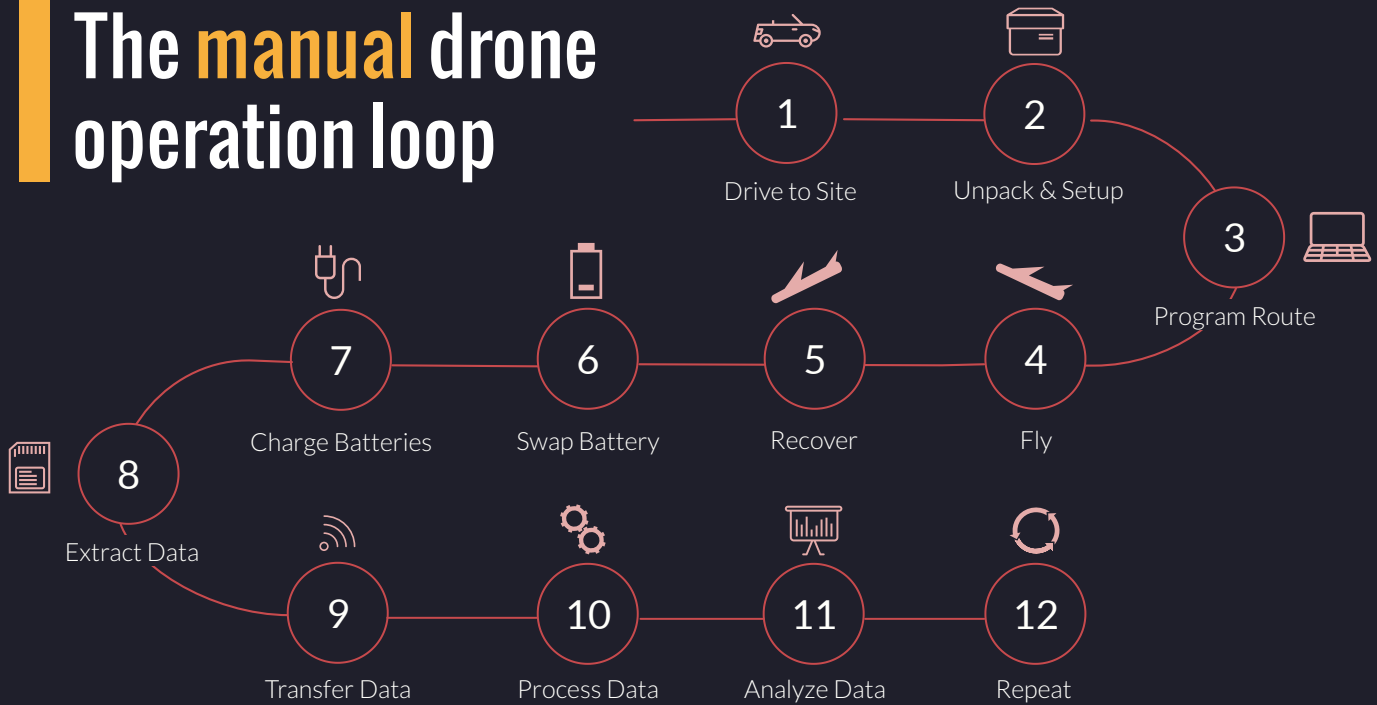
American Robotics is an industrial drone developer specializing in rugged, real-world environments. Through innovations in robot autonomy, machine vision, edge computing, and AI we have created the next generation of drone technology: a fully-automated drone capable of continuous, unattended operation.

American Robotics was founded by Carnegie Mellon and Stanford roboticists with a shared vision for bringing robotic technology out of the lab and into the real-world.

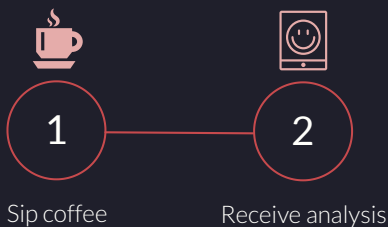
[www.american-robotics.com](http://www.american-robotics.com)

# MANUAL VS AUTOMATED WHAT'S THE DIFFERENCE?

## The **manual** drone operation loop

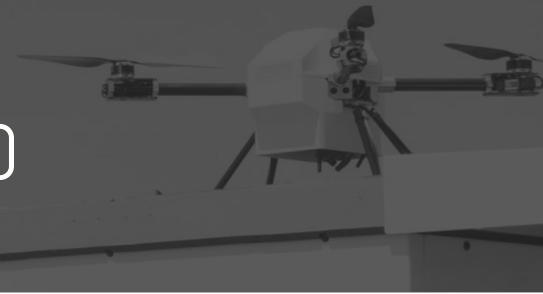


## The **automated** drone operation loop



# THE SCOUT SYSTEM

## AUTOMATED DATA ON-DEMAND



### SCOUT™ DRONE

Fully-autonomous, AI-powered drone with visual, multispectral, and thermal sensors



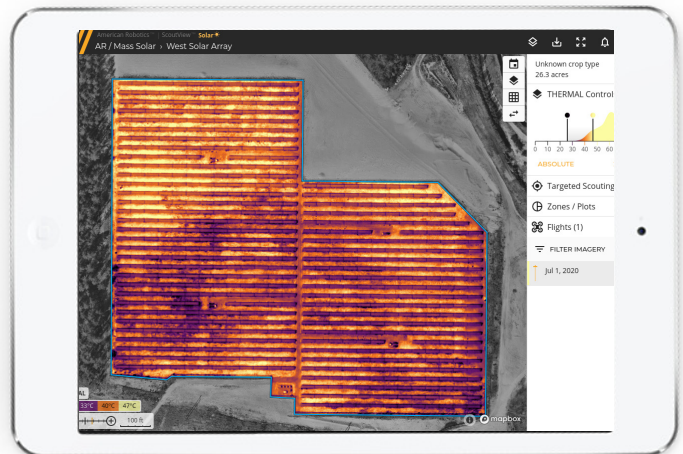
### SCOUTBASE™

Weatherproof storage, docking, charging, and data processing, and data transfer station



### SCOUTVIEW™

Secure web interface, mission scheduler, data viewer, analytics software, & API





*Scout is the first of what is likely to be the next great tech wave: systems capable of making so many decisions on their own that people need to provide very little, if any, supervision."*

*- Smithsonian Air & Space Magazine*

## EVERYTHING IS AUTOMATED



Launch



Precision Landing



Mission Planning



Data Processing



Flight



Charging



Scheduling



Data Transmission



Imaging



Storage



Obstacle Avoidance



System Diagnostics

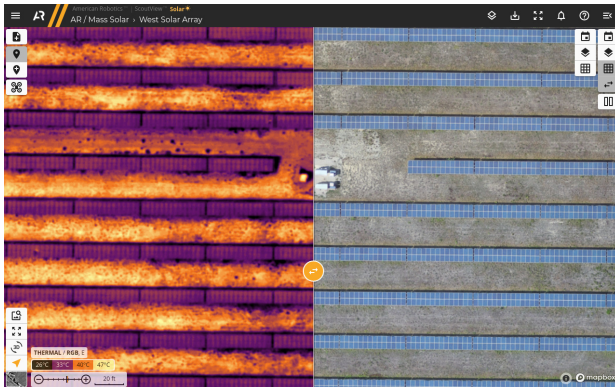
Powered by innovations in robotics automation, machine vision, edge computing, and AI, Scout™ is the only scalable drone solution for the solar industry. Unlock the ability to conduct 24/7 automated inspections with no additional labor. Monitor panels at ultra-high resolution remotely. Detect and correct problems, such as hot spots, cracks, and shadowing, through automated data collection, analysis, and alerts.

# FEATURES & CAPABILITIES

## AUTOMATED INSIGHTS ON-DEMAND

### SCOUTVIEW™

ScoutView is your secure web interface, mission scheduler, data viewer, analytics software, & API. Interact with your Scout units remotely from anywhere in the world. Set a schedule and forget it, or command missions on-demand. Collect and analyze ultra-high resolution imagery (sub cm) multiple times per day everyday.



- REMOTE 24/7 ACCESS
- SCHEDULED MISSIONS
- ON-DEMAND MISSIONS
- DATA VISUALIZATION TOOLS
- DATA DOWNLOAD & API
- FIELD NOTES & REPORTING
- AUTOMATED ALERTS & NOTIFICATIONS
- CHANGE & ANOMALY DETECTION

### SCOUT™ DRONE & SCOUTBASE™

The Scout Drone and the ScoutBase are designed to be installed indefinitely in rugged, real-world conditions. Install anywhere and everywhere throughout your operation to enable continuous, automated oversight.



- CELL & ETHERNET CONNECTIVITY
- ON-SITE EDGE COMPUTING
- AUTOMATED DATA PROCESSING
- AUTOMATED OBSTACLE AVOIDANCE
- AI-POWERED NAVIGATION
- SECURE WEATHERPROOF ENCLOSURE

# USE CASES

## ▶ THE BOTTOM-LINE

Adopting automated drone technology means increased uptime, increased efficiency, reduced costs, and minimization of risk. Enable real-time, high resolution awareness of all of your assets, and stop problems before they occur. The next generation of data is here.



## ▶ O&M / INSPECTION

Manage your full set of operations remotely, and assist your maintenance teams with high-resolution, real-time data of your assets.

The Scout System will autonomously patrol your panels to monitor for hot spots, faults, cracks, and other defects. Detect anomalies through thermal imagery, visual imagery, and automated change detection. Count, classify, and geolocate problems on day one to assure maximum uptime and efficiency.

## ▶ SECURITY

Assure the security of your assets and operations with routine surveillance flights. Use thermal and visual data to detect and deter potential intrusions, whether they be human, animal, or vehicle. Detect and report suspicious activities along your perimeters or within your property.

## ▶ ENVIRONMENTAL MONITORING

Streamline your operation and reduce monitoring costs with automated daily data collection. Detect and correct shadowing, soil erosion, and other environmental hazards on day one.



# ROBOT-AS-A-SERVICE

1

## ANNUAL SUBSCRIPTION FOR SERVICE

The Scout System is bundled into one annual subscription fee, encompassing the full suite of hardware, software, and services, allowing us to provide you the highest performing product at the lowest possible cost.

2

## REAL-TIME AUTOMATED OPERATION

Once installed, each Scout system operates at its maximum capacity. Automated missions occur multiple times per day, guaranteeing you the best data at the highest frequency.

3

## NO UPFRONT CAPITAL COSTS

The Robot-as-a-Service (RaaS) model allows American Robotics to retain the burden of upfront manufacturing and hardware costs. All you pay for is the service the Scout system provides.

4

## NO LONG-TERM RISK

Subscription fees are billed annually, and new units will automatically be swapped out at the end of the service life. American Robotics will also periodically install new software updates and provide access to the newest features., assuring industry-best performance throughout your subscription.

5

## NO MAINTENANCE RESPONSIBILITIES

American Robotics and its affiliates remotely oversee the operation of your units 24/7, and manage all routine and unscheduled maintenance requirements.

6

## NO PILOT TRAINING

Both the technology itself and American Robotics' staff oversee the realtime operation of your units. Health status and performance are constantly monitored to assure optimal performance, and no pilot training is required for your staff to integrate this technology into your business.

7

## COMPLIMENTARY CONSULTING

American Robotics' staff will work with your team to determine the ideal number of units, placement of units, initial setup, provide software tutorials, and manage any required regulatory approvals.



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*- Smithsonian Air & Space Magazine*

## HOW WE'RE DIFFERENT



### Fully-automated

It's either automated, or it's useless



### Designed for industry

End-to-end system optimized for solar



### Regulatory approvals

Required approvals for automated operation



### Field-proven reliability

Real-world autonomy is hard. We've achieved it.



### Industry-best tech

These are not toys. These are next-gen tools for your business.



### Edge computing

Install these systems anywhere. No ethernet required.

Automation is the only way that drones make sense for this industry and enable scalable operations. American Robotics has achieved both industry-best, field-proven technology and the required regulatory approvals to operate in the United States.

# HOW TO ACCESS

Connect with an American Robotics representative to schedule your complimentary consultation today. See below for contact details.



## CONTACT

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**Website** | [www.american-robotics.com](http://www.american-robotics.com)