



System for environmental fire risk monitoring

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Pillar ENVIRONMENT – Spoke 7 / WP3

SAMOTHRACE 2nd Year:
Experimental Prototypes Demo Showcase

SAMOTHRACE PROJECT ECS00000022

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Addressing the Wildfire Challenge: Needs, Limitations and Market Opportunity



Problem Definition

Wildfires pose a growing threat to the environment, biodiversity, and local communities. An effective monitoring system is crucial for prevention and rapid response.

Target Audience

The target includes government agencies, fire departments, environmental organizations, and agricultural businesses operating in high-risk areas. Their primary need is a cost-effective early detection system that enables timely intervention, preventing devastating damage.

Limitations of Existing Solutions

Traditional smoke or heat detection systems are expensive and less suitable for vast remote areas. The LoRaWAN-based system overcomes these limitations with wide coverage, low energy consumption, and AI-powered predictive analysis, enhancing prevention capabilities.

Market Opportunity

The global market for wildfire monitoring systems is growing, with increasing demand for IoT solutions in environmental management.



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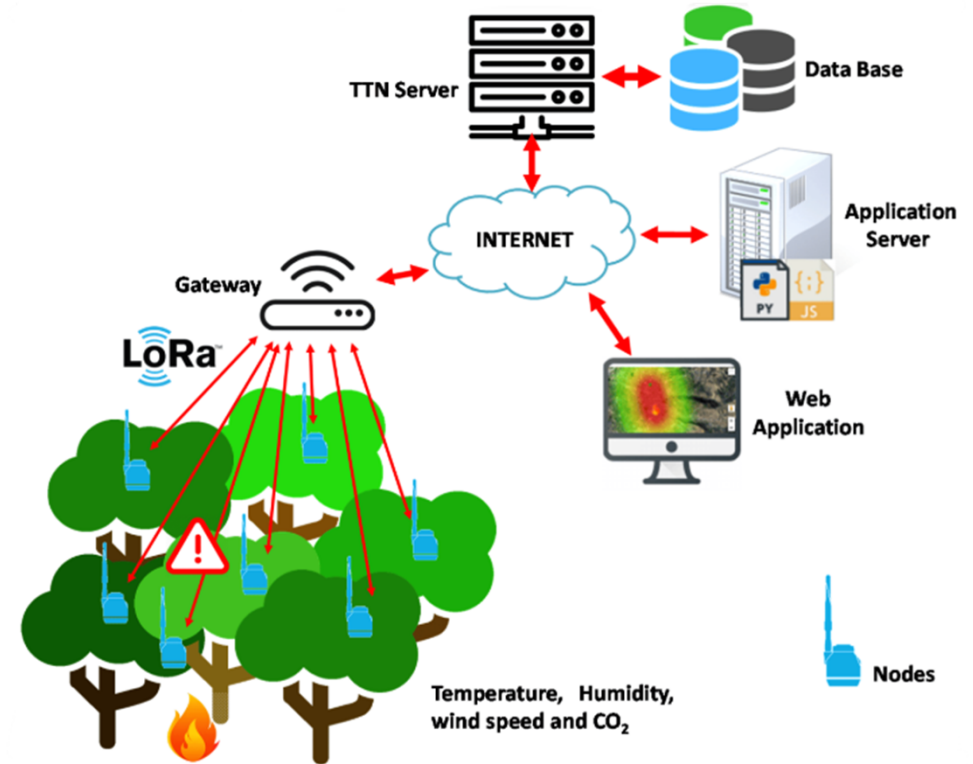


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Our solution uses a **LoRaWAN gateway** that collects data from **IoT sensors** in remote environments, such as forests. The **AI** analyzes the data in real-time, detects anomalies, predicts wildfire risks, and triggers automatic alarms, ensuring:

- **Continuous monitoring** without the need for complex infrastructure
- **Wide-area coverage** even in remote locations
- **Rapid response** to prevent environmental damage

A key result that validates our approach is the system's ability to detect risk conditions with higher accuracy than traditional methods, thanks to predictive AI, significantly improving wildfire prevention.



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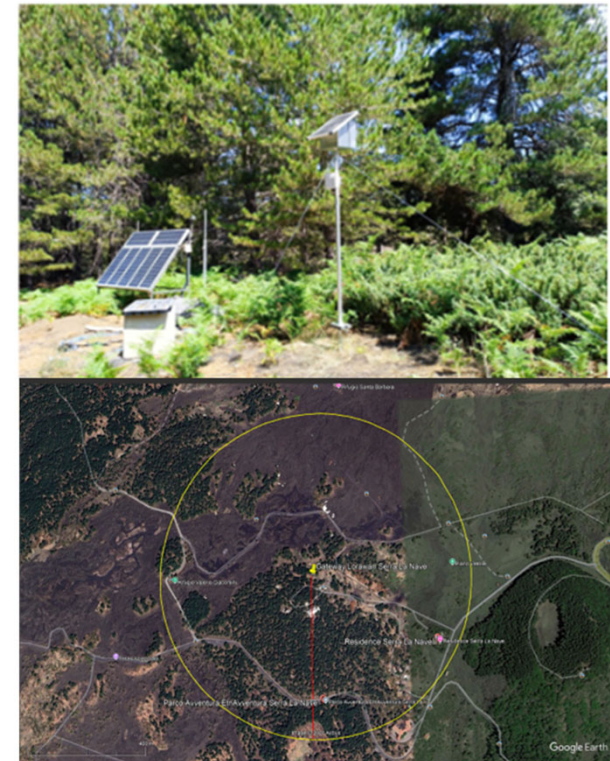
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The project originated from the need to develop an effective system for early wildfire monitoring. Initially, the technology was at TRL 3.

Thanks to SAMOTHRACE funding, the project has achieved significant milestones:

- **Development and testing of working prototypes**
- **Optimization of AI algorithms**
- **Demonstration of the system under relevant operational conditions**

The technology has reached **TRL 5** through real-world testing, confirming its effectiveness compared to traditional solutions. The tests were conducted in collaboration with **INGV** and **INAF**.



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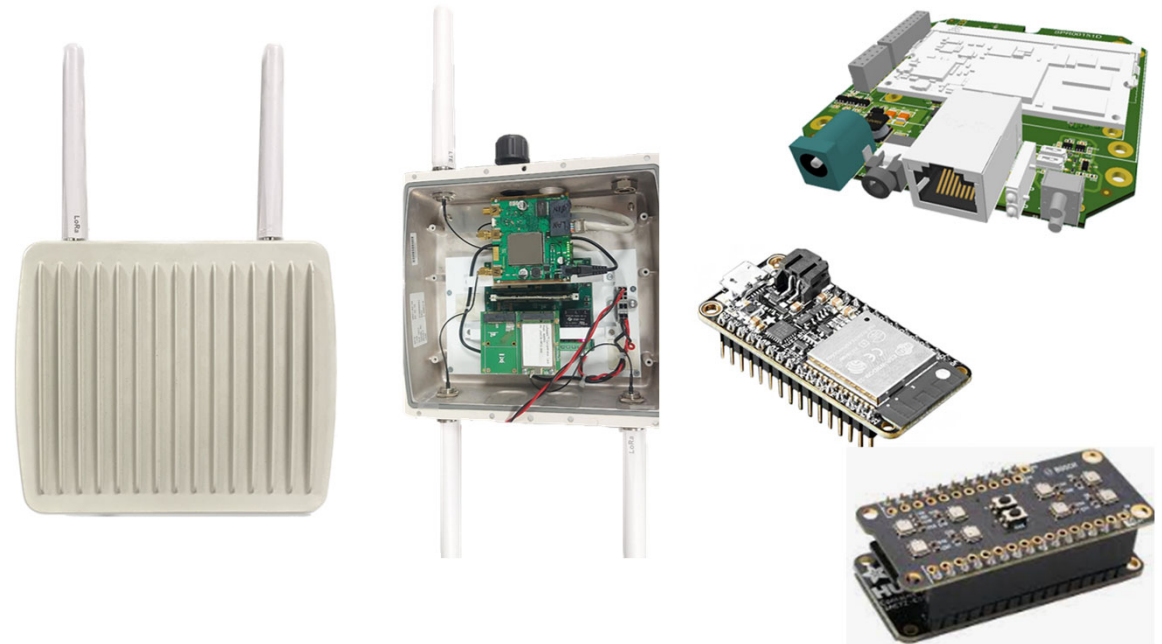


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The final goal is to reach **TRL 7** by the end of the project.

To achieve this milestone, the following progress will be necessary:

- **Testing of the system in environments with continuous monitoring** and automatic alarm responses;
- **Large-scale implementation** of the system in a sensor network to cover vast areas without compromising detection quality.
- **Further development of IoT devices with AI**;
- **Complete installation** of the solution at the testing site.



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Acknowledgment



Demo location:

- Belpasso (CT), Bivio Aspro Zona, Industriale Piano Tavola
- Serra La Nave (Mount Etna)

**VISIT OUR DEMO AT
BOOTH N. 56**



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