# Revolutionizing Firefighting and Geospatial Data: Innovations by Robotto's FireAI and ISRO's Bhuvan Platform



**Robotto's FireAI Revolutionizes Firefighting with Autonomous Drones**

Robotto, a company stemming from a university project, has introduced FireAI, an edge-level AI solution to enhance firefighting operations through autonomous drones. Co-founded by Kenneth Richard Geipel, who serves as CEO, the company aims to tackle the issue of outdated data in wildfire management.

FireAI employs drones equipped with small GPUs for on-the-spot data processing, enabling real-time situational awareness. The drones autonomously navigate fire-prone areas, detecting fires through thermal cameras and immediately mapping them out for first responders. Geipel, who has a background in the Danish Armed Forces, emphasizes that this technology eliminates the data delays typically faced by firefighters.

The system operates without needing constant data transfer, making it versatile for use globally, even in areas without satellite connections. It also offers post-operational reviews by detecting hotspots that can help in wildfire mop-up phases. Integration with services such as WhatsApp allows immediate sharing of fire maps within firefighting teams.

FireAI has been developed in collaboration with various emergency agencies, including the Danish Emergency Management Agency and NASUWT. While resistance exists due to the traditional nature of firefighting and concerns over airspace conflicts with manned aircraft, Robotto has incorporated features allowing manual control over the drones to mitigate such issues.

Robotto is currently working on broadening FireAI's applications to include search and rescue and flood mapping. They are also integrating the system into fixed-wing aircraft to extend operational time. Kenneth Richard Geipel, leveraging his armed forces experience and interest in robotics, continues to steer Robotto toward innovative solutions in emergency management.

**ISRO's Bhuvan Platform Enhances India's Geospatial Data Usage**

ISRO has reached a significant milestone with the launch of Geoportal-Bhuvan, a platform delivering geospatial information ten times more comprehensive than Google’s offerings. Announced by ISRO chief S Somanath, Bhuvan is crucial for sectors such as agriculture, urban planning, and disaster management.

Bhuvan-Panchayat and the National Database for Emergency Management (NDEM) are key features of this platform, integrating local governance with GIS data for improved decision-making. Bhuvan-Panchayat provides exhaustive datasets to over 250,000 village councils, while NDEM enhances ISRO's disaster response capabilities and has assisted in managing over 500 disaster events.

The platform stands out for its high-resolution satellite imagery—up to 1 meter per pixel—specific to India’s needs, like land use and environmental monitoring. Unlike Google Earth, Bhuvan offers specialized data layers and applications for natural resource management, making it indispensable for environmental monitoring in India.

Both public and private sectors benefit from Bhuvan. For instance, the partnership with MapmyIndia integrates ISRO’s satellite imagery with detailed maps, supporting vehicle navigation systems. Government entities use Bhuvan for various monitoring and governance purposes, including asset geo-tagging and watershed management.

Launched in 2009, Bhuvan has steadily advanced in image resolution and application areas. Celebrating its 15th anniversary in August 2024, Bhuvan remains a pivotal tool in India's geospatial landscape.