



Industry Expert

Sunny Sethi,
Founder and CEO of
HEN Technologies
discusses
transforming fire
suppression and
building problem
solving technology

BEYOND *the* nozzle

The smell of smoke has become an unwelcome but familiar scent for millions, a stark reminder of a world where fires are growing in both frequency and ferocity. From the megafires in California to structures burning faster than ever due to modern synthetic materials, the challenge of fire suppression has reached a critical point. Yet, the core technology used by firefighters on the front lines has remained largely unchanged for over 50 years.

This stagnation is what caught the attention of Dr. Sunny Sethi. A scientist with a Ph.D. in polymer physics and a background leading innovation in high tech industries, Sethi is not a firefighter; he is a problem-solver who saw an entire sector ripe for a technological revolution. In 2020, as COVID-19 gripped the world, California was simultaneously battling one of

the worst fire seasons in its history. For Sethi, this was the tipping point that led to the founding of HEN Technologies, a company with a mission not just to build better equipment, but to create an intelligent, data-driven platform for the entire fire suppression ecosystem.

“High-performance hardware is the foundation of our fire suppression platform.”

We sat down with Sunny Sethi to discuss his journey, the systemic issues in firefighting and how HEN is building the technology to solve them.

You're a physicist, not a firefighter. What drove you to dedicate yourself to modernizing this industry?

The motivation was deeply personal. Living in California, you see the devastation of wildfires firsthand and there's a constant fear that your house could be next. The tipping point for me was in 2020. The world was dealing with the pandemic and here in California, we were facing historic fires. It felt like a crisis on top of a crisis. Frustrated by these fires, my wife Kanika, asked me to do something about this growing crisis. As I started researching, I found that the fires have become exponentially more dangerous in last two decades, the technology used to fight them is over half a century old. The hardware seemed to be designed more for ease of manufacturing than for performance on the fireground. I saw an innovation gap and a unique



opportunity to apply modern science and technology to modernize a sector that impacts us all.

You describe fire suppression as a “multi-tiered operation.” What are the key points of failure in the current system that HEN is trying to solve?

It's a system-wide problem. At the first tier, you have the firefighter at the “tip of the spear” with a nozzle and hose. With the old technology, firefighters had to choose between large droplets and penetration of smoothbore nozzles or versatility of fog nozzles. No one solution was available that could provide an ideal stream.

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The next tier is the fire engine, which provides water. The pump controls on engines require firefighters to do manual calculations. In highly dynamic scenarios like progressive hose lays in wildland operations,

both friction profile in the hose and elevation are changing. This can lead to over or under pressure at the nozzle. Flowing the correct GPM is critical in such operations. This brings us to the third tier: the deploying of resources. Without suppression data, we can't build the predictive models needed for efficient deployment.

Your first products were high-performance nozzles. How do these physical tools serve as the foundation for your larger technology platform?

We had to start by solving the most immediate problem for the firefighter. Funded by US National Science Foundation, we used advanced computer simulations to design handline package—nozzles, valves and back pressure devices. These products were designed grounds up to tackle core issues around suppression rates, water consumption, hose kinks and nozzle reaction. This delivers immediate, tangible value. Firefighters can put out fires faster and more safely.

But for us, that's just the beginning. This high-performance hardware is the foundation of our fire suppression platform. Now we are in process of launching, Titan, one of the most advanced master stream and monitor systems in market. We have also started embedding our next-generation products with IoT sensors. This will turn them from simple tools into the data-capturing endpoints of a connected system.

How has market reacted to these transformations?

The validation has been incredible. We started commercializing in 2023 our products have been adopted by over 1,000 organizations globally, including some of the largest fire departments in the country. We've also established a robust distribution network with a presence in over 15 countries. Beyond fire departments, we have pilots running in marine applications, aviation and petrochemical industry. This traction validates our approach: build best-in-class technology to solve real world problems in close collaboration with our customers.

Can you speak a little bit about where HEN Technologies is headed in next two years?

As we continue to innovate to serve our firefighters, our vision is to take our disruptive foundational technologies and augment them with advanced sensors and machine learning models for enhanced controls at the pump. Our long term vision is to an AI operating system for fire suppression, Fluid-IQ. This system will seamlessly integrate handline tools with engine pump controls. This system will be smart enough to automatically adjust for changes in hose length or elevation to always maintain the perfect flow rate. The system is based on proprietary reinforcement learning models that will be able to provide predictive insights and automated coordination on battalion level. ■