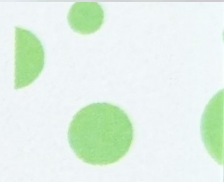


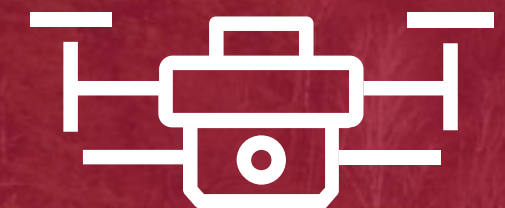


**KJ Jefferson**

Karen@RockyMountain-TSG.com  
303.359.3488



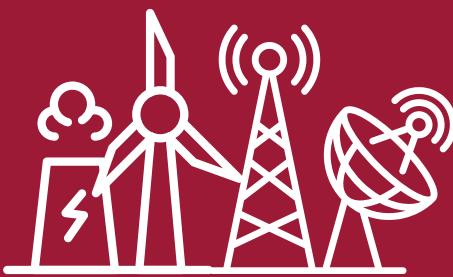
# Automatic Detection and Verification of Fires Using Cameras, AI and Autonomous Drones



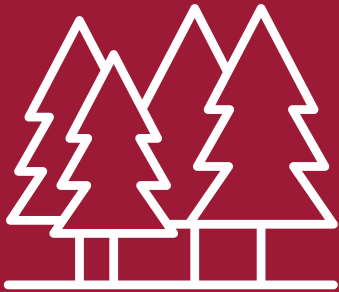
# About Us – SmokeD's Experience



**For years, we've been developing AI-powered early fire detection systems. Our detectors operate 24/7, safeguarding forests, infrastructure, and communities. We prioritize real action over promises – we deliver effectiveness.**



Energy Sector



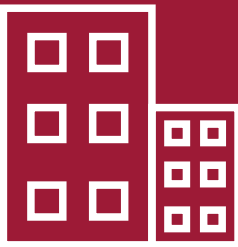
Forests and National Parks



Local Governments



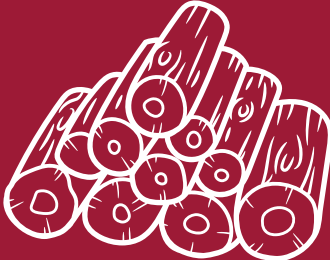
Plantations



Development Companies



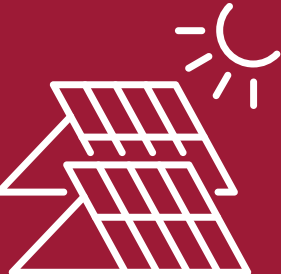
Residential Communities



Timber Yards



Waste Landfills



Solar Farms

# Customers and Deployments

Emergency services, national parks, State Forests, and critical infrastructure operators trust us.

Our technology works in diverse environments – from dense forests to power lines.

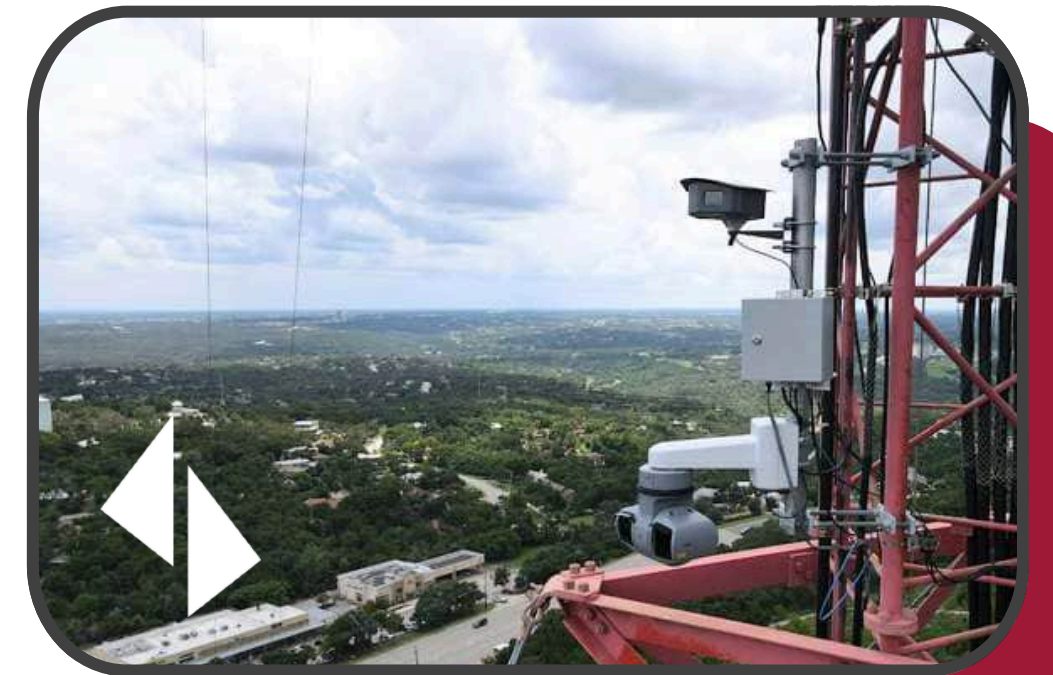
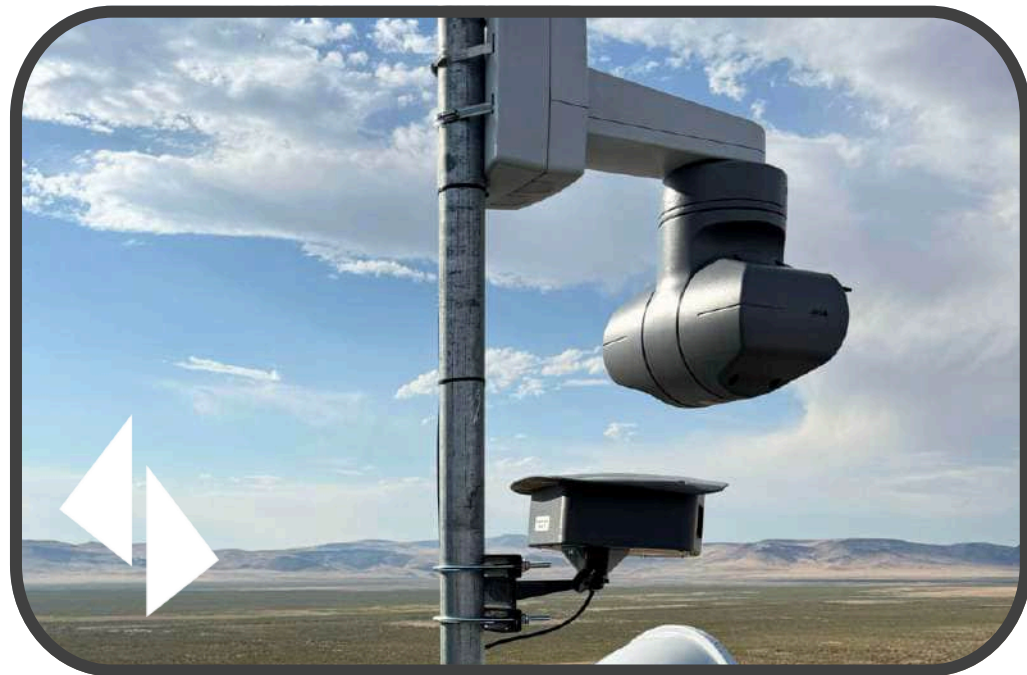
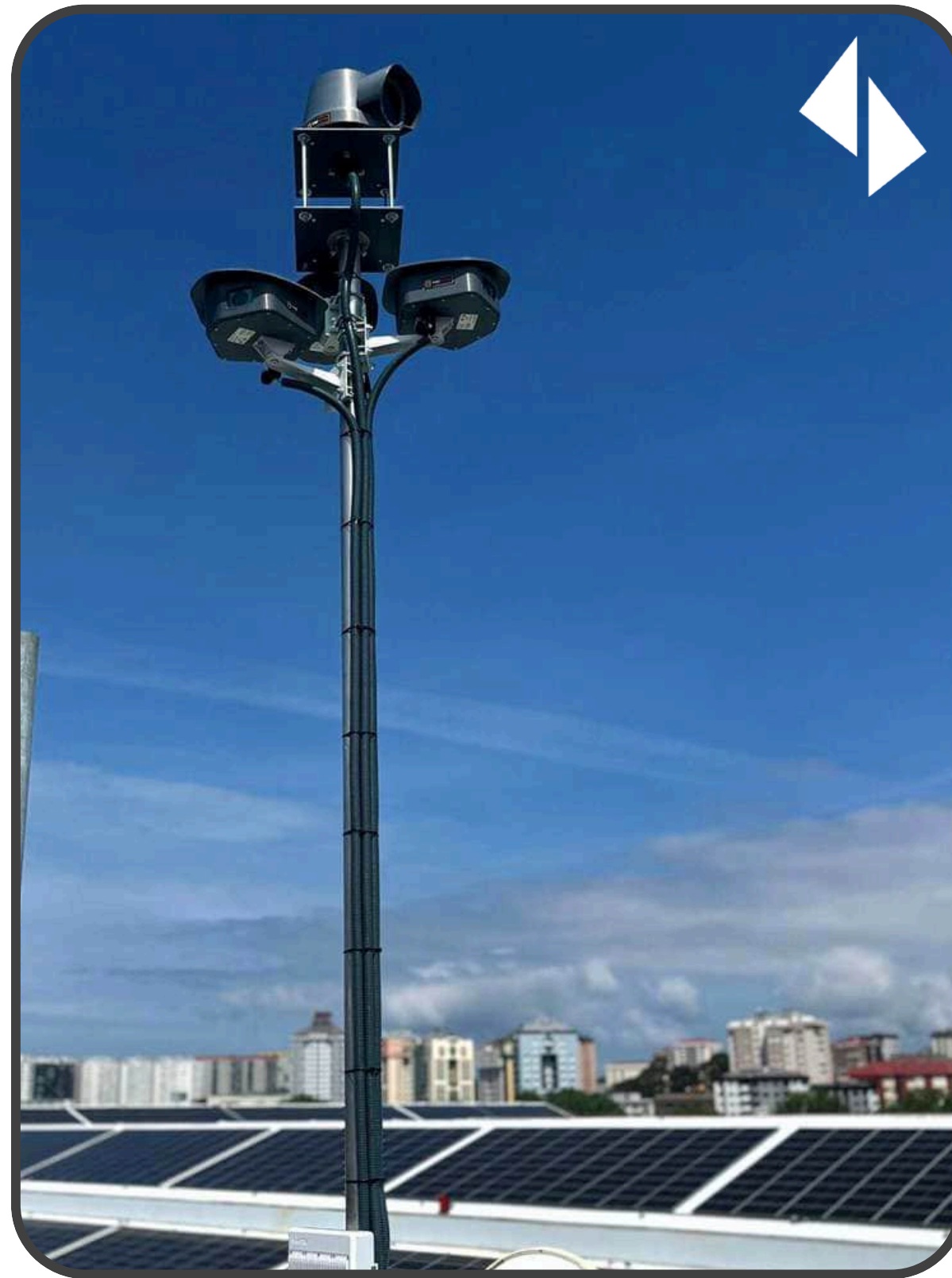


Government of the Republic of North Macedonia



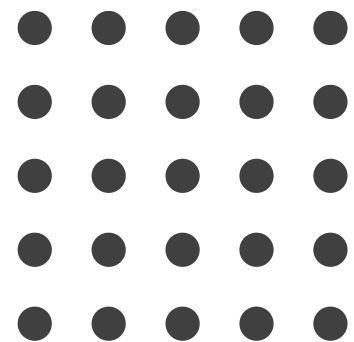
SOUTHWEST RESEARCH INSTITUTE



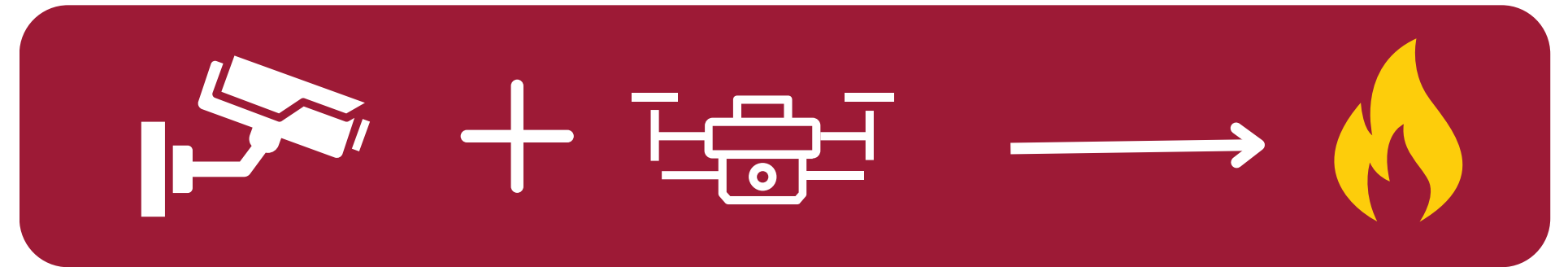


**Example Deployments**

# Late Response Means Massive Losses



# Smoke and Flame Detection with Autonomous Drone Verification



- ➔ Cameras on towers + AI algorithms  
→ real-time detection
- ➔ Ability to send a drone on an autonomous flight and verification based on coordinates
- ➔ Live RGB preview and thermal imaging from the scene
- ➔ The operator can take control or terminate the mission

# How the SmokeD System Works with a Drone

**1**

**Monitoring using cameras and detectors supported by AI algorithms**

**2**

**Alert about potential threat sent to the dispatcher**

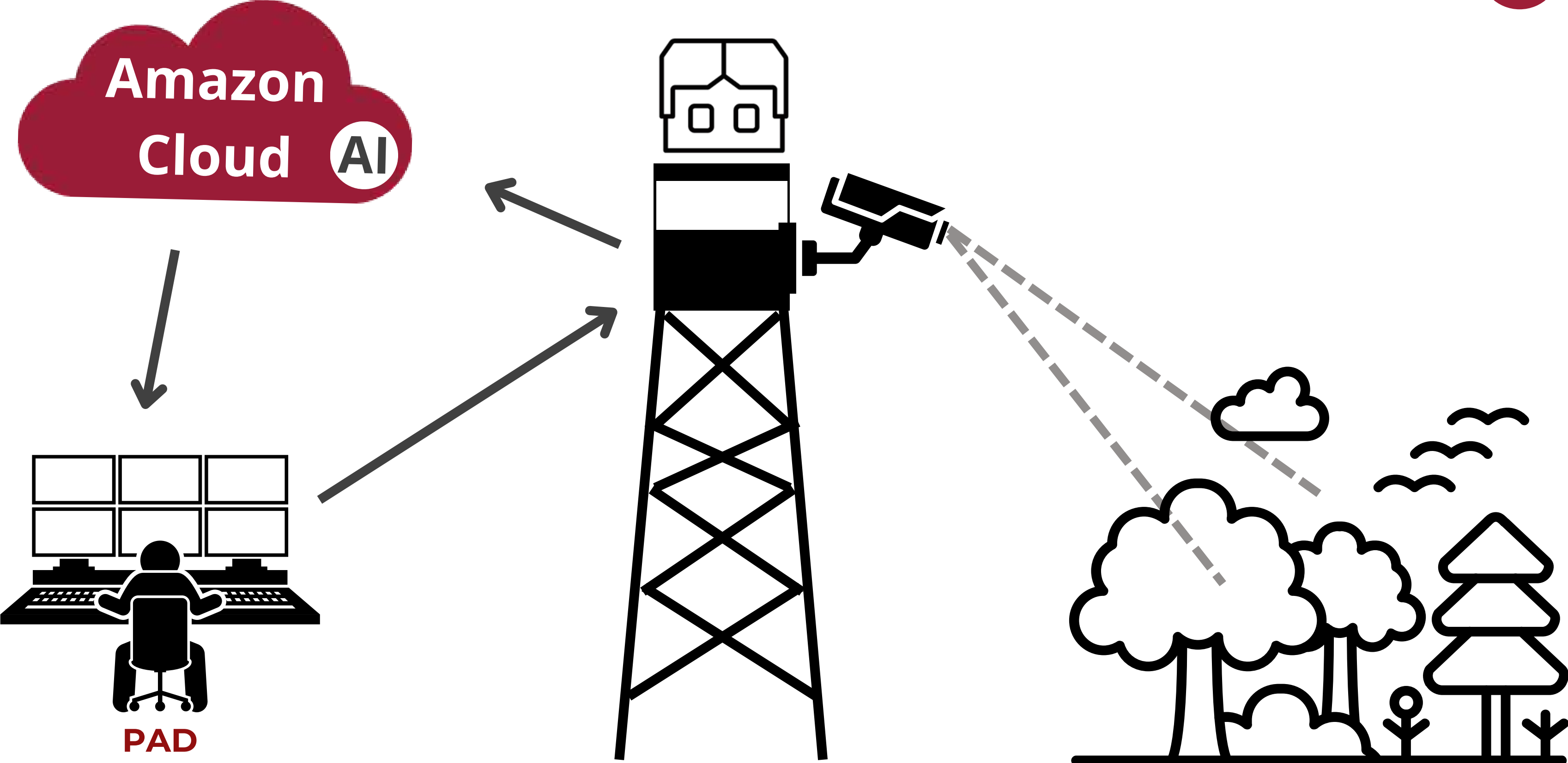
**3**

**Pilot launches autonomous drone flight from the docking station to verify the threat**

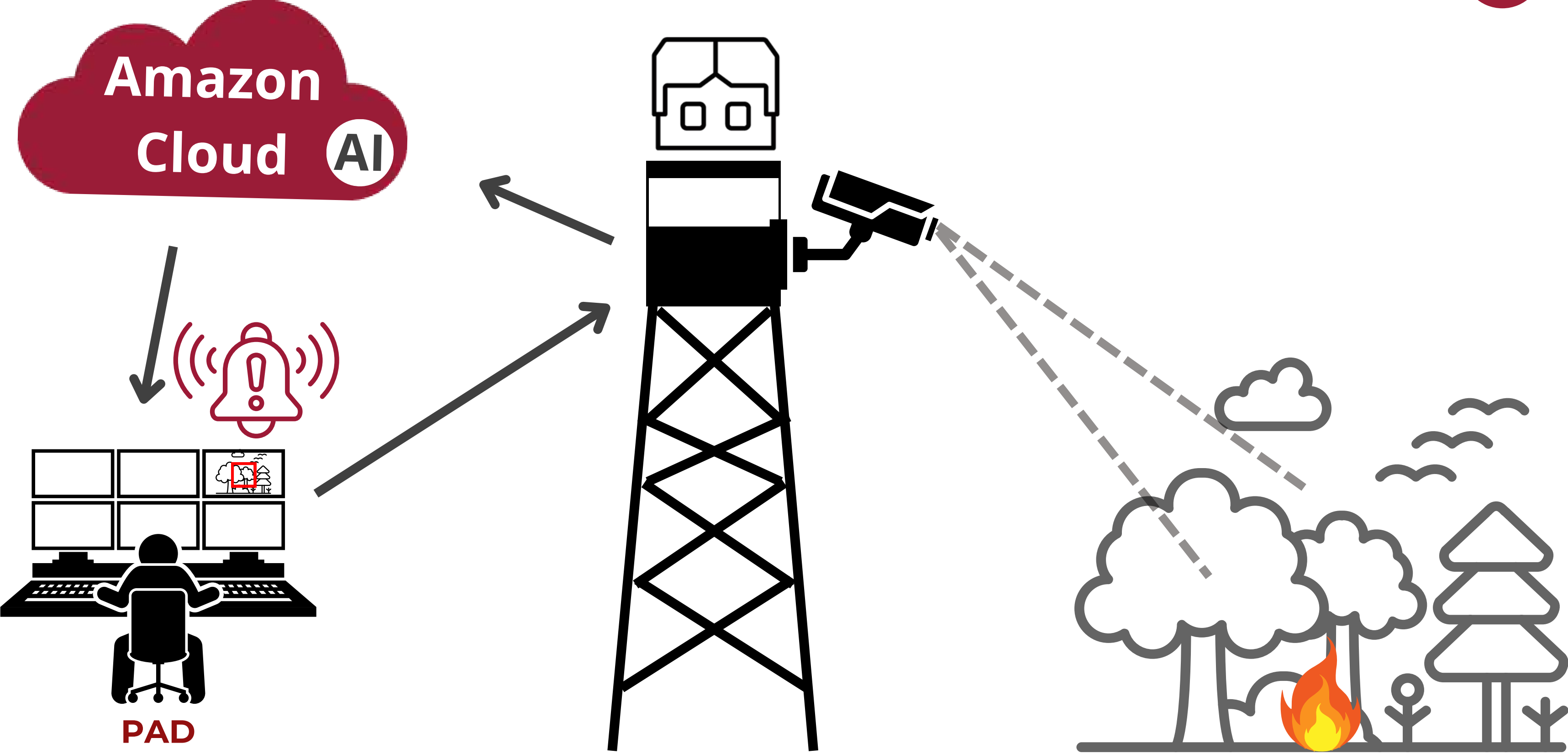
**4**

**Action taken by fire services and automatic drone return to the docking station**

# Constant camera-based monitoring

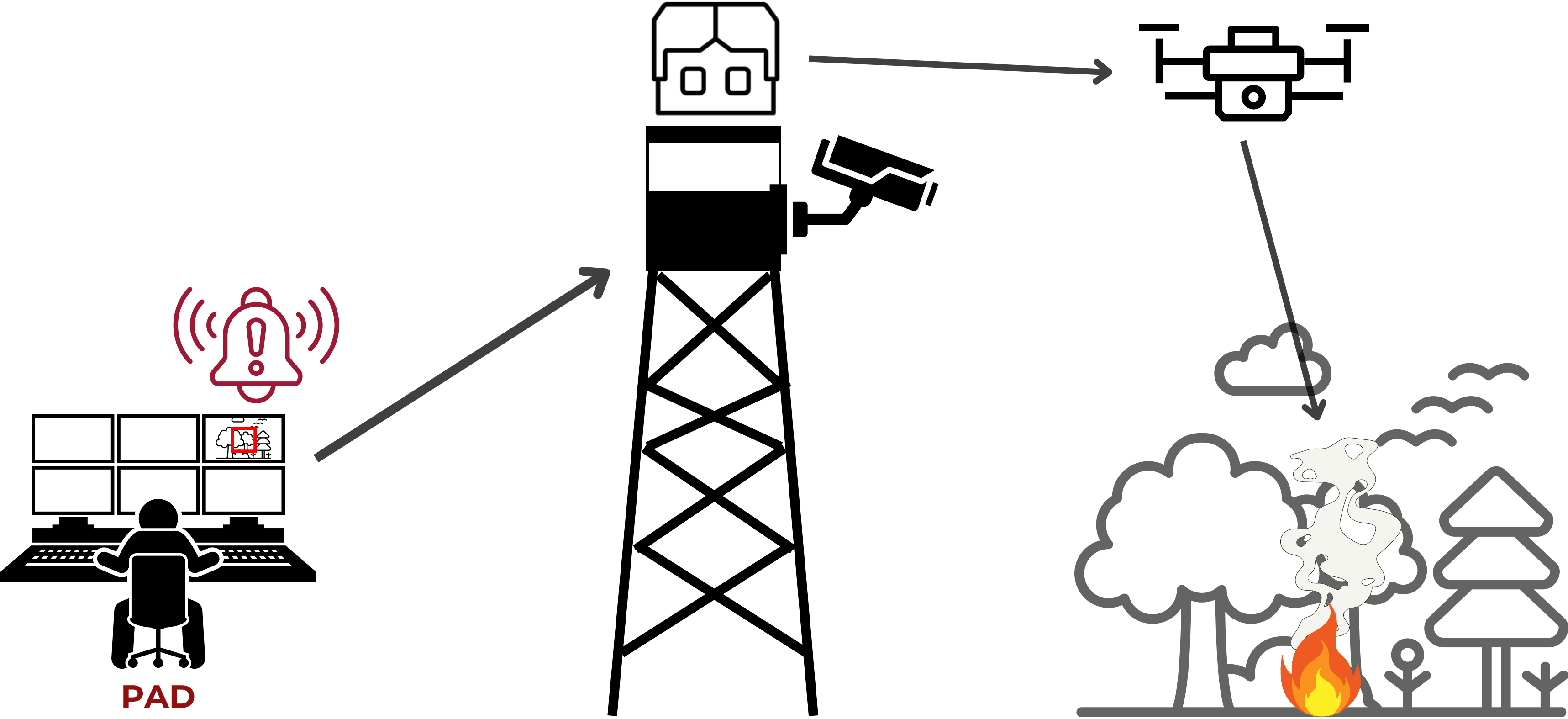


# Automatic smoke detection by the system

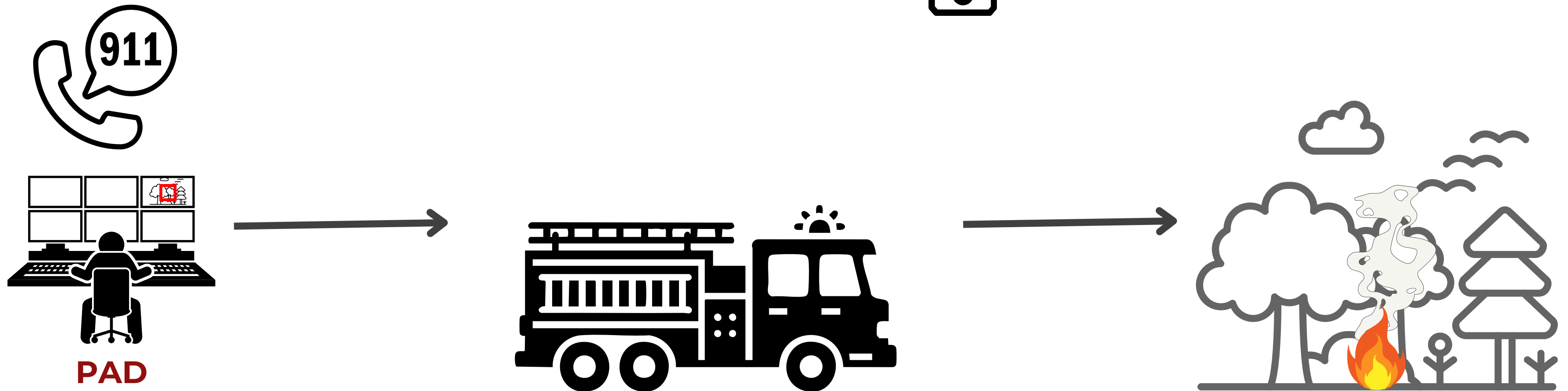


# Sending a drone to the incident location to verify the alert

3



# Firefighting response and automatic drone return to the docking station



# SmokeD System Components

## SmokeD Detectors



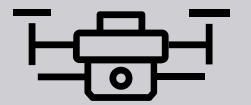
- Installed on high roofs or masts and equipped with artificial intelligence for automatic early fire and smoke detection.

## Smart PTZ Cameras



- Installed at the highest points of roofs, masts, and chimneys
- Equipped with independent artificial intelligence
- 30x optical zoom
- 360-degree pan-and-tilt capability

## SmokeD Drones



- Solution for users who want to detect fires in hard-to-monitor areas (forests, plantations).

## SmokeD Web



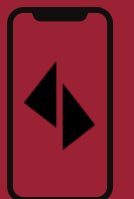
- Dispatcher control
- Dashboard with all live views
- Alert verification from detectors

## Data Analysis Center



- Professional crisis management center
- Highest image quality on multiple integrated monitors
- Management of all cameras and detectors

## Mobile App SmokeD Alerts



- Android / iOS available to everyone
- History of confirmed alerts

# Detectors and Cameras Installed on Towers



**Intelligent PTZ Camera**



**DuoVue Detector**

- Camera module with infrared filter and microcomputer
- Additional sensors such as GPS and compass
- Light intensity sensor

**Advanced devices specially adapted for image analysis**

**Average detection time 4 minutes, detection range up to 25 km from installation location**

**Two-level image analysis**

# Drone and Docking Station



## **DJI Matrice 4TD Drone:**

Flight time up to 54 minutes (~20 km), RGB camera (4K/30 fps, 48 MP), thermal camera (640×512, UHR 1280×1024), LiDAR, IP55

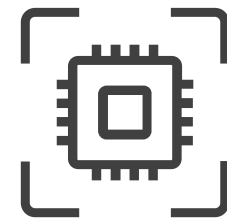


## **DJI Dock 3 Docking Station:**

IP56, -30...+50°C, automatic takeoff/landing/charging (27 minutes 15→95%), wind tolerance up to 12 m/s during landing



# System Architecture



## Detection Module:

Tower-mounted cameras + AI algorithms, real-time analysis



## Verification Module:

DJI Dock 3 (docking station), DJI Matrice 4TD (drone with RGB and thermal camera), DJI D-RTK 3 Relay (RTK relay), controlled via DJI FlightHub 2 Open API



## Operator Interface:

Web/desktop application with embedded API interfaces, live preview, telemetry, and video archive

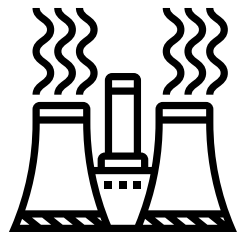


# Use Cases



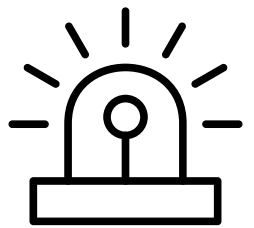
## **Forest Protection:**

Early fire detection, smoke/fire verification from observation towers



## **Critical Infrastructure Protection:**

Site monitoring, intrusion detection and verification



## **Crisis Response:**

Rapid situational assessment in difficult-to-access terrain



## **Area Surveillance:**

Automated patrols, scheduled inspections



# Regulatory Compliance and Data Security



**Compliance with EU/EASA regulations (Remote ID, BVLOS, STS-02/SORA)**



**Pilot training required within the organization in compliance with legal requirements and operational certification**



**Encrypted transmission, access control, user activity logging**



**Ability to implement an extended version of the software with greater flexibility in configuration**

# Deployment Path



- 1** Site assessment and needs analysis (similar to camera tower installation)
- 2** Hardware delivery and installation (Dock 3 docking station, Matrice 4TD drone, Relay receiver)
- 3** Integration with detection systems (API) and network configuration
- 4** Acceptance testing and operational certification
- 5** Pilot and operator training in accordance with legal requirements
- 6** Operational launch and maintenance support

# Benefits for Organizations

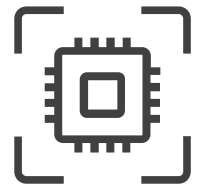


- Automated fire detection and verification
- Fewer false alarms thanks to visual verification on-site (RGB + IR)
- Time and cost savings on field personnel (travel, fuel, logistics)
- Complete event documentation (video, thermal imaging, metadata, logs) available in the system

# Our Offer



Installation of cameras, detectors, drones, and software



Integration with customer systems



Operator and pilot training



Complete technical and maintenance support



Guidance in obtaining required permits





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Founder, CEO for SmokeD Ltd.



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