

Drone Equipped Temperature Probing Hardware (DEPTH)

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Purpose

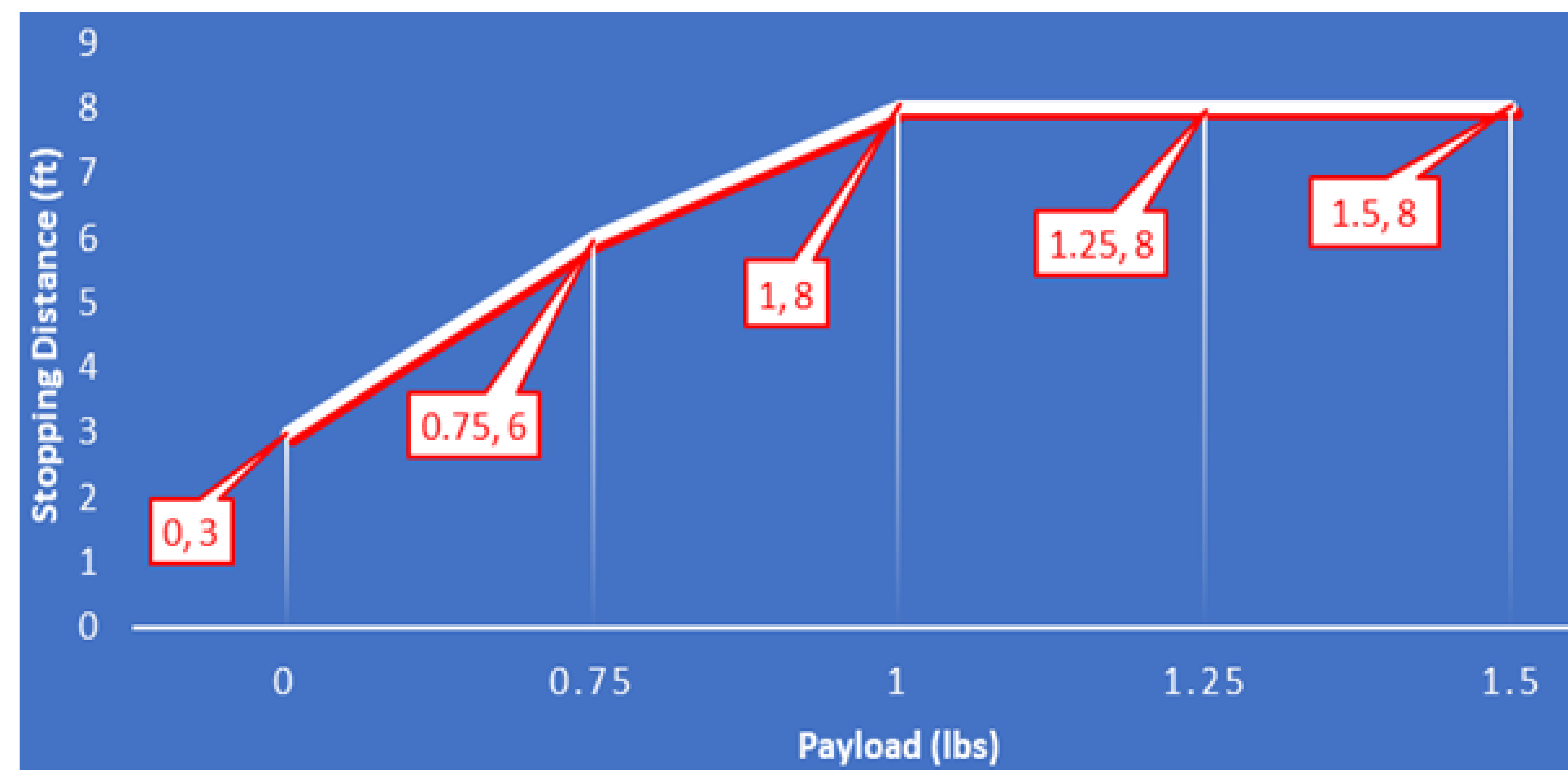
- Lake Erie's algae blooms are an annual threat to more than 11 million people [1].
- Harmful Cyanobacteria thrives in warm water columns with little vertical mixing.
- Probing temperature data throughout the water column can help researchers understand and predict Harmful Algae Blooms (HABs).



The Lake Erie algae bloom in 2017 [2]



DEPTH Flight Configuration



DJI Phantom 3 Payload (lbs) vs. Stopping Distance (ft)



Completed DEPTH Kit

Hardware

- Arduino Mega 2560
- LCD 1602 Module
- Membrane Switch Module
- SD Card Reader/Writer
- NEO 6M GPS Module
- Thermistor Probe

Features and Specs

- Fully Waterproof
- Weight: 1.25 lbs
- Flight Time: 8 minutes
- Baud rate
GPS and SD: 9600bps.
- Power Supply: 9V

[1] "Lake Erie Algae Blooms: Polluting Our Drinking Water." Alliance for the Great Lakes, [greatlakes.org/campaigns/lake-erie-algae-blooms/](https://www.greatlakes.org/campaigns/lake-erie-algae-blooms/).

[2] NOAA. (July 12, 2018). Smaller summer harmful algal bloom forecast for western Lake Erie [online]. Available: <https://www.noaa.gov/media-release/smaller-summer-harmful-algal-bloom-forecast-for-western-lake-erie>