

# Smart Protection Against Forest Fire

Milesight Helps to Improve Smart Forest, Forest Monitoring and Fire Prevention Outdoors

in Florina, Greece

LoRaWAN

Milesight Partner

CYRIC IoT

Location

Florina, Greece

Applications

Smart Forest, Forest Monitoring, Fire Prevention Outdoors

Number of Devices

75\* EM500-CO2 Outdoor Environment Monitoring Sensors

BACKGROUND

CHALLENGES

PROJECT

RESULTS

PARTNER

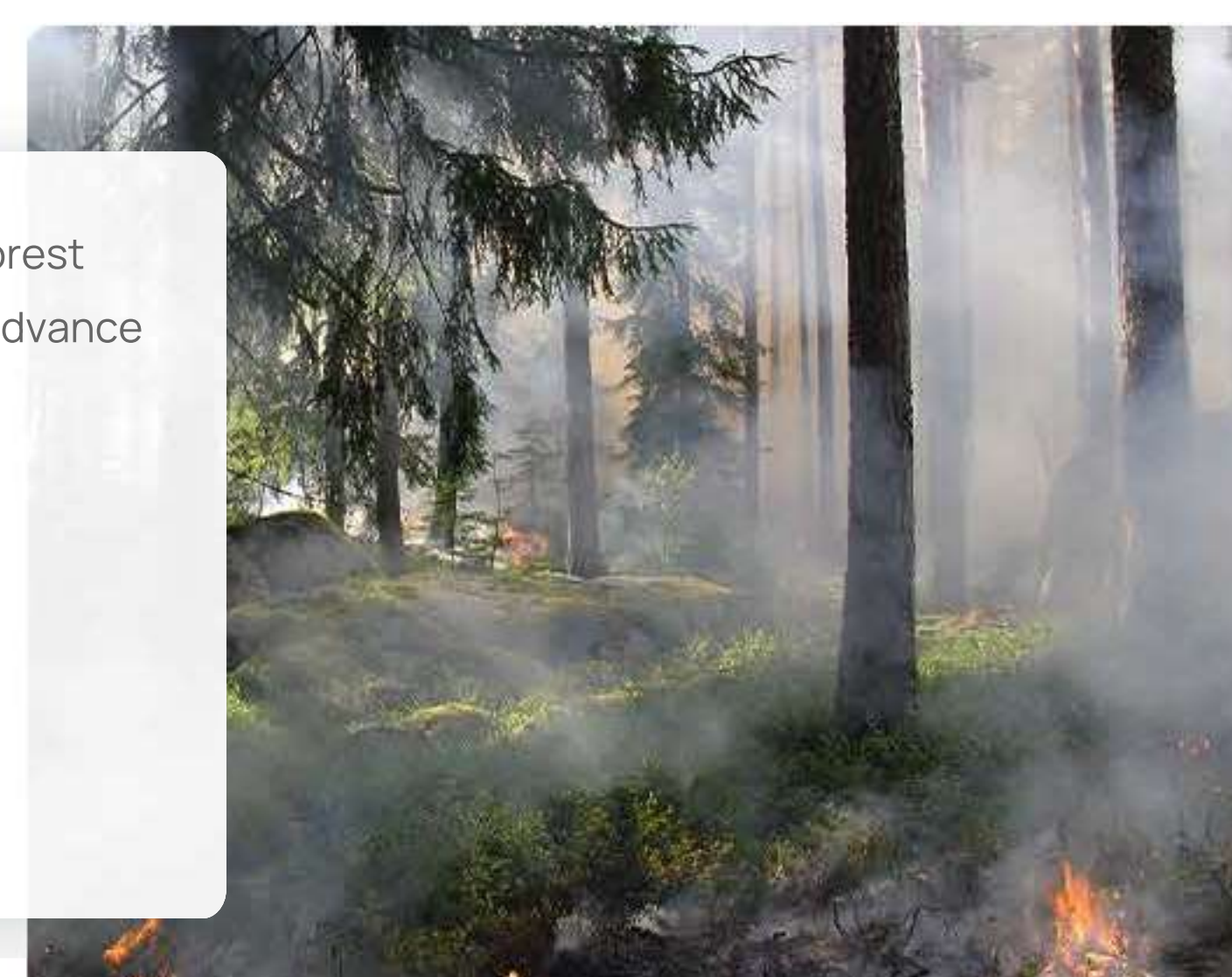
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## Background

The forest area occupied is reducing each year. The reasons behind these environmental impacts are natural disasters (forest fires), deforestation activities, and unlawful actions. The main consideration of the project is to better detect wildfires in advance and protecting forest resources from social crimes through advanced sensor integration in the IoT (Internet of Things) environment.

### Applications

- Smart Forest
- Forest Monitoring
- Fire Prevention Outdoors



## Challenges



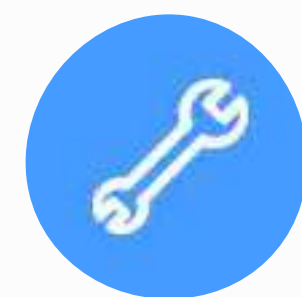
### Short-range Connectivity Issues and Problems

In the large areas, especially in outdoor environment, approaching a stable and long communication between device is a common barrier for users to deploy new technology.



### Harsh Environment and Insufficient On-site Maintenance

The changing weather and temperature in outdoor places will lead to a problem of device maintenance. And the product with long operational lifespans is a high requirement for most devices on the market.



### Limited Budget and Complicated Installation

The complicated installation also expose issues in the outdoor areas when it comes to a scalable devices deployment. Also, of which, may lead to an increase of operation cost at most places and projects.



### Delayed Alert and Late Response

The forest fires often comes fast and is a widespread threat. However, with the shortage of protection and information transmission methods, it will finally falls down to the negative effect on the economy and environment.

## Solution



Forest Fire



EM500-CO2 Carbon Dioxide Sensor



Third Party LoRaWAN® Gateway



CVRIC IoT Web Platform and CyRIC IoT Mobile Application



App/Web

The forest fire may be avoided if a reliable technology could be built up in forest areas to detect fires and warning to firefighting authorities, who will be available to take the prompt action. Through a network of low-cost sensors, the solution intends to anticipate the environmental conditions conducive to the occurrence of fires and to detect them at the beginning.

Thus, a smart forest alert monitoring system has been proposed in this solution to avoid forest mishap over by automated self-decision-making protective actions such as parameter measures and alert and implementing the harm mitigation actions related to the hot temperature, CO<sub>2</sub>, humidity, smoke, and smuggling of trees. With real-time monitoring, the alerts generated by the system will improve the response time, so as to protect the economic and natural value of private property.

The Milesight partner process establishment of LoRaWAN® wireless coverage at the areas where the sensors must be deployed, as well as the installation of LoRaWAN® battery powered environment monitoring sensors at the forest areas indicated by the customer. After installing the LoRaWAN® Gateway, the LoRaWAN® network can help to perform a coverage study that indicated the required coverage is provided. The Milesight EM500-CO<sub>2</sub> sensor deployed at the forests will detect and measure the critical parameters that indicates the happening of fire. The data will be forwarded to the IoT-based platform that is able to store, analyze and presents further reports and information for the operators. The platform also performs post-data analysis running a fire probability algorithm (fire index) resulting in the probability of fire at any given time of the day. If the fire index exceeds the pre-defined thresholds an alert is generated and the authorities are notified to respond to the incident.

All the sensors work as per the algorithm designed by the specific application of IoT (Internet of Things). The accurate predictions of the forest fire events and ensuring the forest safety have been tested and verified by a conducted solution on the real forest zone environment.

The growing contribution that local are making to these solutions further emphasises the importance of advanced technologies to the future of forests protection.

## Highlights of the Smart Forest Solution

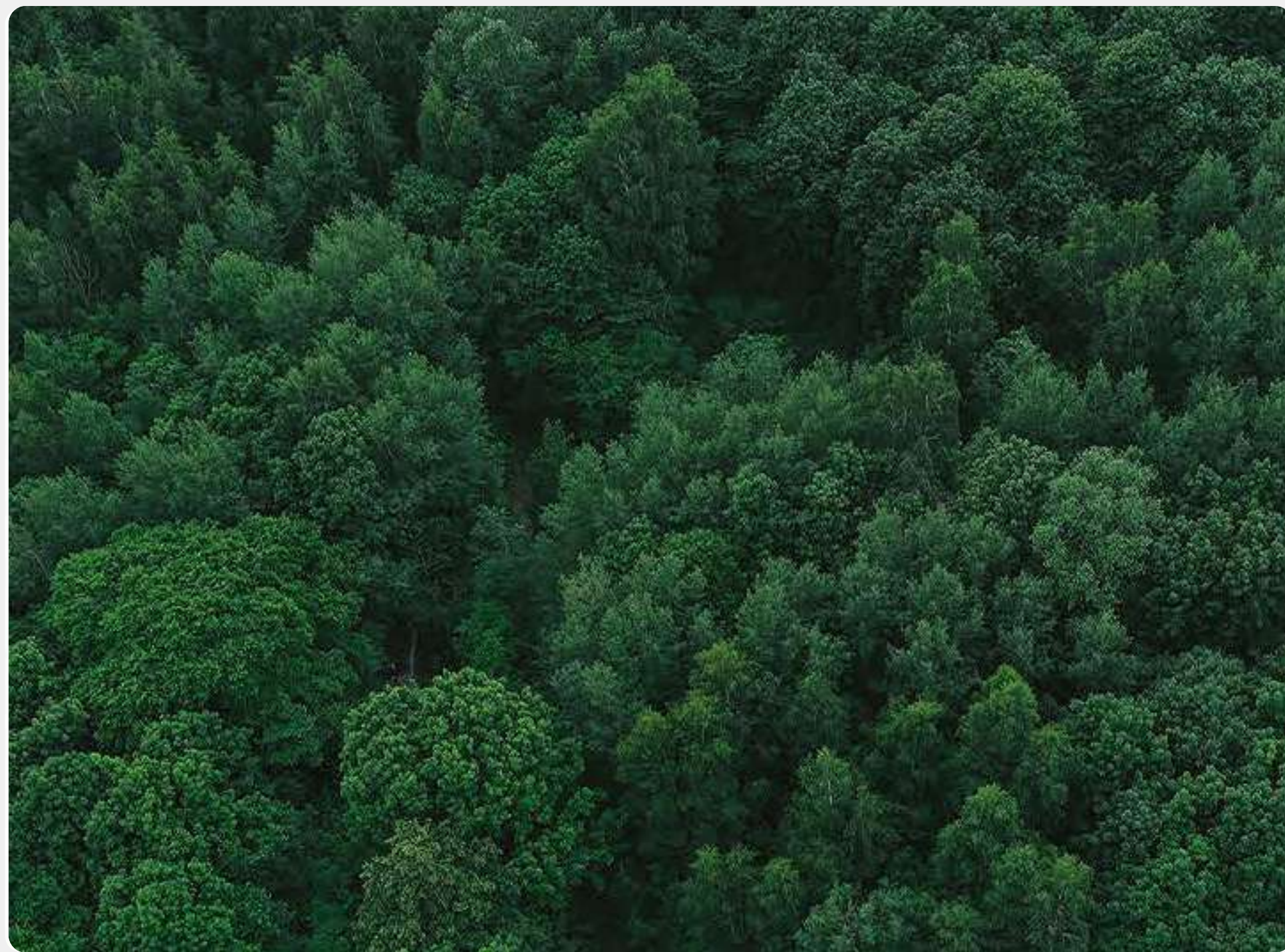
The suite of IoT tools including a Cloud based platform and mobile devices applications are being used in the project providing:

- Storage of Data.
- Presentation of Data.
- Post-Data Analysis generating the "Fire Index" which refers to the probability of fire deriving from the collected measurements from each sensor (Ambient Temperature, Ambient Humidity, Barometric Pressure and CO<sub>2</sub>).
- Generation of alerts when the "Fire Index" exceeds the pre-defined thresholds.
- Notify the system admins and user when an alert is generated through Email, SMS and Push Notifications.





# Results



## Become Much More Mindful of the Security Risks

The solution can help take prompt response to alerts and remove the threats and barriers to the exponential growth of forest and economy. Users can easily break even on their investment.

## Improve Operational Efficiency

The real-time visibility and management of remote equipment that can help you quickly spot outages, predict maintenance, and also increase worker safety and efficiency by deploying wireless sensors networks instead of people into dangerous work environments.

## Increase Network Resilience

The LoRaWAN® connectivity solutions that are built to last. It can be rapidly expanded network without compromising service level and reduce operating cost.

## End-Customer

Teleglobal Communications was incorporated in 2016 with the vision to provide and optimize, IT computing infrastructure. Our solutions approach along with constant exploration of the changing technology landscape focuses on enabling customers to derive higher ROI for the investments they make a varied product portfolio at multiple price points allows Teleglobal Communications to also cater to the growing demands of the enterprise and the retail consumer. Teleglobal Communications support for provisioning to manage integrated solutions to enterprise customers. Teleglobal Communications has ISP licenses to operate in ROM (Rest of Maharashtra).

Teleglobal with the vision to provide, and optimize, IT computing infrastructure. Teleglobal Communications is an Integrated Managed Network, ISP and Software services companies in India, offering end-to-end solutions with a comprehensive range of products delivered over a common telecom data network infrastructure.

A significant part of the company's revenue is derived from Corporate Enterprise Services, which include Network, ISP, Connectivity, Security, Network management services, Remote Infrastructure Management Services, Information Security Services. best-in-class end-to-end solutions to our clients.



Teleglobal Communications

## Partner



CyRIC IoT is a pioneer in the deployment and operation of LoRaWAN® wireless networks and LoRaWAN® based solutions in Cyprus and Greece, with more than 7 years of experience. We have deployed more than 150 Indoor and Outdoor LoRaWAN® Gateways and more than one thousand (1000) IoT Sensors and Controllers.

We provide end-to-end IoT solutions starting from the design, implementation and operation of the required communication network up to and including the end customer/user solution.

Our portfolio includes horizontally the majority of the most widely used IoT solutions in the market like Smart Parking, Smart Lighting, Automatic Metering, Smart Buildings, Energy Management just to name a few.

We have partnered with market leading manufacturers of IoT products and solutions in a joint effort to deliver

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