



LIFE Tank Nexus

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Team Nexus



Aras Vakilimafakheri



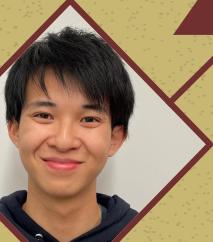
Tobi Ogundiwin



Pedro Betto



Alex Massoumi



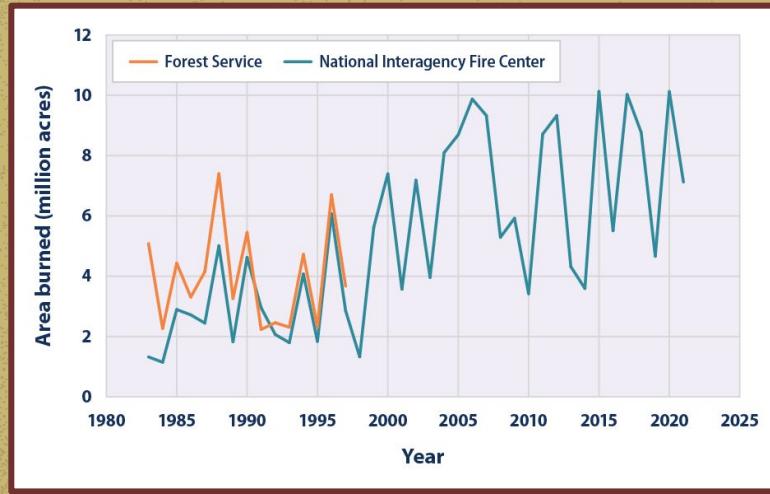
Brian Chen

Introduction

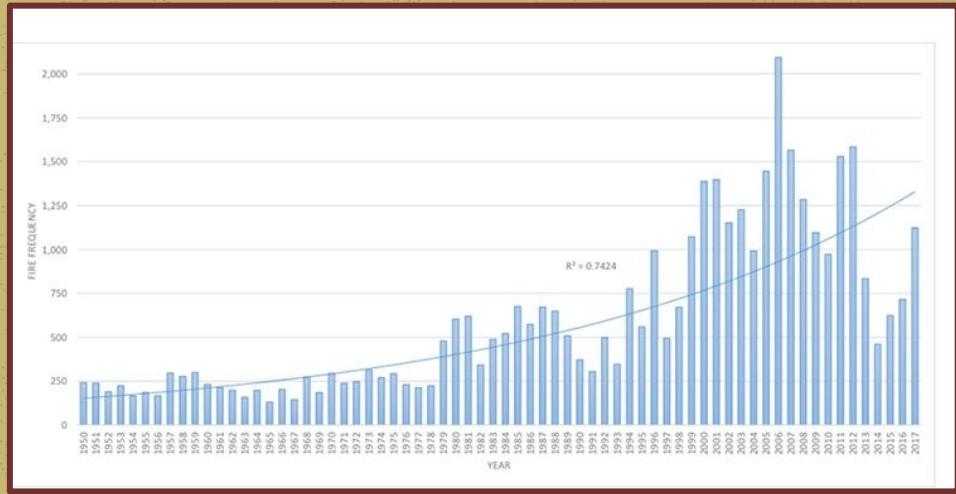


Wildfire Trends in the US

United States Environmental
Protection Agency



Graph of acres burned due to wildfire
annually in the US (1980-2023)



Frequency of Fires in the US
(1950-2017)

Current Technology

Wildfire Sensors



Satellites



- ❖ Can be difficult to place on certain terrains(ie. Rocky)
- ❖ High cost of initial implementation

- ❖ Difficulty detecting on cloudy days
- ❖ Struggle to detect very small fires

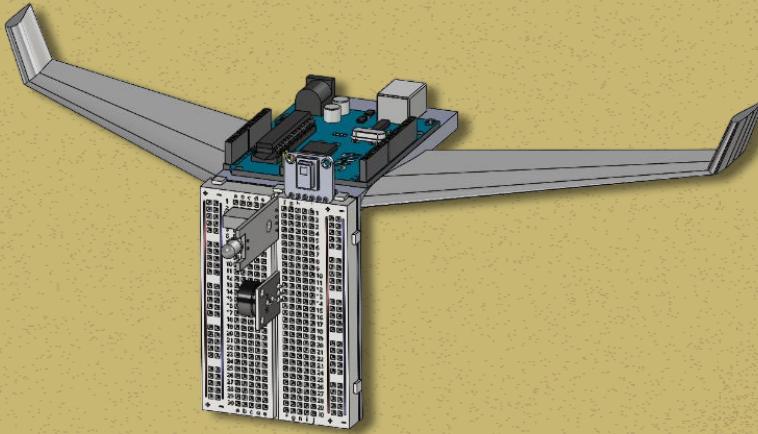
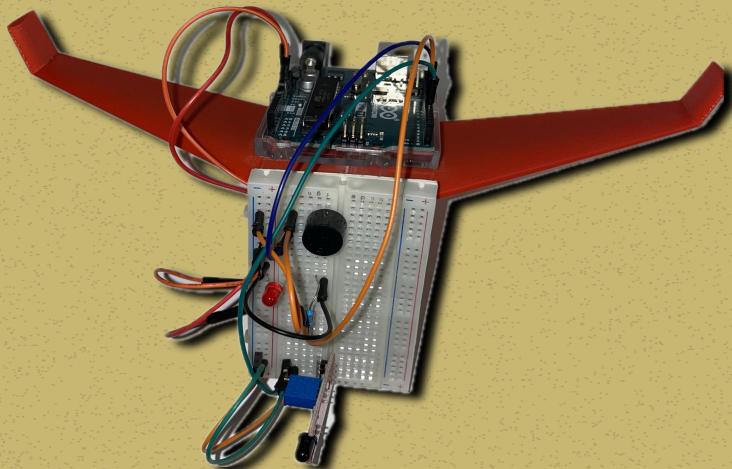
The Problem

Existing fire counter measurement methods face limitations in swiftly identifying wildfires in remote or rugged terrain.

Causing wildfires to continue to pose significant challenges across the nation.



Introducing: IGNIS



The Design and Demo

The Brain:

Arduino UNO R3



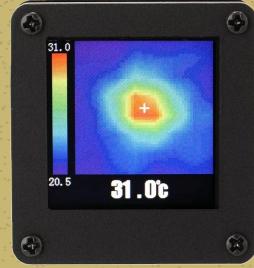
Fire Detection:

Passive Buzzer
triggered by Flame
Sensor



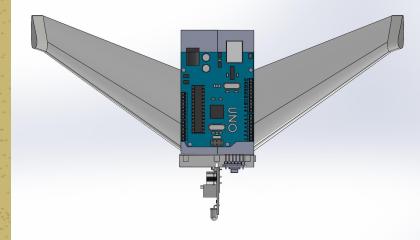
Thermal Imaging:

Amg8833 Ir Thermal
Imager Infrared
Camera



Glider Design:

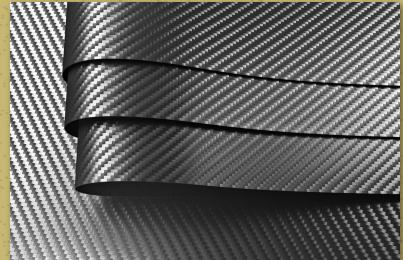
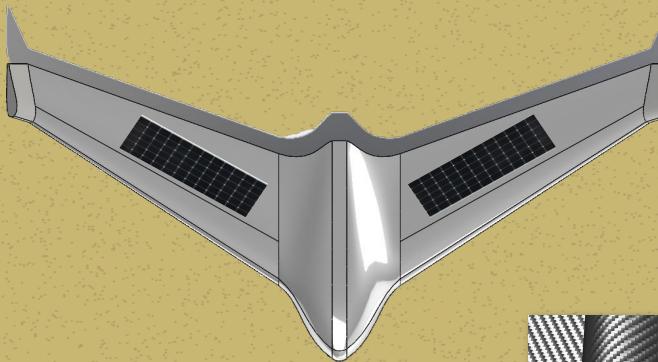
Lowers Drag and
Increases Lift



Advantages of Our Product

Mobility

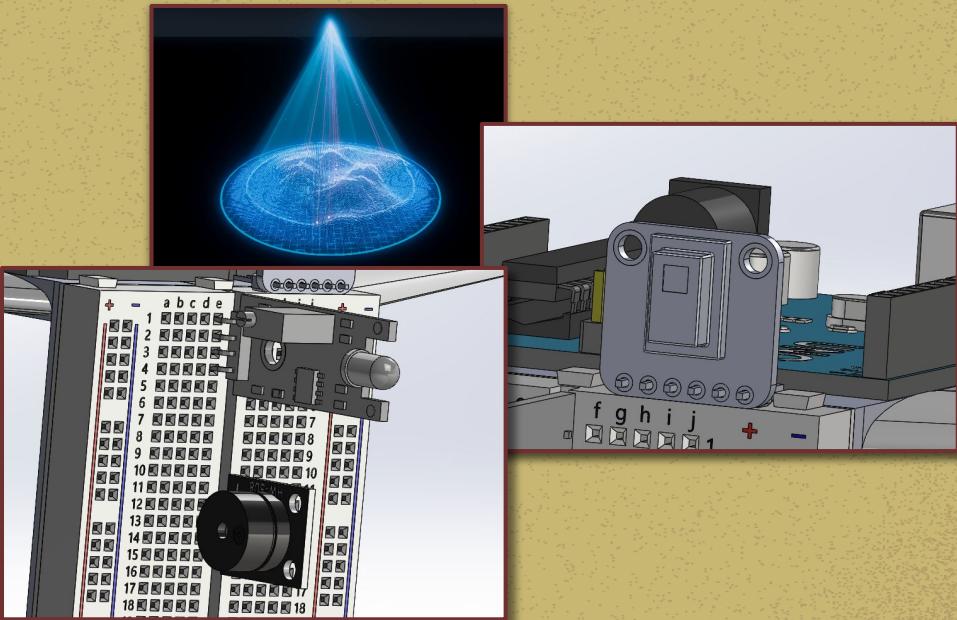
1. Able to operate in adverse conditions for long periods.
2. Navigate rugged terrain or inaccessible areas.



Advantages of Our Product

Speed

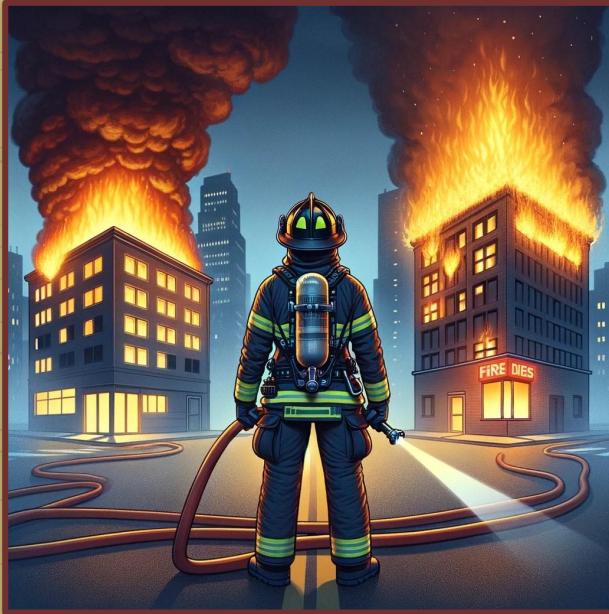
1. Swiftly survey large areas and pinpoint exact locations.
2. Enhance early warning systems.



Advantages of Our Product

Optimization

1. Make decision-making in wildfire management efforts, simpler



Target Market



Customer Proposition

Products	Affordable	Energy Efficient	Autonomous	Flight-Time Efficient
IGNIS	✓	✓	✓	✓
Delta Quad		✓	✓	
DJI Mavic 3 w/ Thermal		✓		
DJI Matric 30T		✓		✓

Product Cost Breakdown

Unit Cost		
Body	Carbon Fiber	62.50\$
	Aluminum	20\$
Techonology	Sensors	50\$
	Thermal Imagining	100 \$
	Board and Integratives	150 \$
TOTAL		382.50 \$

Future Plans

Data Transfer

- Work with our customers to develop communication software.
- Integration of AI for complete autonomy.

Design Improvement

- Apply the Engineering Design Process for further models.
- Consider sustainability factors and our customers need.

Questions?

