



National Aeronautics and  
Space Administration



## TECHNOLOGY SOLUTION

### Sensors

# Directional UAV Localization of Power Line Ultraviolet Corona

Improved method of detecting power line faults

NASA's Langley Research Center has developed a novel system that uses an ultra-violet camera to detect, inspect, and analyze a corona discharge. This discharge signifies a power line fault, making the technology ideal for use in power line inspections. When coupled to a drone, the technology offers the ability to remotely monitor power lines in a cost effective way. Adding GPS technology results in precise location of power line faults.

#### BENEFITS

- Easily used with drones and combined with GPS for precise location of faults
- Libraries of typical UV images of corona discharges by component type (i.e. insulator vs conductor) can be added to the firmware to provide additional inspection capabilities
- Inexpensive



## THE TECHNOLOGY

This technology comprises a novel system of detecting, inspecting and analyzing a corona discharge using an ultra-violet camera. It is useful for a number of potential applications, most notably, power line fault detection. The most novel feature is that it uses UV instead of IR which has been problematical for corona discharge detection because there is too much interference from other sources. UV detection offers images that isolate the location of the corona discharge with far greater precision.



When coupled to a drone, the technology offers the ability to remotely monitor power lines in a cost effective way. Image credit: Pixabay/LoggaWiggler

## APPLICATIONS

The technology has several potential applications:

- Power transmission line inspection and fault detection
- Electric rail applications
- Trolley maintenance
- Wildfire detection and location

## PUBLICATIONS

Patent No: 11,204,274

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