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FireDrone
Revolutionize safety and efficiency in extreme temperature environment operations

In a nutshell

Firefighters and industrial inspectors often operate in environments with extreme heat, such as tunnel fires, wildfires, or inside industrial ovens and chimneys. Current tools are inadequate or unsafe for real-time assessment and data collection in such hazardous conditions.

The FireDrone is the world's first aerial robot designed to withstand sustained temperatures up to 200°C. It enables real-time visual and infrared data transmission in high-heat zones, enhancing situational awareness and decision-making in mission-critical scenarios. Built using proprietary superinsulation materials and cooling technologies, the FireDrone sets a new standard in robotic performance for hostile environments.

Why is our technology important?

Firefighting and industrial inspection tasks in high-temperature environments are among the most dangerous and technically challenging operations faced by first responders and maintenance teams. In such situations - ranging from tunnel fires, building fires and wildfires to inspections of furnaces, chimneys, or industrial ovens - access to real-time information is limited or entirely unavailable. This lack of situational awareness puts human lives at risk, increases response time, and leads to significant financial and operational losses.

The FireDrone addresses these challenges by enabling safe and efficient remote assessment of extreme heat environments. By transmitting both visual (RGB) and thermal (IR) footage in real time, it empowers decision-makers with the critical information they need to act quickly and effectively. Unlike conventional drones, which fail at high temperatures, the FireDrone is built with a polyimide aerogel insulation and an innovative internal cooling system, allowing it to operate in temperatures up to 200°C for more than 10 minutes. This unique capability opens new possibilities for robotics in areas previously considered inaccessible, setting a new standard for safety, reliability, and performance in extreme conditions.

The benefits of our solution

- Operates at temperatures up to 200°C for over 10 minutes
- Enables remote visual and thermal assessment in real-time
- Provides critical data for faster and safer decision-making
- Reduces downtime and cost for industrial inspection by avoiding full shutdowns
- First drone solution designed specifically for extreme temperature environments

Keywords

robotics, drones, aerogel, insulation materials, extreme environments, industrial inspection, search and rescue

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