DEEP WATCHER

Canovate’s Game Changing Innovation

AI-Powered Advanced Optic Forest Fire Detection System

Introducing The AI Digital Shield

- **What it does:** AI-powered digital shield that detects, prevents, and responds to **wildfires**, **intrusions**, and **security threats** before they escalate.

Overview

- AI-powered forest fire detection system
- 24/7 real-time monitoring with thermal and daylight radar cameras
- Detects fires early with high accuracy
- Predicts fire risk using weather and environmental data
- Dual verification eliminates false alarms
- Instant alerts with GPS coordinates for fast response
- Detects sabotage, illegal logging, and intrusions
- Centralized dashboard for seamless control

DeepWatcher -AI Powered System for Forest Protection

- **AI Detection:** Monitors 24/7 via thermal & daylight radar cameras.
- **Risk Prediction:** Uses meteorological data to assess fire-prone conditions.
- **Dual Verification:** Eliminates false alarms using smart fusion algorithms.
- **Real-Time Alerts:** Sends precise GPS coordinates to firefighting teams.
- **Centralized Monitoring:** Integrated dashboard for rapid response.
- **Sabotage & Illegal Activity Monitoring:** Detects unauthorized movements in protected areas.

DeepWatcher AI Module

AI-powered real-time threat detection & risk prevention

- Minimizes false alarms with deep learning optimization
- Reduces human intervention while improving accuracy
- Enhances motion, thermal, and fire detection efficiency

- **Deep Learning (CNNs):** Detects anomalies & classifies threats
- **Background Subtraction**: Differentiates moving objects from static environments
- **Thermal Detection**: Identifies heat variations for early fire prevention
- **Deep Reinforcement Learning**: Self-improving AI with adaptive accuracy

DeepWatcher AI Module

Smart Data Training & AI Evolution

- AI trained on diverse datasets for maximum reliability
- Real-world validation: Tested on humans, vehicles & environmental factors
- Annotation process: High-accuracy labeled images for precise recognition
- Fire simulation testing with forestry departments for fire detection training

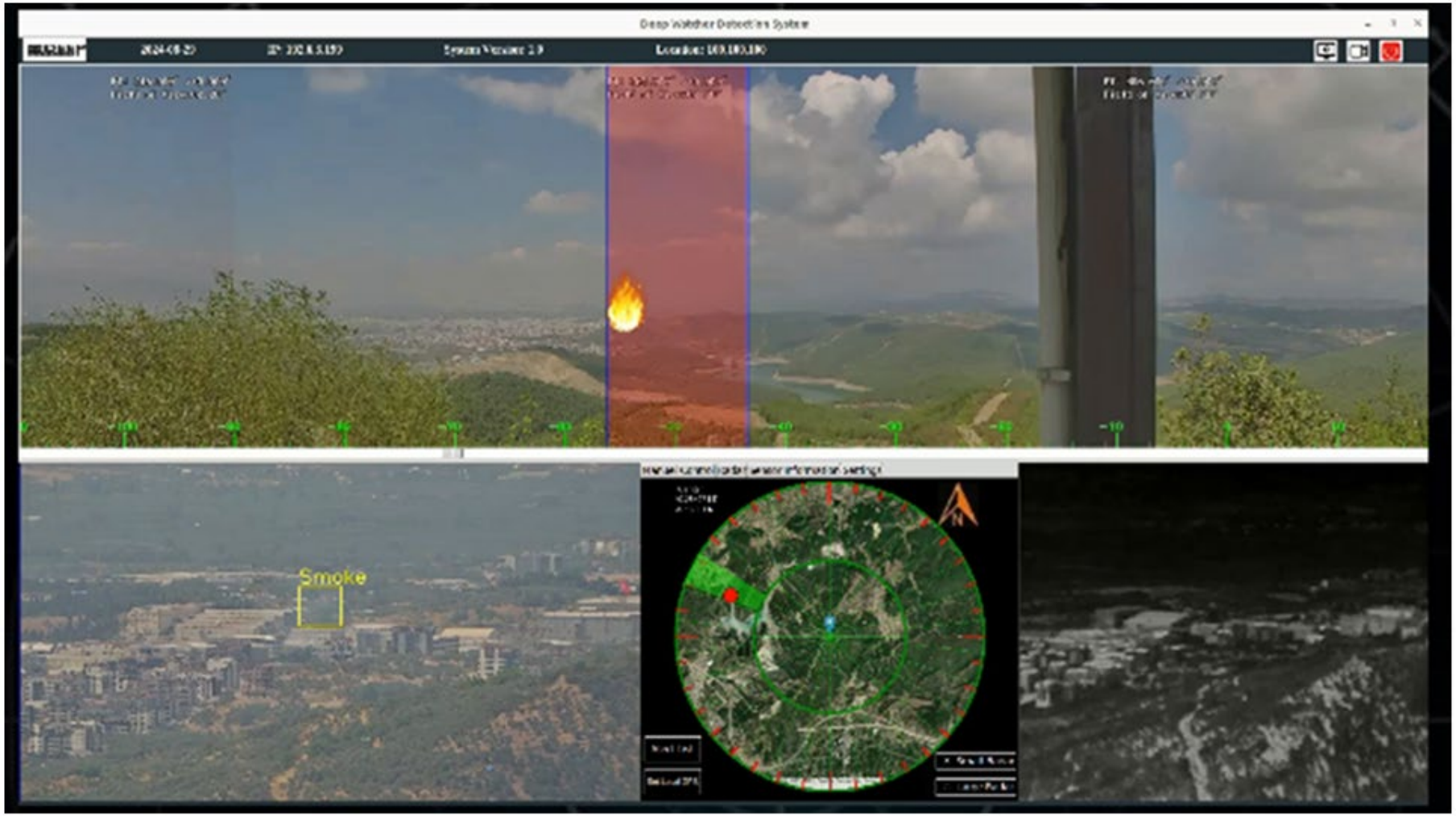
AI-Driven Decision Making

- **Threat Classification**: AI analyzes motion & temperature anomalies
- **False Alarm Reduction**: AI minimizes false positives & negatives
- **Continuous Learning**: Constant self-improvement using real-time data

Key Features & Benefits

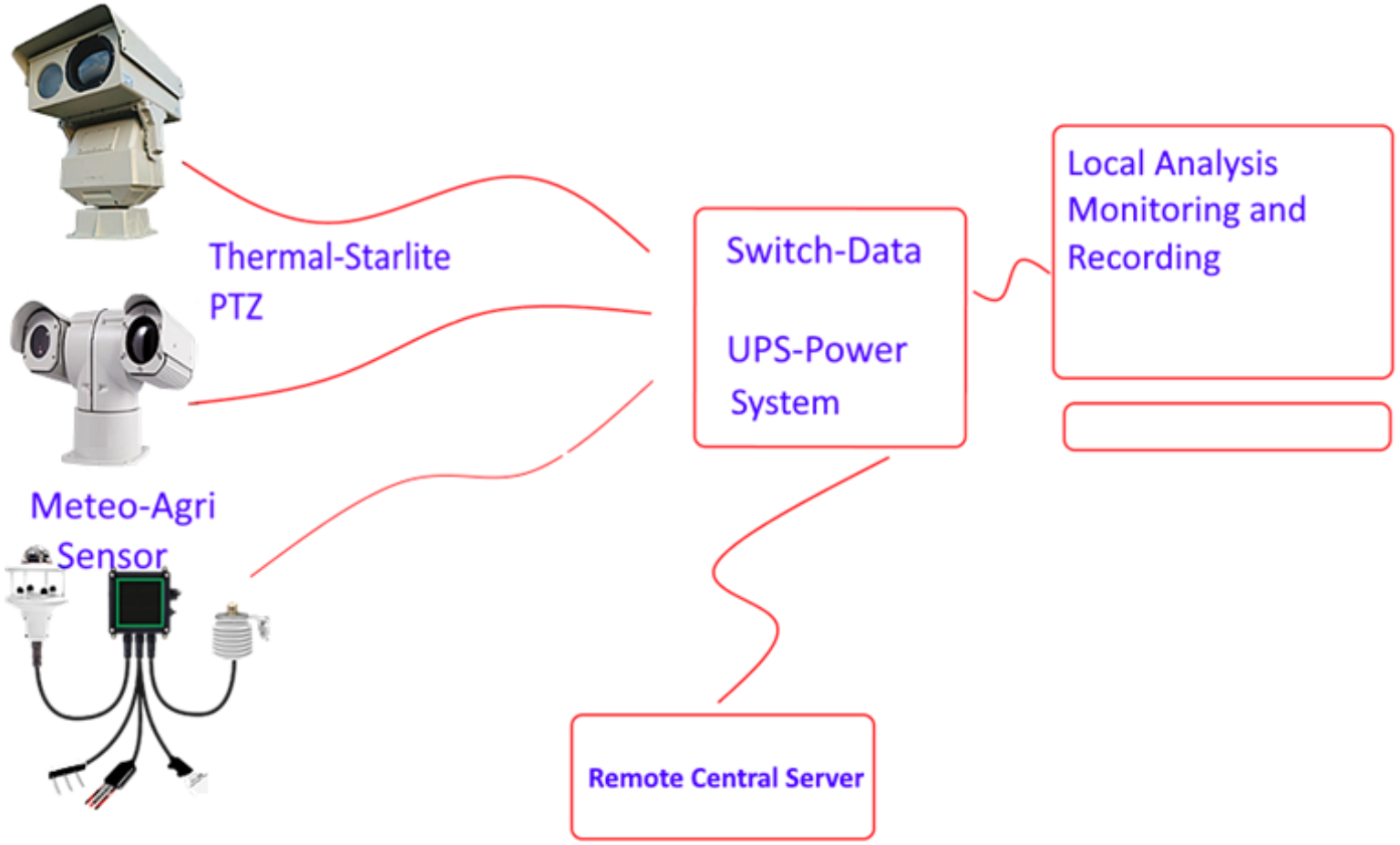
Feature	Benefit
20km Detection Radius	Covers vast areas for early warnings
360° + 90° Vertical Monitoring	Eliminates blind spots
AI-Powered Precision	Detects fires within seconds
Real-Time Alerting System	Speeds up emergency response
Dual Camera Verification	Reduces false alarms significantly
Continuous Environmental Monitoring	Predicts fire risks with meteorological and soil sensors
Multi-Radar Network	Expands surveillance for better coverage
Comprehensive Security	Detects sabotage, smuggling, and illegal logging
Flexible Deployment	Works with existing watchtowers or as a standalone system

User interface



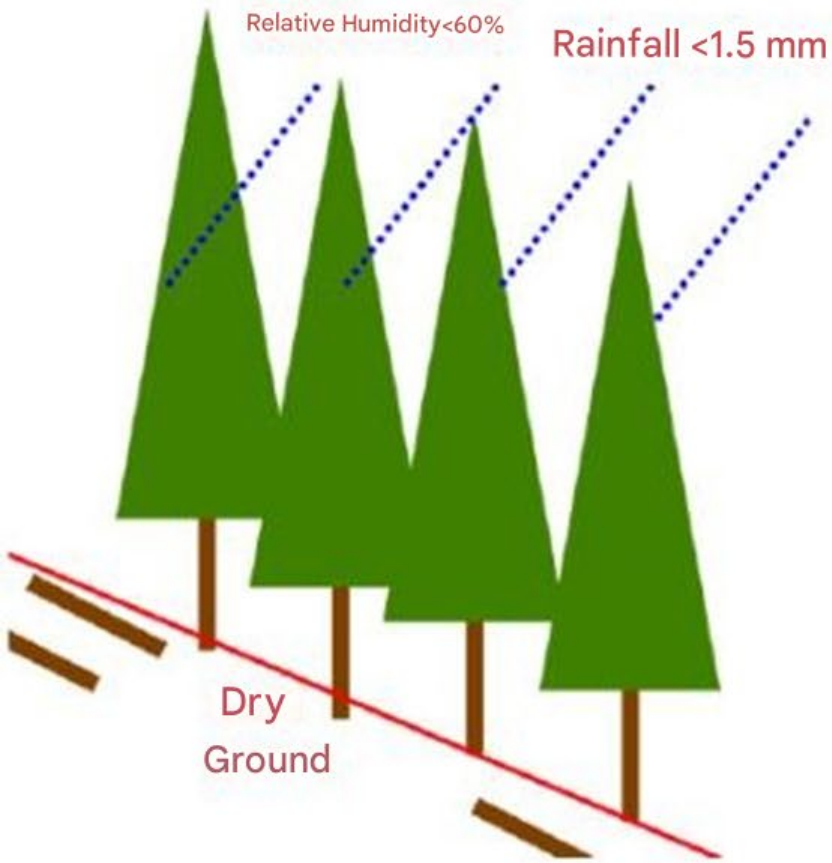
Fire detection is provided with dual verification in the same area at the same time with both thermal and day cameras. The location pin of the fire is displayed on the radar screen in the middle of the interface and an alarm is sent to the authorities.

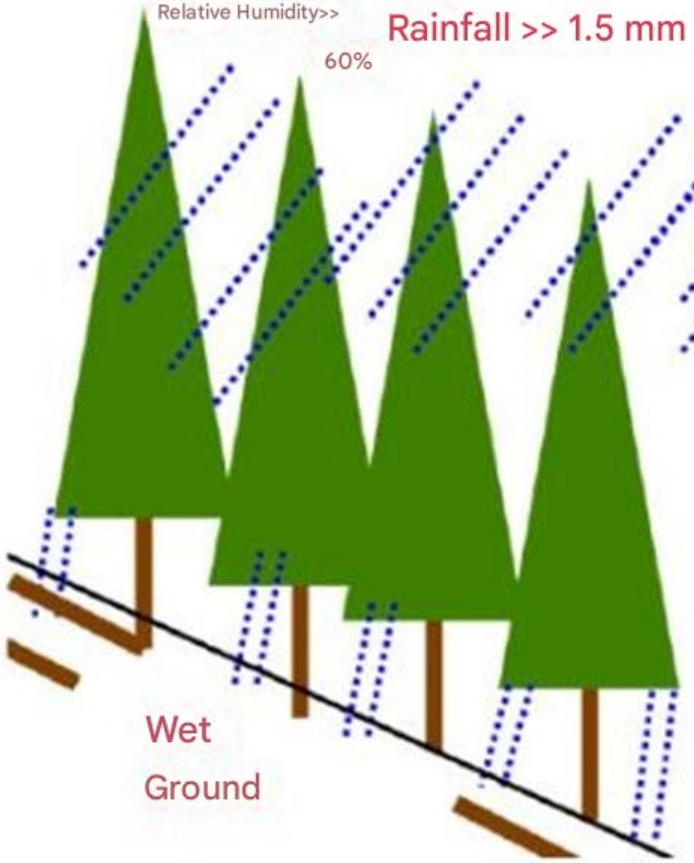
Basic Bi-Spectral Fire Monitoring System



- Thermal, Starlight Zoom Camera set Joystick use,
- Integrated Meteorology and Soil sensor Set,
- Alarm and geographic coordinate sending and access to Remote Server

Smart Meteo-Agri





<u>Meteorological and Soil Data -Option-:</u>

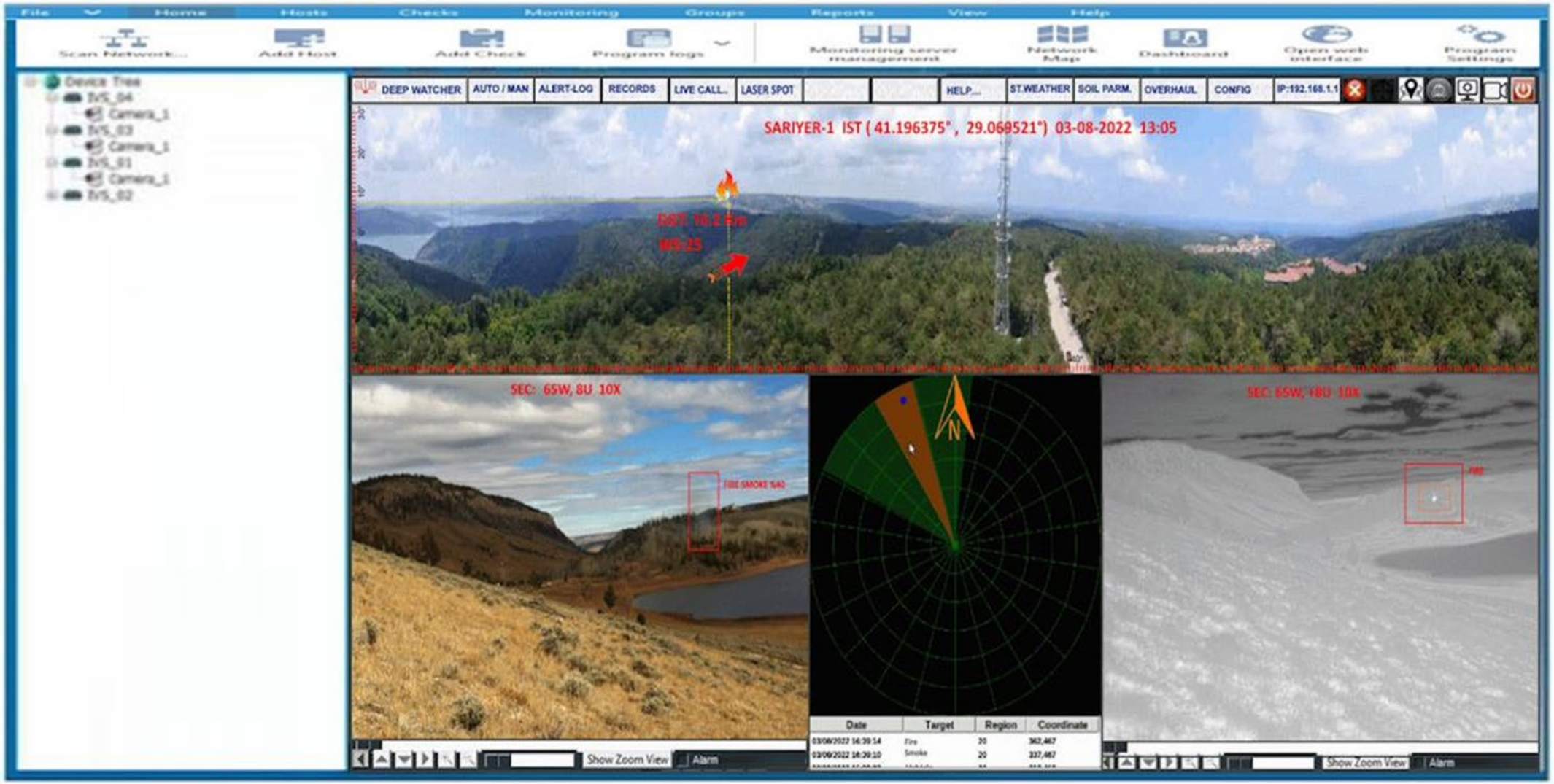
-Temperature, Humidity, Pressure, Wind etc. During Fire. values are transmitted instantly.

-Meteorological and Soil data are used to develop Forest Property as long-term real local data.

Central Monitoring Center

If an alarm is detected in the system at a station, smoke, fire, moving object, etc., it sends a picture, short video and coordinates and a time stamp to the central monitoring system. The last image appears on the central viewing screen.

Central Monitoring Center



Online monitoring can be done by connecting to the connected station computer from the central screen. Changes can be made.

AI Model Training & Data Sources

- **Diverse datasets**: Open-source & proprietary image databases.
- **Annotation process**: High-accuracy labeling for precise recognition.
- **Field testing**: Real-world validation with humans, vehicles & environments.
- **Fire simulation**: Collaboration with forestry departments for fire detection training.

Deep Watcher vs. Traditional Systems

Technology	Deep Watcher AI	Satellite Monitoring	Human Observation
Detection Speed	**Instant (Seconds)**	Delayed (Minutes-Hours)	Slow (Human error-prone)
Coverage	**360° + 90°**	Limited	Line-of-sight only
False Alarm Rate	**Extremely Low (AI Verified)**	High	High
24/7 Operation	**Yes**	No	No
Cost Efficiency	**High (Prevention Saves $$)**	Expensive	Expensive (Manpower Cost)
Additional Features	**Sabotage & Smuggling Detection**	No	No

Deep Watcher vs. Traditional Fire Detection Systems

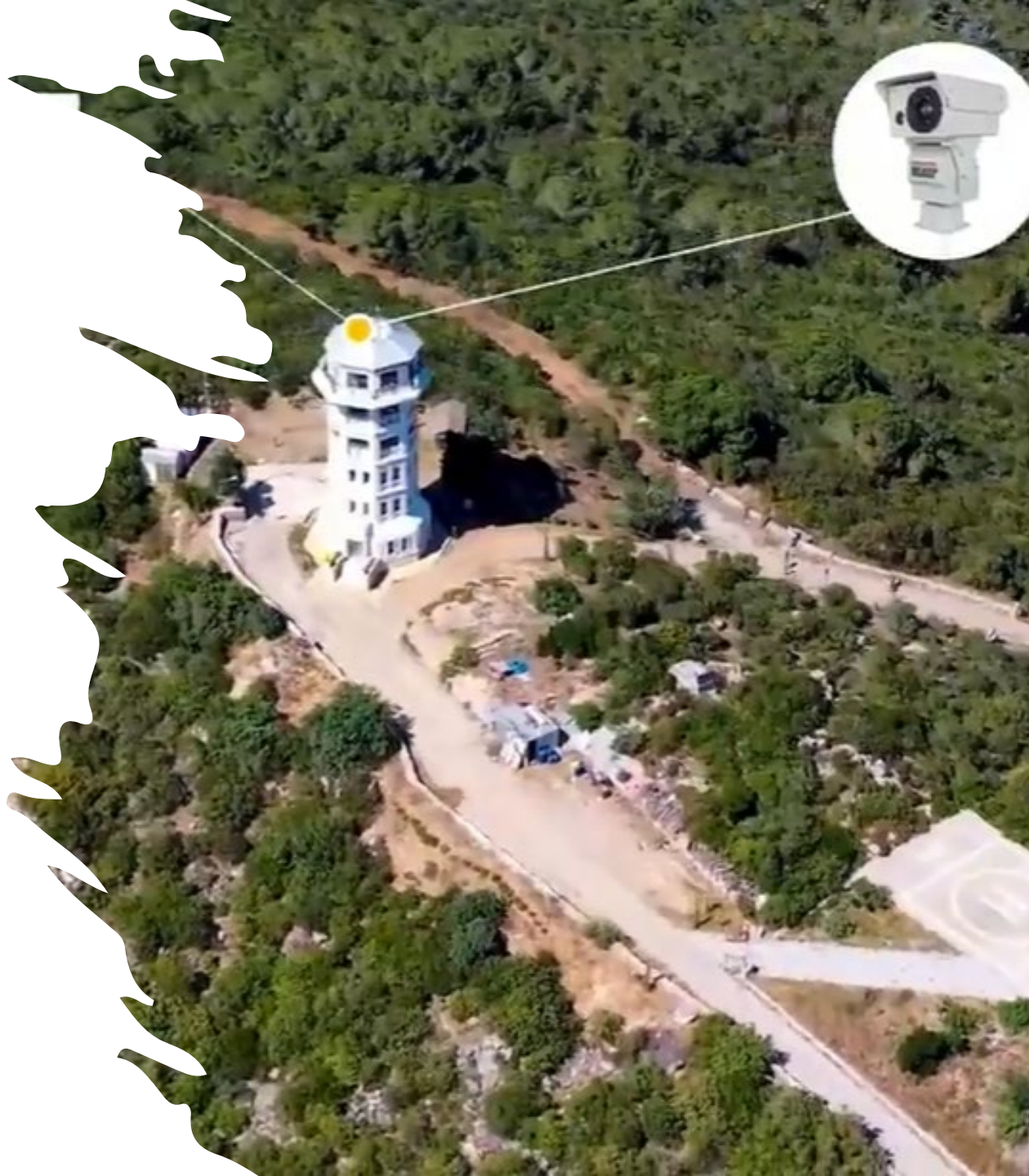
Feature	Deep Watcher	Traditional Fire Detection Systems
Detection Technology	AI-powered deep learning with thermal & daytime cameras	Primarily smoke/temperature sensors or infrared (IR) cameras
Detection Range	Up to 20 km	5-10 km (IR cameras) or less (smoke/temperature sensors)
False Alarm Rate	Low (Dual verification technology)	High (Frequent false alarms due to smoke/temperature changes)
Coverage Area	360° horizontal & 90° vertical field of view	Limited field of view, typically monitoring a specific zone
Fire Risk Prediction	Uses meteorological sensor data for proactive risk assessment	Only triggers an alarm after the fire starts
Central Monitoring & Control	Real-time video streaming & GPS-based alarm notifications	Some systems offer remote monitoring, but with limited features
Rapid Response	Provides instant location-based alerts for swift intervention	Delays in response times in some systems
Operational Continuity	24/7 uninterrupted monitoring	Most systems require manual control or periodic operation
Scalability	Network-based architecture enables integration across vast areas	Individual systems with limited coverage
Environmental Protection	Early detection & risk analysis help preserve ecosystems	Reactive, only alerts after fire initiation
AI & Data Analytics	AI-powered self-learning algorithms enhance detection & prediction accuracy	Static algorithms, no capability to evolve over time

Deep Watcher vs. Traditional Fire Detection Systems

Feature	Deep Watcher	Competitor-1	Competitor-2	Competitor-3	Competitor-4	Competitor-5	Competitor-6
Fire Detection Technology	AI-powered deep learning with thermal & visual cameras, dual verification	360° thermal imaging & geo-spatial alerts	AI-based multispectral imaging & smoke analysis	High-precision thermal sensors	AI-integrated satellite and ground sensors	AI-powered image processing	Gas & thermal sensors with AI-backed analytics
Detection Range	Up to 20 km	Not specified	3-minute full-area scanning	Not specified	Satellite-based detection up to 64 km	User-dependent	Not specified
False Alarm Rate	Low (AI dual verification)	Low (heat pattern analysis)	AI-based verification	Not specified	AI minimizes false alarms	User-confirmed alerts (variable)	AI-enhanced sensor analysis
Field of View & Coverage	360° horizontal, 90° vertical	360° thermal imaging	360° multispectral scanning	Not specified	Satellite-based large area monitoring	User-defined	360° panoramic imaging
Fire Risk Prediction	Meteorological sensors for preemptive alerts	Not specified	Not specified	Not specified	AI-driven prediction models	Not specified	AI & sensor-based risk assessment

Market Applications & Customers

- **Government Agencies:** National Parks, Forestry Departments, Disaster Management Units.
- **Private Sector:** Timberland Owners, Insurance Companies, Industrial Operations.
- **Environmental** Organizations: NGOs focusing on climate change and conservation.
- **Infrastructure Protection:** Power lines, oil refineries, and remote facilities**.**
- **Law Enforcement:** Agencies combating illegal deforestation and sabotage



Value Provided -DeepWatcher

- **Private Sector:** Minimizing economic losses from fire-related destruction and protecting critical infrastructure.
- **Insurance Companies**: Providing Lower claims, enhanced underwriting accuracy, and improved risk assessment models.
- **Environmental NGOs:** Providing data-driven insights, helping organizations make informed policy decisions and drive impactful environmental initiatives.

Strategic Importance for the World

🔥 Climate change is increasing wildfire frequency and severity — this is no longer optional.

💰 Early detection reduces firefighting costs and environmental damage dramatically.

🌲 Preserves biodiversity and carbon sinks essential for climate goals.

🚒 Supports firefighting forces with precise, real-time intelligence.

🔒 Protects national parks, critical infrastructure, and remote border areas.

📈 Boosts disaster preparedness scores in international climate indexes.

🤖 Showcases leadership in adopting cutting-edge AI for public safety.

🛡️ A long-term investment in national resilience and forest security.

For more information:

https://canovateballistic.com/

CANOVATE®

GROUP

Crafting Excellence, Engineering Innovation