



**FIRE**  
AUSTRALIA2025

# Revolutionising Fire Equipment Inspections with Artificial Intelligence

An AI-Driven Approach to Fire Safety Compliance

Naaman Shibi, Pervidi- Paperless Inspection Solutions

[www.pervidi.com.au](http://www.pervidi.com.au)

# Introduction

- Traditional fire inspections are manual, slow, and inconsistent.
- There is a growing need for accurate, efficient, and compliant processes.
- AI-powered inspections deliver the next leap in fire safety.
- This presentation introduces a paperless, AI-driven inspection solution.



13-15 May 2025



International Convention Centre, Sydney



[fireaustralia.com.au](https://fireaustralia.com.au)



# A Brief History of Artificial Intelligence

- 1950s: The term "*Artificial Intelligence*" is coined in 1956, marking the beginning of formal AI research.
- 1960s-70s: Symbolic AI emerges, with early programs for language processing & rule-based reasoning.
- 1980s: Development of expert system, but limited progress & high expectations lead to an "AI winter."
- 1990s-2000s: Recovery with advancements like IBM's Deep Blue defeating chess champion Gary Kasparov.
- 2010s-Now: Rapid advances in machine learning & deep learning transform AI into a mainstream technology, powering apps, voice assistants, image recognition, and automation tools, including AI-driven safety inspections.



13-15 May 2025



International Convention Centre, Sydney



[fireaustralia.com.au](https://fireaustralia.com.au)



# Artificial Intelligence (AI) & Machine Learning (ML)

## Artificial Intelligence (AI):

- Allows machines to simulate human decision-making.
- In inspections, AI helps systems analyse and act like a human inspector.



## Machine Learning (ML):

- A subset of AI focused on learning from data.
- Improves performance over time without manual programming.



13-15 May 2025



International Convention Centre, Sydney



[fireaustralia.com.au](http://fireaustralia.com.au)

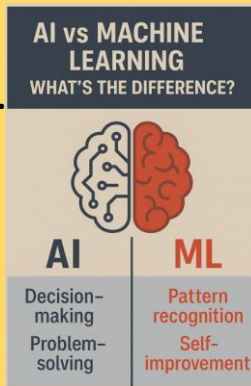


# In Simple Terms

## Artificial Intelligence (AI)

AI is the brain – it decides how to act during inspections.

Simulating human intelligence.



## Machine Learning (ML)

ML is the learner – it improves decisions over time based on data.

Learn from data to improve performance

Example: AI identifies faults, and ML makes it better at doing so.



13-15 May 2025



International Convention Centre, Sydney



[fireaustralia.com.au](https://fireaustralia.com.au)



# AI-Powered Inspection Overview

## Step 1: Image & Voice Analysis

- AI converts inputs to structured report text.
- Suggests actions immediately.

## Step 2: History Analysis

- Reviews past inspections and asset history.
- Suggests preventive maintenance.

## Step 3: Compliance Automation

- Creates and updates reports automatically.



13-15 May 2025



International Convention Centre, Sydney



[fireaustralia.com.au](https://fireaustralia.com.au)



# AI in Inspection and Testing of Fire Equipment



Real-time data capture and validation, including images



Real-time data capture and interpretation of voice tags



Compare inspection results over time for same asset and provide recommendations



13-15 May 2025



International Convention Centre, Sydney

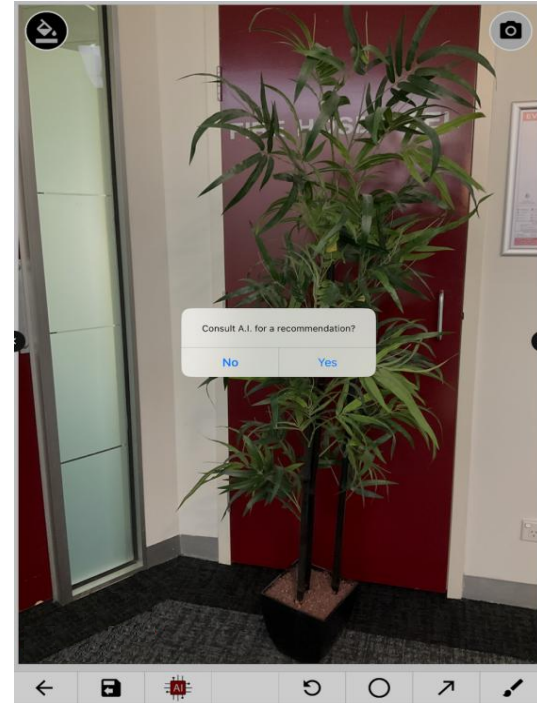


[fireaustralia.com.au](https://fireaustralia.com.au)



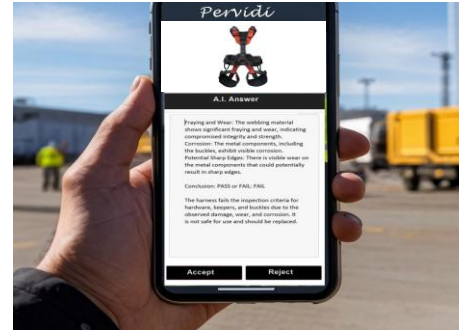
# Mobile tools integrated with AI- Image Recognition

- Real-time data capture and validation including **images**
- Automated deficiency identification with AI
- Immediate feedback and corrective action suggestions



# Mobile tools integrated with AI- Speech-to-Text Assistance

- **AI-powered assistance during inspections:** A smart speech-to-text solution that enables inspectors to verbally capture observations, which are then intelligently interpreted, summarized, and structured into a report (using a predefined template), all in real time, while the inspection is being conducted.



13-15 May 2025



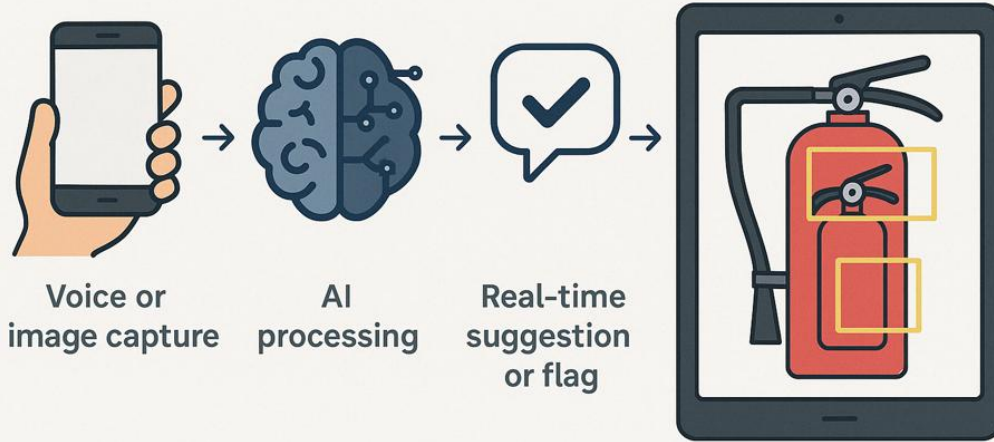
International Convention Centre, Sydney



fireaustralia.com.au



# AI in the Field: What Happens During an Inspection?



## AI IN THE FIELD: WHAT HAPPENS DURING AN INSPECTION?

- VOICE OR IMAGE CAPTURE
- AI PROCESSING
- REAL-TIME SUGGESTION OR FLAG
- STRUCTURED REPORT OUTPUT



# How AI Enhances Fire Equipment Inspections

- AI predicts risks before they happen.
- Identifies trends and maintenance needs.
- Learns from history to improve accuracy.
- Ensures no inspection step is missed.
- Enables real-time feedback and actions.



13-15 May 2025



International Convention Centre, Sydney



[fireaustralia.com.au](https://fireaustralia.com.au)



# Demonstration

## AS-1851

(Routine Service – Fire Hose Reels)

The standard mandates that a **routine service** be conducted to ensure the hose reel is:

- Accessible and unobstructed
- Properly signed
- Physically intact (no visible damage)
- Securely mounted
- Ready for use in an emergency

This is a **visual inspection only**—no water is discharged.



13-15 May 2025

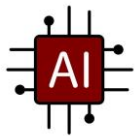


International Convention Centre, Sydney



[fireaustralia.com.au](http://fireaustralia.com.au)





# Checklist: AS1851-Hose Reels

← LIST ACTIVITIES ☰

Select Topic  Mark N/A

DESCRIPTION	RESULT	DETAILS
01. Hose reel is unobstructed and accessible	<input type="checkbox"/>	
02. Hose reel is securely mounted	<input type="checkbox"/>	
02. Reel properly mounted and secure	<input type="checkbox"/>	
03. Hose is fully wound, no kinks or twists	<input type="checkbox"/>	
04. Hose nozzle is intact and undamaged	<input type="checkbox"/>	
05. Reel turns freely and smoothly	<input type="checkbox"/>	
06. Hose length appears adequate (= >36m)	<input type="checkbox"/>	
07. Hose reel cabinet/cover in good condition	<input type="checkbox"/>	
08. No leaks visible when reel is pressurised	<input type="checkbox"/>	
09. Signage is present, clear, and compliant	<input type="checkbox"/>	
10. Valve operates easily without resistance	<input type="checkbox"/>	
11. Hose couplings and connections are tight and secure	<input type="checkbox"/>	

Area.: HN9YJ27 - 0015  
ACTIVE - Fire Hose Reel  
Inspection: 1682573163 (Inspection)  
Rogers, John

← 🏠 ⓘ 🚩 Close 📄

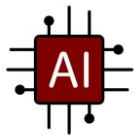


📅 13-15 May 2025

📍 International Convention Centre, Sydney

🔗 [fireaustralia.com.au](http://fireaustralia.com.au)

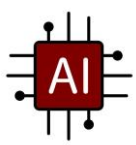




# Checklist: AS1851- Question

## 01. Hose reel is unobstructed and accessible

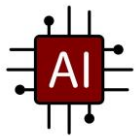
The screenshot shows a mobile application interface for a checklist item titled "Fire Hose Reel". At the top, there is a black header bar with a back arrow on the left, the text "Fire Hose Reel" in the center, and a menu icon on the right. Below the header is a text input field containing the question "01. Hose reel is unobstructed and accessible". Underneath the input field is a blue square button with a white plus sign on the left and a camera icon on the right. Below this is a "Result:" section with two grey buttons labeled "No" and "Yes". Further down is a "Details:" section with a large empty text input field, a dropdown arrow, and an "OCR" icon. At the bottom of the screen is a navigation bar with icons for back, home, a document, a folder, another folder, and a refresh/circular arrow.



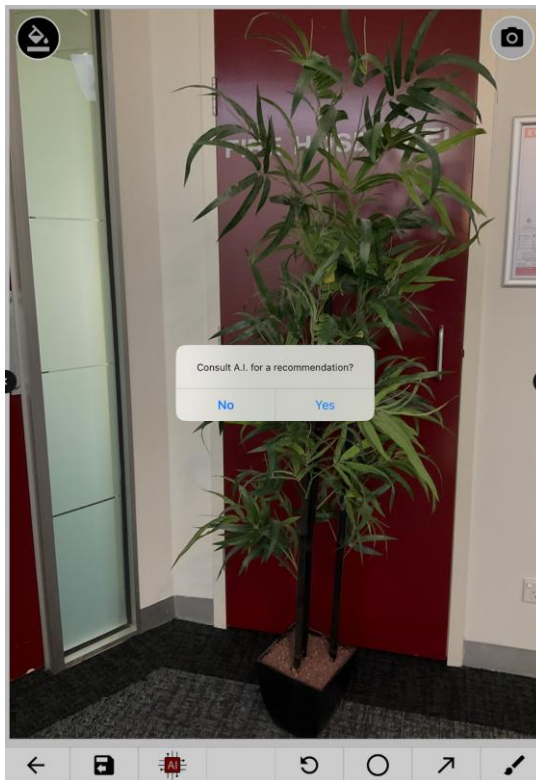
# Checklist: AS1851- Question- Camera

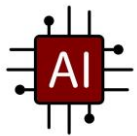
01. Hose reel is unobstructed and accessible



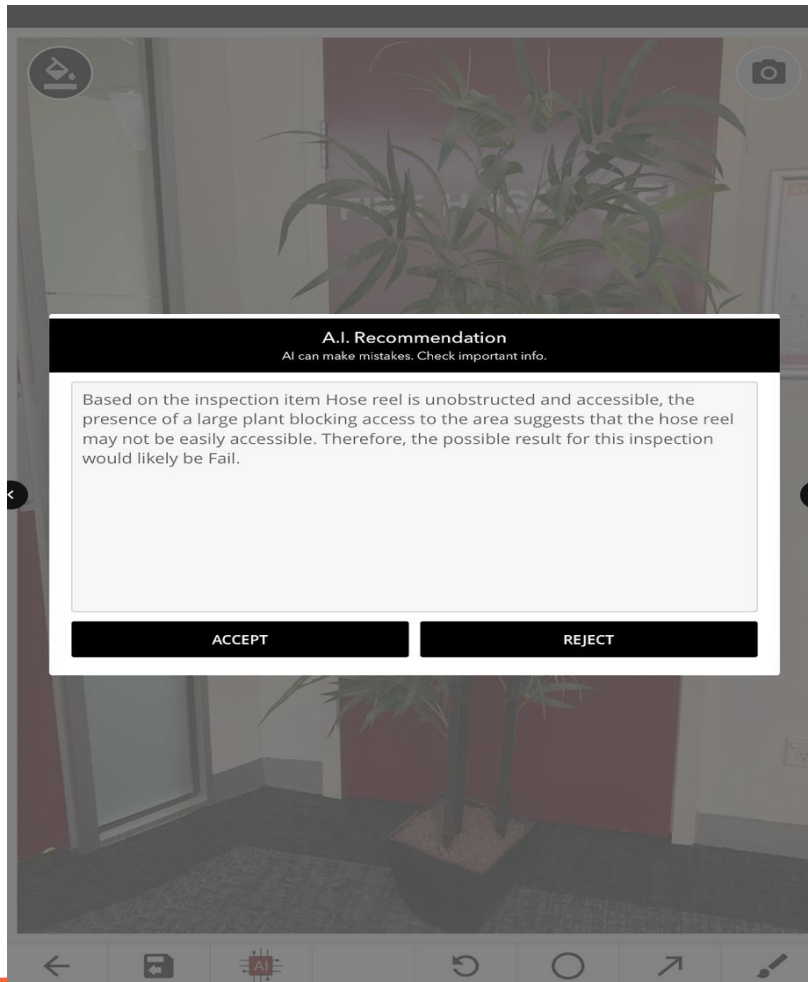


# Image sent to AI





# Result back from AI for Inspector to Reject/Accept

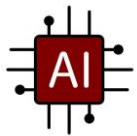


 13-15 May 2025

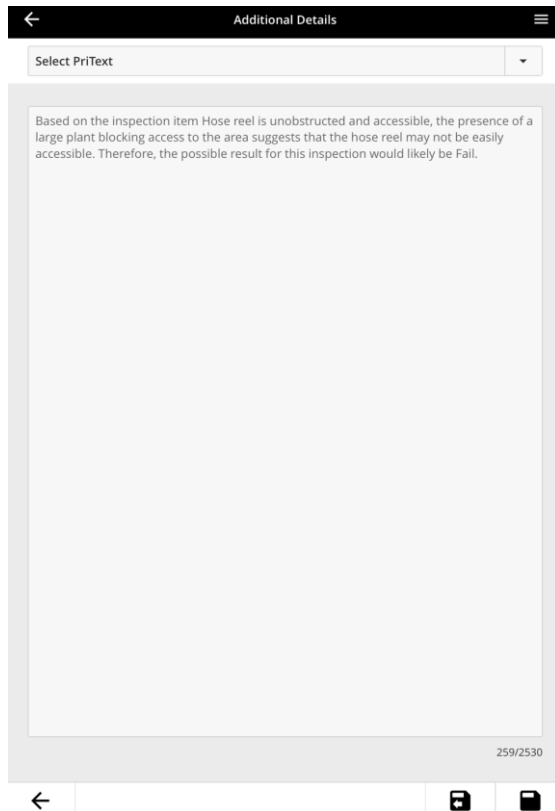
 International Convention Centre, Sydney

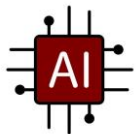
 [fireaustralia.com.au](http://fireaustralia.com.au)



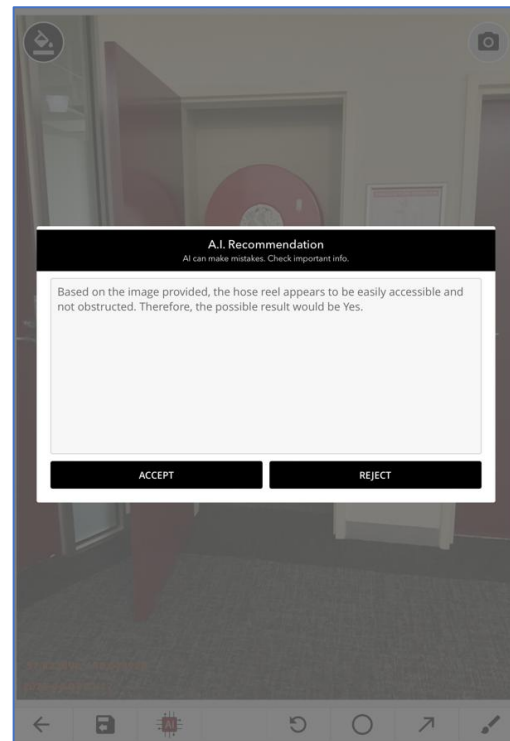


# AI recommendation included in inspection





# 1. Hose reel is unobstructed and accessible



# Key Benefits

- AI supports decision-making & doesn't replace inspectors.
- Improves accuracy & consistency.
- Speeds up inspections & reporting.
- Enhances compliance & safety.
- Enables predictive maintenance.
- Integrates with smart systems (IoT).



13-15 May 2025



International Convention Centre, Sydney



[fireaustralia.com.au](https://fireaustralia.com.au)



# Trends

- Predictive analytics & smart scheduling.
- Integration with IoT and smart buildings.
- AI-driven defect classification from images.
- Support for remote inspections and AR.
- Continuous improvement via machine learning.

## Future Tech in Fire Inspections



13-15 May 2025



International Convention Centre, Sydney



[fireaustralia.com.au](http://fireaustralia.com.au)



# Best Practices for Implementing AI Inspections

- Start with clear goals and a defined scope.
- Choose scalable, flexible AI tools.
- Pilot before scaling up.
- Decide on cloud vs in-house deployment.
- Integrate with your current systems.
- Train teams on AI workflows.
- Continuously monitor and refine.

## 5-STEP AI IMPLEMENTATION PLAN

- 1 DEFINE OBJECTIVES
- 2 START SMALL (PILOT)
- 3 CLOUD VS. ON-PREM DECISION
- 4 TRAIN STAFF
- 5 MONITOR AND OPTIMISE



13-15 May 2025



International Convention Centre, Sydney



[fireaustralia.com.au](https://fireaustralia.com.au)



# Final Takeaway: The Power of AI in Fire Safety Inspections

- AI is transforming how inspections, testing, servicing, & repairs are performed, making them faster, more accurate, & more data-driven.
- We're still in the early stages of AI adoption, particularly in fire safety and compliance workflows.
- The road ahead promises even more: predictive maintenance, real-time hazard detection, and end-to-end automation.
- **Takeaway:** *"AI isn't just coming-it's already here, enhancing safety today and **the best is yet to come**"*



13-15 May 2025



International Convention Centre, Sydney



[fireaustralia.com.au](https://fireaustralia.com.au)



# Thank You!



## Automating Safety + A.I.

## Inspection Management

Pacific Tower, 737 Burwood Road, Hawthorn, VIC. 3122  
[sales@pervidi.com.au](mailto:sales@pervidi.com.au)  
03 9969 7452



 13-15 May 2025

 International Convention Centre, Sydney

 [fireaustralia.com.au](http://fireaustralia.com.au)

