Ember Flash Aerospace

Innovating in Wildfire Protection and Response

Company Overview

Ember Flash Aerospace is taking a comprehensive approach to address climate disasters by providing more than just tools—it offers complete solutions. The company combines the expertise of its fire and emergency service professionals with the innovation of aerospace and software engineers to shape the future of disaster response.

Ember Flash Aerospace offers the off-grid wildfire monitoring system Vigilant and the ultra-long endurance UAS sensor platform Vigilant Sky, emphasizing that technology should be accessible, deployable, and user-friendly. The company utilizes affordable data collection, AI, and machine learning, including machine vision and large language models, to deliver real-time, multi-channel information that helps save lives and protect property.

Ember Flash Aerospace's commitment to revolutionizing climate disaster response stems from its experience with the 2020 California CZU wildfire. The company encourages communities to follow its progress, invest in its vision, and reach out to become part of the solution.

Ember Flash Aerospace

Mission and Values

Mission:

End Catastrophic Wildfires

Our Core Values:

Safety, Innovation, and Accessibility

Our Vision:

Empowered Communities and First Responders with Advanced, Reliable Technology

Vigilant Detect

Community Wildfire Protection

Protect your family, community, and property with an affordable, smart wildfire smoke detection system. Vigilant uses simple, low cost hardware paired with an advanced detection algorithm running on the cloud to notify you and emergency services of fire threats. Why is it important? Early detection means more time to react, control fires, and evacuate. Our mission is to ensure early, automated smoke detection in all vulnerable communities, making this essential technology accessible to everyone.

How does it work? Using custom designed and built 12 megapixel cameras and advanced cloud-based AI algorithms, Vigilant captures images every minute, analyzing them in real-time for signs of smoke. Instant notifications are sent to both property owners and local emergency services.

Who can benefit? You, your neighbors, your community, your employer, your business – everyone! Vigilant offers plans tailored to your needs, whether you're an individual homeowner, part of a community group like an HOA or FireWise community, or a commercial entity.

Stay tuned for more updates as we revolutionize wildfire protection together with Vigilant!
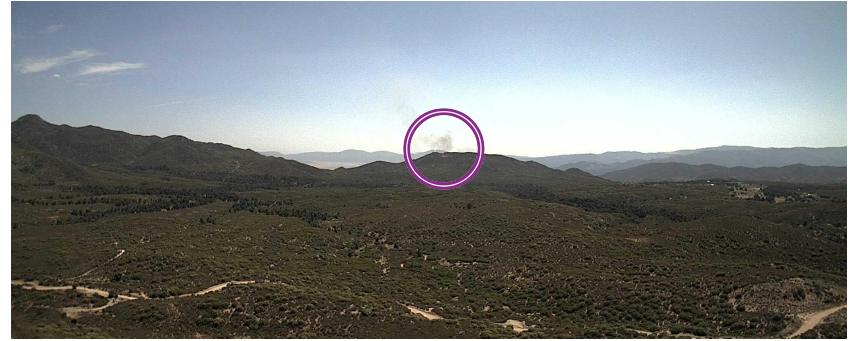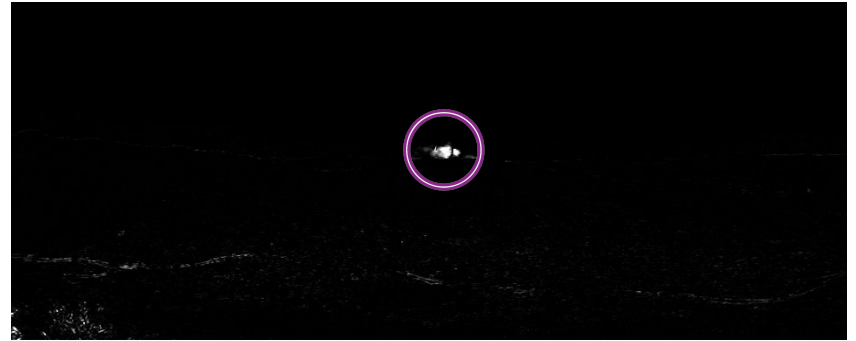
Early Detection

Our advanced 12 megapixel cameras function as intelligent sensors, continually scanning vast areas of the horizon, both near and far, to detect anomalies. These cameras can reliably identify and confirm the presence of smoke, even before it becomes visible to the naked eye.

By establishing a network of these sensors, we are able to improve our ability to accurately identify and verify the presence of smoke. This allows us to pinpoint precise coordinates of fire ignition points and assess their potential to spread, using a combination of real-time and historical data.

This technology enables firefighters to prioritize and respond to potential fires more rapidly, enhancing their effectiveness in protecting communities. Additionally, it aids firewise communities and individual homeowners in activating their defense and evacuation plans sooner, providing greater safety and preparedness.
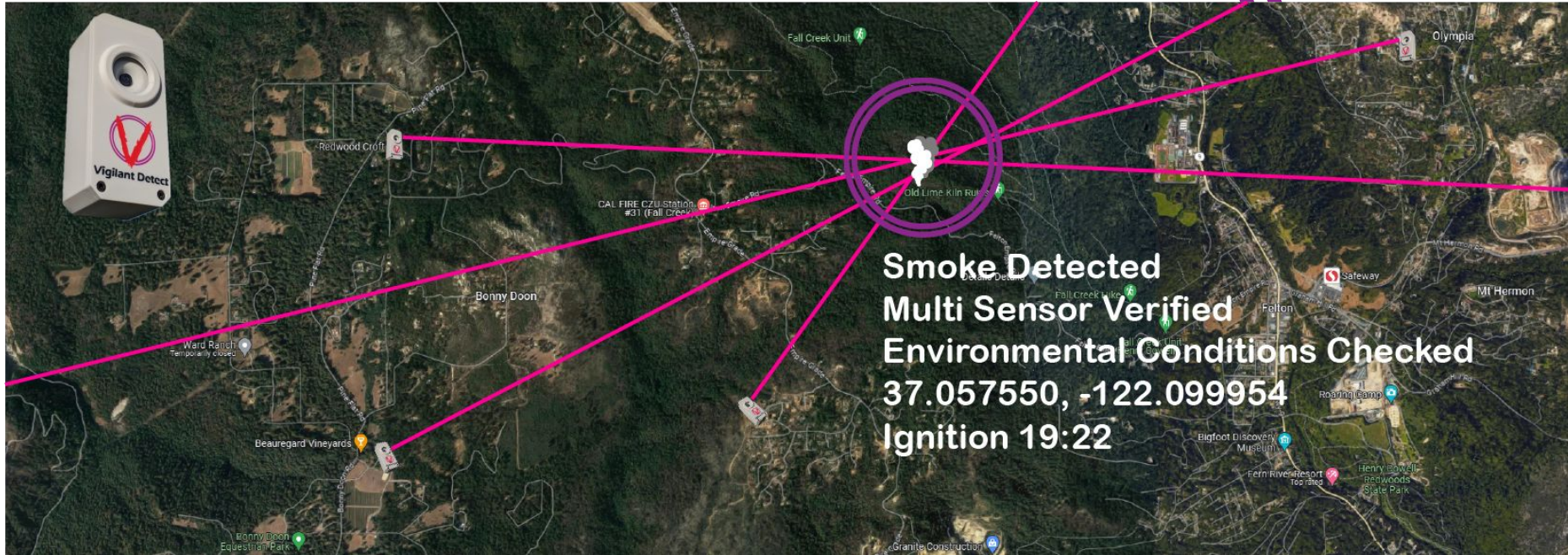

Smoke can be detected before its visible to the naked eye.

We use machine learning and artificial intelligence to detect, triangulate and verify the presence of smoke.

Community Detection

Smoke Detected
Multi Sensor Verified
Environmental Conditions Checked
37.057550, -122.099954
Ignition 19:22

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Privacy and Security

At Ember Flash Aerospace, we prioritize privacy and security from the start. Our early smoke detection system is designed with care to avoid functioning as a surveillance system. Our cameras act as sensors, using advanced machine-learning algorithms to identify potential smoke within their view. Our AI then verifies whether the smoke is from an accidental fire rather than from sources such as campfires or chimneys.

Images are only transmitted to our servers once per minute and deleted unless smoke is detected, indicating an active event. We preprocess the image feed to enhance quality and resolution if necessary and format the frames for analysis.

Our system uses pre-trained AI and machine learning models, including convolutional neural networks (CNNs), to identify human figures in video frames. Once a person is detected, our technology outlines their position within the frame. Our system obscures the faces or other identifying features of detected individuals for privacy by removing their pixels from the frame.

At Ember Flash Aerospace, we protect your privacy while delivering accurate and efficient smoke detection solutions.
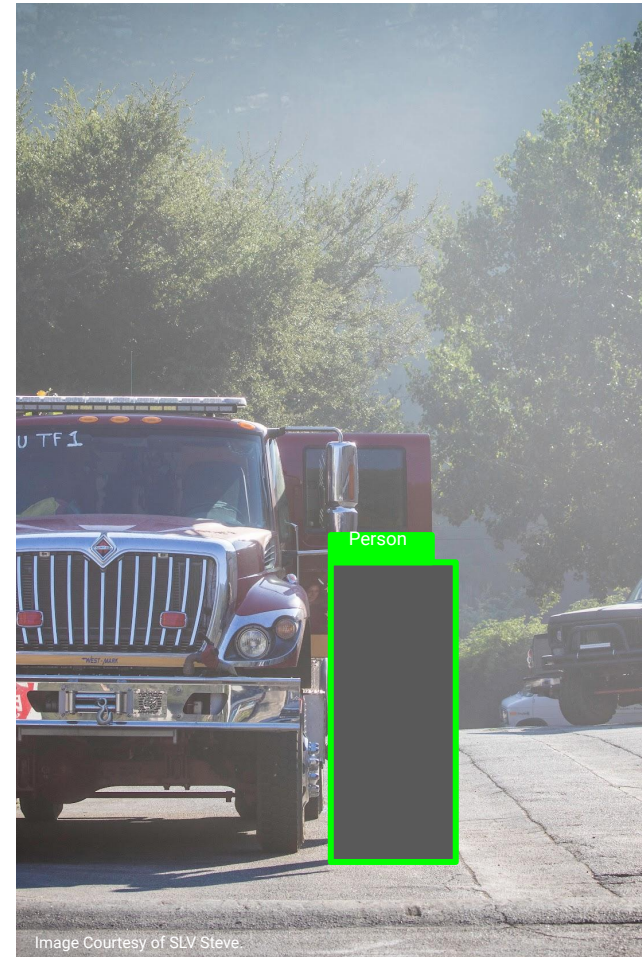

Person

Image Courtesy of SLV Steve.

The image shown is for illustrative purposes only. It represents the removal of human features in our video footage to ensure privacy and does not depict actual footage captured by our system

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May 1st 2024 Launch

We are excited to introduce our Smoke Detection Cameras! (Vigilant Detect) The initial batch will be available for purchase starting May 1, 2024, with a substantial discount. As we expand production, we're offering pre-sales for future batches of cameras. To reserve one of our first cameras, email us at info@emberflash.com or go to www.smokecamera.com and order there. We will get in touch with you to set up your new camera and subscription.
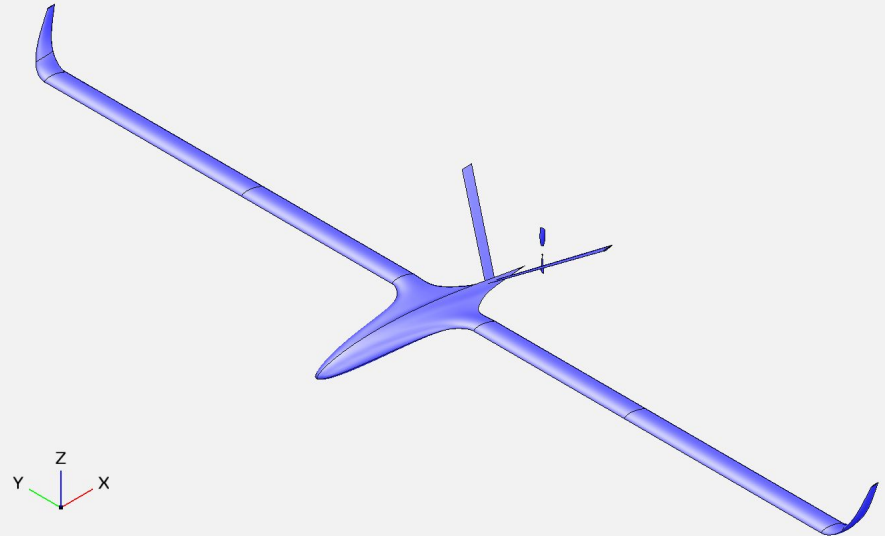
UAS

Phoenix UAS

We're committed to addressing issues methodically to protect communities now and in the future. Our long-term strategy focuses on deploying UAS equipped with advanced sensing and communications technology. These UAS, using data from a network of Vigilant smoke detection camera sensors, will detect wildfires early and navigate to the site to provide robust multi-channel communication options for first responders. Additionally, they will offer predictive modeling that supports fire professionals by providing real-time insights and assessments without requiring first responders to learn or handle unfamiliar equipment.

Rendering of our Advanced wildfire monitoring UAV.

XPRIZE Wildfire

Ember Flash Aerospace's commitment to wildfire prevention is founded on a profound understanding of the catastrophic consequences wildfires pose. The company has developed state-of-the-art aerial and ground-based systems that leverage cutting-edge AI, robotics, and remote sensing technologies. These solutions are designed to enhance early detection, rapid response, and effective suppression of wildfires.

XPRIZE brings together the brightest minds, visionaries, and technology pioneers from around the world. Ember Flash Aerospace is excited to collaborate with other innovative teams, and the competition will serve as a platform to showcase the company's dedication to wildfire prevention.

Experience United by a Common Cause

In the wake of the CZU fire's devastation, our team assembled at the historic Brookdale Lodge. United by a shared resolve, we committed to developing advanced technological solutions for wildfire protection.

We intimately understand as community members, first responders, scientists and engineers, and business leaders the need for innovative solutions. It's happened to us, and we want to help make sure it doesn't happen to anyone else.

Our Team

Dr. Lee Kohlman
Co-Founder

Joseph Norris
Co-Founder

Chief Steve Lindsey
Technical Expert

Brian Barbe
Embedded Systems Engineer

Paul Faraone
Flight Test Engineer

Zach Ackemann
Deputy Operations Manager

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Quotes from our team

Joseph Norris

Co-Founder

At Ember Flash Aerospace we recognize that the challenge of wildfires is a persistent and evolving threat to both communities and ecosystems. Instead of merely reacting to fires after they have started, we see an opportunity to leverage technology for proactive solutions that can make a significant impact.

Every aspect of our work—from the design and deployment of our custom 12 megapixel cameras and drones to the development of advanced algorithms and machine learning models—is guided by our commitment to the safety and well-being of our end users. Our goal is not just to build cutting-edge technology for its own sake, but to create solutions that are practical, efficient, and effective in saving property and lives.

Our resilience in the face of this complex challenge drives our innovation. We continually refine our products and services based on real-world feedback and data, ensuring that they are tailored to meet the specific needs of those on the front lines of wildfire prevention and response. This iterative approach allows us to adapt and evolve, staying ahead of the problem and paving the way for a safer future.

By focusing on the challenges at hand and turning them into opportunities, we are shaping a future where wildfires can be detected and managed before they become devastating disasters. This vision motivates us to push boundaries, think creatively, and pursue excellence in everything we do. Through resilience and determination, we are transforming the way wildfires are approached, making communities safer and more resilient.

"Challenges are opportunities in disguise. Our resilience fuels our growth and shapes our future."

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Dr. Lee Kohlman

Co-Founder

"We are filled with confidence and enthusiasm for the launch of Vigilant Detect. It's an exciting opportunity to be actively involved in protecting lives and property this fire season,"

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Steve Lindsey

Technical Expert

"Responding to the CZU wildfire and insurability challenges, we at Ember Flash Aerospace are accelerating the release of our V-Detect wildfire cameras this summer. By offering this affordable technology, we aim to enhance home insurability and community safety, providing SLV locals and first responders with crucial support when it's needed most."

Ember Flash Aerospace

Paul Faraone

Flight Test Engineer

I'm super excited to be a part of the Ember Flash team. We were born out of the tragedy of the CZU fire and we're here to eliminate the risk of wildfire loss, our innovative approach to detection and suppression will lead the way on how fires are detected and fought.

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