

Executive Summary

Sortech Incorporation Product Overview Sortech Incorporation has developed an AI-powered Fire & Smoke Detection System designed to revolutionize fire safety. The solution integrates with existing CCTV infrastructure and leverages advanced deep learning models to identify early signs of fire and smoke in real time. The system immediately triggers alerts via email and mobile notifications, ensuring rapid response and minimizing damage risks.

Dataset & Training:

Data Collection: Fire & smoke images/videos curated from public datasets and proprietary sources.

Data Augmentation: Applied transformations (rotation, brightness and contrast adjustments) to enhance robustness.

Model Architecture: YOLOv7 (state-of-the-art object detection).

Training Platform: Roboflow + PyTorch framework.

Model Development & Deployment - Conversion: PyTorch → ONNX for flexible deployment.

Inference: Supports GPU acceleration (NVIDIA / AMD DirectML) & CPU fall back.

Deployment Options: Local Docker Server or Cloud Hosting (AWS/EC2).

Integration: SMTP email alerts, web dashboard, and future mobile app. **Testing & Validation**

Testing was conducted under structured scenarios (indoor/outdoor, varied lighting, distances).

Results showed consistent detection accuracy and low false positives.

Business Model: Partnered with FPAP for direct client access.

Operates under Synergy Solutions for compliance.

Revenue Streams: Deployment pricing + after-sales services.

Market: B2B clients (factories, malls), expansion to government & smart cities. **Conclusion** Sortech Incorporation delivers a cost-effective, AI-driven fire safety solution with robust detection capabilities, tested reliability, and a scalable deployment model.

Visual Analysis





