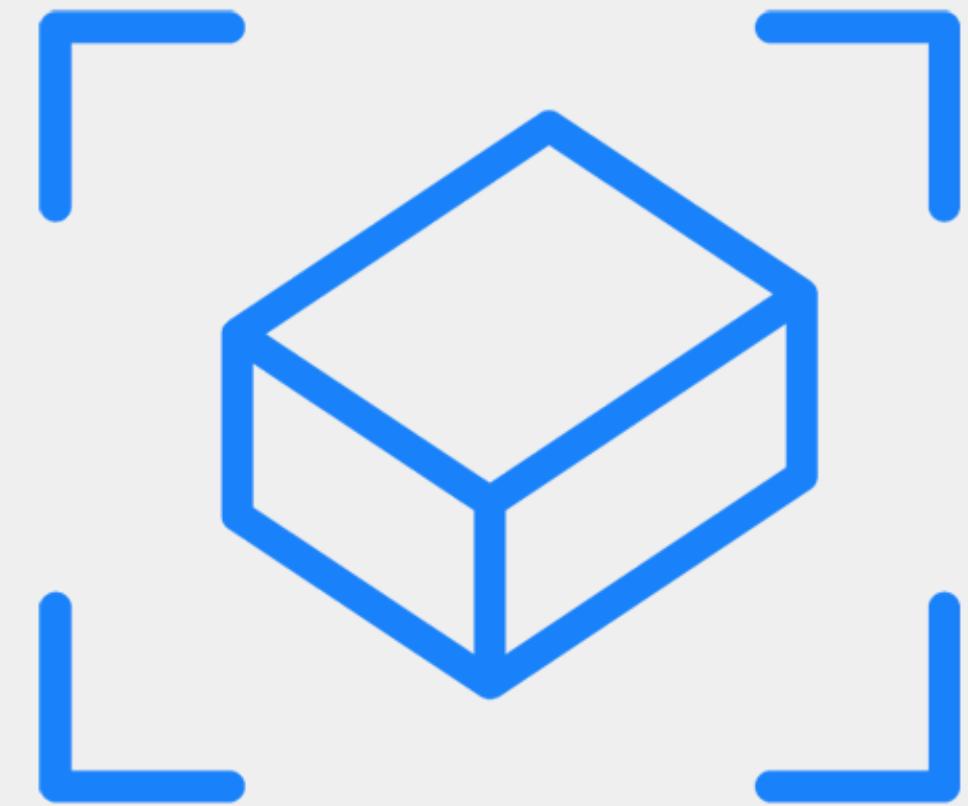


Project Presentation

Real-Time Safety Monitoring System



2025.05.26

MEERKAT

Our Team

Meet our Team Members

**ALIBOEV
ABBOS**

Team Leader
AI, Frontend

김태영

AI, Backend

전설민

Backend, DB

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02 Requirement Analysis

03 Tools, System Design

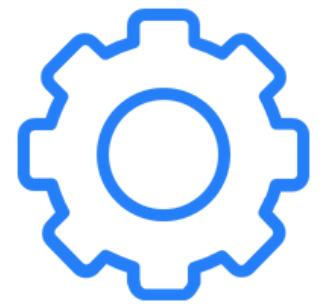
04 UI, Website Features

05 AI Integration (YOLO)

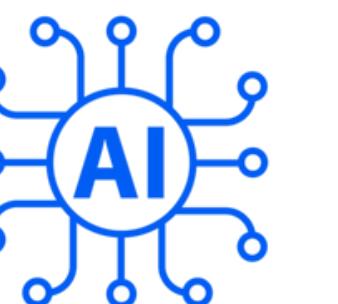
06 Progress, Future Plans

Why Safety Monitoring ?

We chose this project because safety is very important in many workplaces like factories and construction sites.



**Automation is
everywhere**



**Companies want
smart safety systems**



**PPE is important for
workers**



Our Solution

01

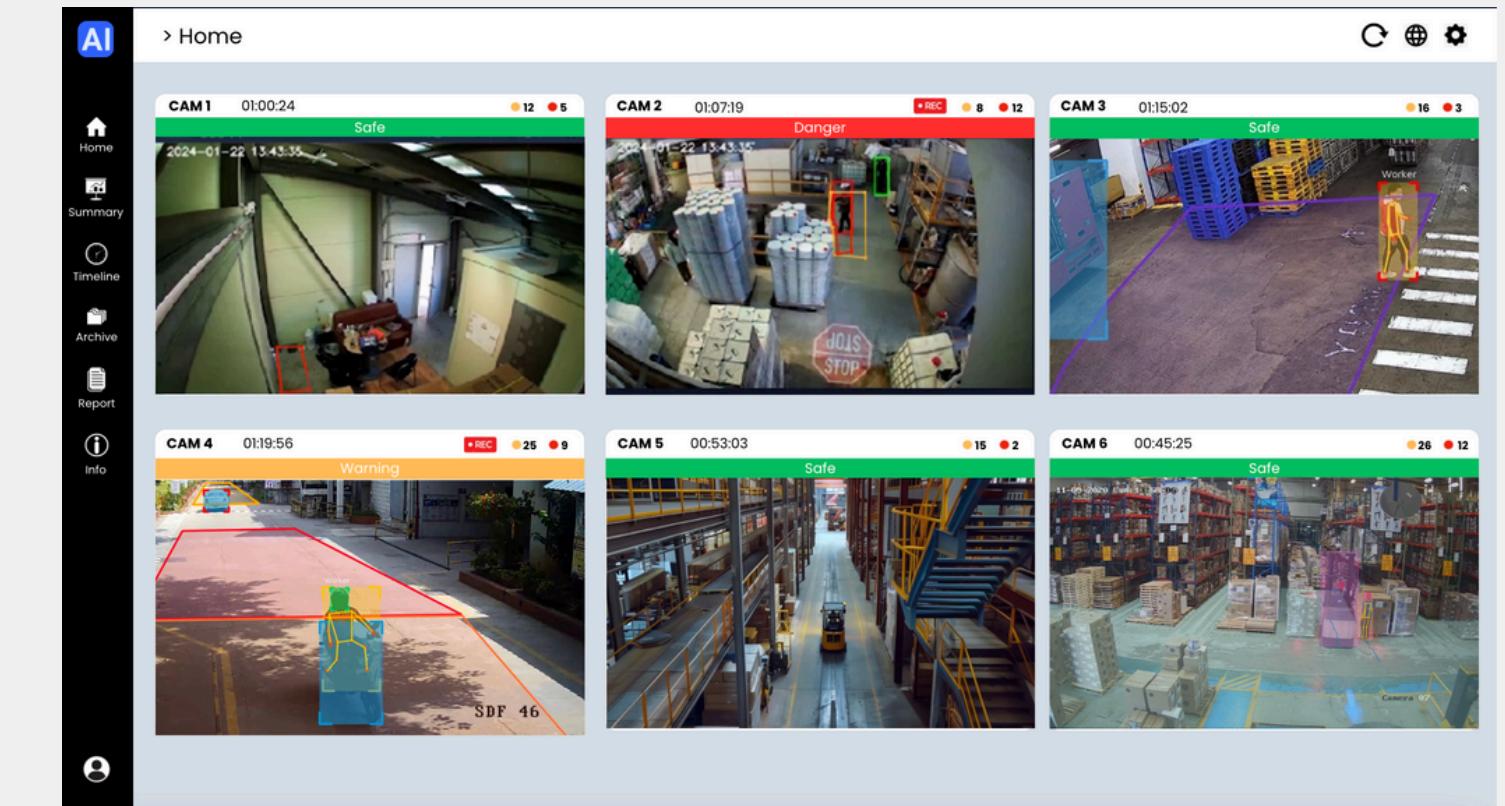
We created a website for safety monitoring

02

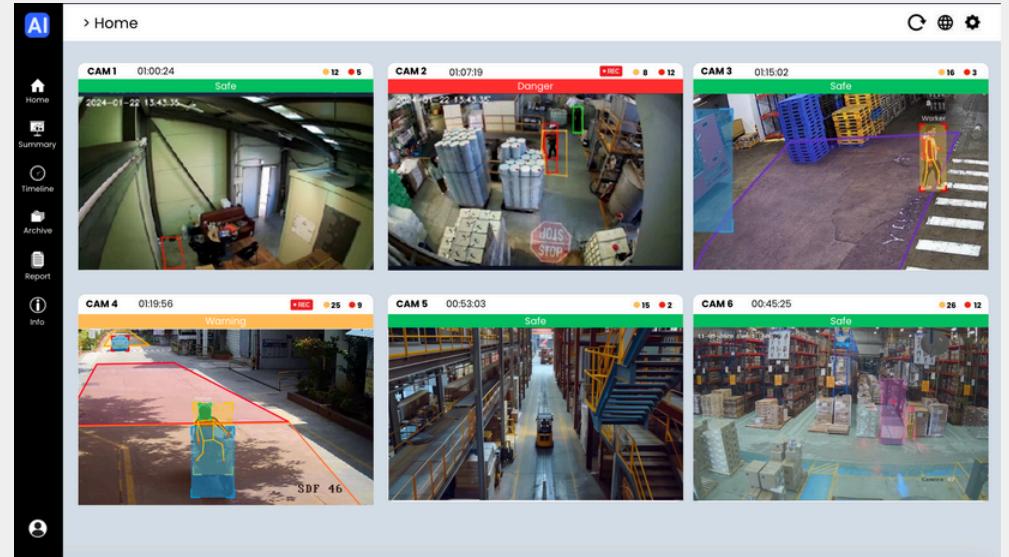
It works in real time

03

It is easy to use and web-based

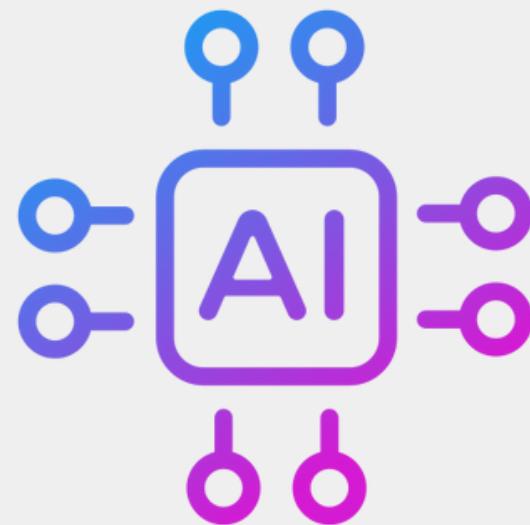


We Added AI !



Website was the task

+



=



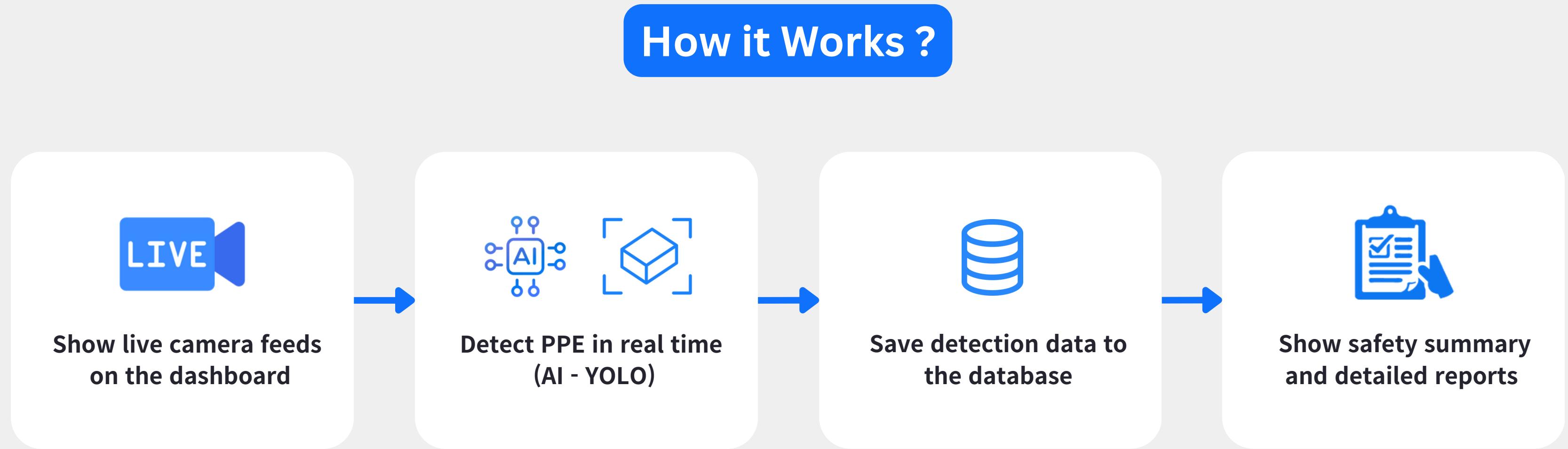
But we added AI (YOLO)
to make it smart

Now it can detect PPE
automatically.

Tools & Technologies

Design	Canva		
Frontend	 React  Bulma  Sass		
Backend	 FastAPI  MySQL		
AI	 YOLO		

Functional Requirements & System Architecture



Non-Functional Requirements

System Quality Goals



Fast response



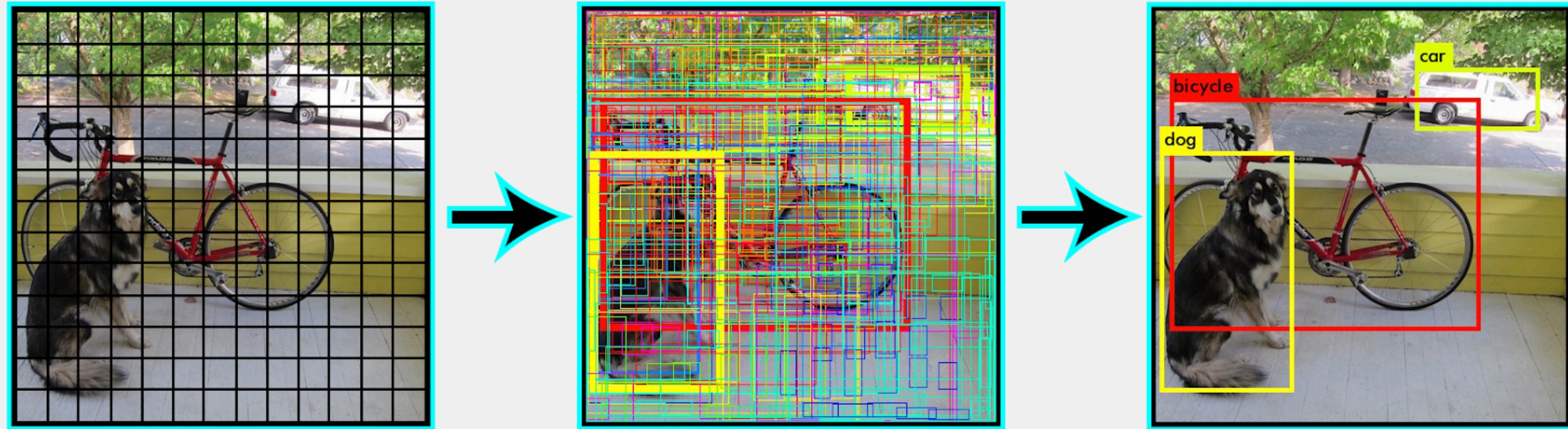
Easy to use



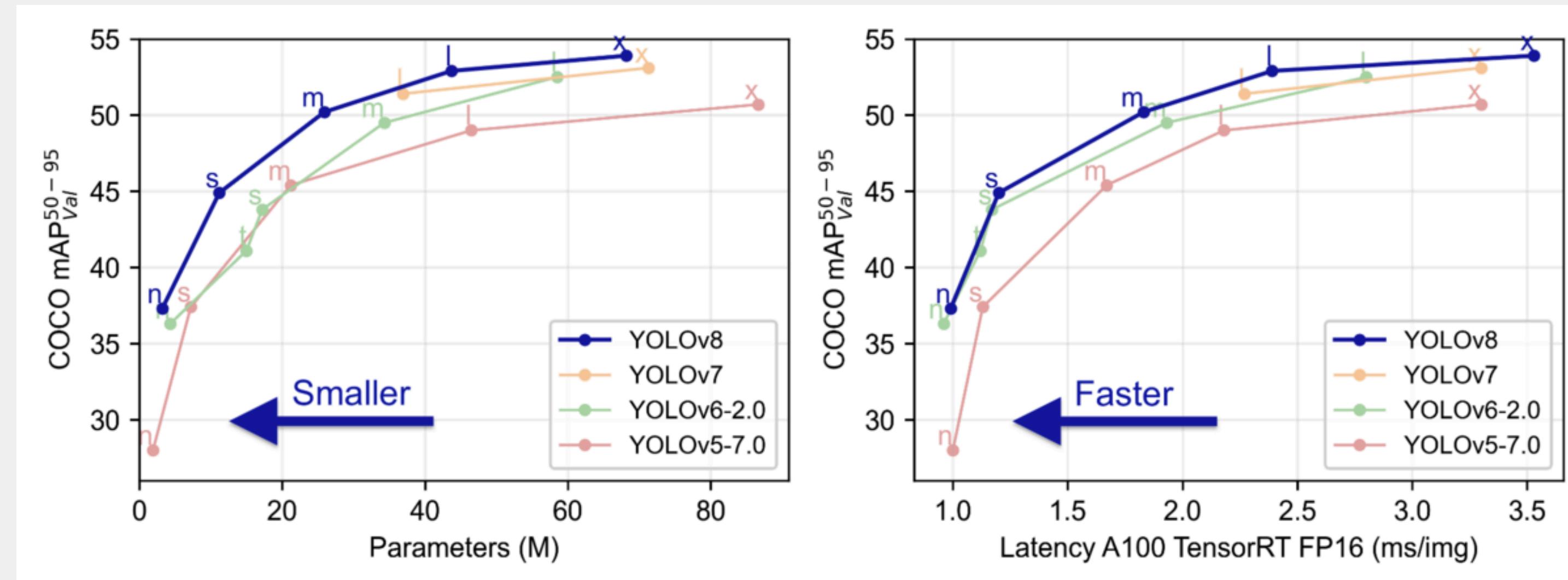
Mobile-friendly

How YOLO Works:

YOLO - You Only Look Once



Why YOLOv8n ?



✓ Fast

✓ Accurate

✓ Lightweight

Website Overview

Pages of Our Website

01 Login

02 Home (Dashboard)

03 Camera Detail

04 Summary

05 Timeline

06 Report

07 Info

08 Settings

Let's see the UI details →

Login Page

AI Safety
Safety Monitoring System

[INFO ABOUT SYSTEM](#)

[LOGIN FORM](#)

Login Account

Email ID

Password

Keep me signed in

Support

Login

Dashboard Page (Home)

This image shows the Home page of a Factory Monitoring System. The interface includes a sidebar, a main monitoring area with six camera feeds, and various control and status elements.

Sidebar: Located on the left side, containing navigation links for AI, Home, Summary, Timeline, Archive, Report, and Info. A blue dashed box highlights the "Home" link.

Repository name: A blue dashed box highlights the text "Repository name" located above the camera feeds.

Record icon: A blue dashed box highlights the recording icon in the top right corner of the central header.

Reload Language Settings: A blue dashed box highlights the reload language settings icon in the top right corner of the central header.

Counts: A blue dashed box highlights the count indicators (e.g., 12, 8, 16) in the top right corner of each camera feed.

Status indicators: A blue dashed box highlights the status indicators (Safe, Danger, Warning) in the top right corner of each camera feed.

Runtime: A blue dashed box highlights the runtime information (e.g., 01:00:24, 01:07:19, 01:15:02) in the top left corner of each camera feed.

Factory Monitoring System: The main title of the monitoring area.

AI: The primary monitoring mode selected.

Home: The current page selected.

CAM 1: Shows workers at a fruit processing line. Status: Safe. Runtime: 01:00:24. Counts: 12 (Yellow), 5 (Red).

CAM 2: Shows a warehouse floor with yellow bins. Status: Danger. Runtime: 01:07:19. Counts: 8 (Yellow), 12 (Red). Includes a timestamp: 21-03-2025 22:20:01 and location: KHAI THAC 2.

CAM 3: Shows a worker moving boxes in a warehouse. Status: Safe. Runtime: 01:15:02. Counts: 16 (Yellow), 3 (Red).

CAM 4: Shows a warehouse floor with stacks of white boxes. Status: Warning. Runtime: 01:19:56. Counts: 25 (Yellow), 9 (Red). Includes a timestamp: 03-15-2025 Sat 08:05:57 and camera ID: Camera 01.

CAM 5: Shows a warehouse interior with forklifts. Status: Safe. Runtime: 00:53:03. Counts: 15 (Yellow), 2 (Red). Includes a timestamp: 00-02-2025 06:12:19 and location: Inside Warehouse.

CAM 6: Shows a worker at a dock. Status: Safe. Runtime: 00:45:25. Counts: 26 (Yellow), 12 (Red). Includes a timestamp: 03-17-2025 Mon 08:05:09 AM and location: Inside Dock.

Camera Detail Page

The screenshot displays the Camera Detail Page for 'CAM 1'. The interface is organized into several sections:

- Left Sidebar (AI):** Includes links for Home, Summary, Timeline, Archive, Report, and Info.
- Top Bar:** Shows the camera name (> CAM 1), a 'Filter' button, a 'Photo & Video' section with camera and video icons, a '12 Alerts' badge, and a settings gear icon.
- Alerts Section:** Titled 'Camera Alerts', it lists events from Feb 10, 2025, to Feb 12, 2025, such as 'Fire' and 'Fall' incidents.
- Main Video Preview:** A large video player window shows a factory floor with industrial equipment and workers. Three workers are highlighted with bounding boxes and ID tags:
 - Worker ID: 2, Confidence: 83% (PPEs: Hard hat, Mask, Glasses, Reflective Vest)
 - Worker ID: 3, Confidence: 91% (PPEs: Hard hat, Mask, Glasses, Reflective Vest)
 - Worker ID: 1, Confidence: 89% (PPEs: Hard hat, Mask, Glasses, Reflective Vest)A timestamp at the bottom indicates 00:00 to -03:46. Control buttons for play/pause and volume are visible.
- Right Side Metrics:** Includes:
 - A 'Count of alerts' badge (12).
 - A 'Count of detect' badge (12).
 - A 'Trend analysis' chart showing counts for Helmet, Vest, and Fire over a week.
 - A 'Counts by workers' section listing detections for Worker ID: 03 (9) and Worker ID: 02 (3).
- Bottom Buttons:** Icons for 'Icon', 'Recorded Video', 'Save', and a bookmark icon.

Annotations with dashed blue boxes highlight specific features:

- Detect events:** Points to the 'Report' link in the sidebar.
- Icon:** Points to the icon in the bottom right corner of the main video preview.
- Recorded Video:** Points to the play/pause button in the video preview.
- Save:** Points to the save icon in the bottom right corner of the main video preview.
- Count of alerts:** Points to the '12 Alerts' badge.
- Count of detect:** Points to the '12' badge in the 'Count of detect' section.
- Trend analysis:** Points to the line chart.
- Counts by workers:** Points to the 'Detections' section.

Timeline Page

The screenshot displays the Timeline Page interface, featuring a sidebar on the left and three main sections: Main Event, Archive, and Camera Tab.

Main Event: Shows a list of events from all cameras. A dropdown menu at the top allows filtering by camera. Individual events are listed with their camera name, timestamp, and a small icon representing the detected situation (e.g., helmet, vest). The event for "Cam 4" on Feb 12, 2025, 17:54 is highlighted.

Archive: Displays a grid of thumbnail images from different cameras. Each thumbnail includes a timestamp and a situation label. The first three thumbnails are labeled "Time: Feb 12, 2025, 18:25" and "Situation: Helmet Detect".

Buttons: Located at the top right of the page, these include a refresh icon, a globe icon, and a gear icon.

Camera Tab: A tab bar at the top of the Camera Tab section shows tabs for Cam 1 through Cam 6. The "Cam 1" tab is active.

Events: A section on the right side of the Camera Tab area lists events, each with a thumbnail, timestamp, and situation. The first two events are labeled "Time: Feb 12, 2025, 18:12" and "Situation: Vest Detect".

Filter: A label pointing to the "All camera" dropdown in the Main Event section.

Events by Camera: A label pointing to the list of events in the Main Event section.

Filter: A label pointing to the "Most recent" dropdown in the Camera Tab section.

Events: A label pointing to the event list in the Camera Tab section.

AI

> Timeline

Main Event

All camera

Cam 3 Feb 12, 2025, 18:25

Cam 4 Feb 12, 2025, 17:54

Cam 2 Feb 12, 2025, 16:45

Cam 1 Feb 12, 2025, 12:12

Cam 3 Feb 12, 2025, 18:25

Cam 4 Feb 12, 2025, 17:54

Cam 2 Feb 12, 2025, 16:45

Cam 1 Feb 12, 2025, 12:12

Cam 3 Feb 12, 2025, 18:25

Cam 4 Feb 12, 2025, 17:54

Cam 2 Feb 12, 2025, 16:45

Cam 1 Feb 12, 2025, 12:12

Archive

Cam 1 Cam 2 Cam 3 Cam 4 Cam 5 Cam 6

Records

Most recent

Time: Feb 12, 2025, 18:25
Situation: Helmet Detect

Time: Feb 12, 2025, 18:12
Situation: Vest Detect

Time: Feb 12, 2025, 18:05
Situation: Helmet Detect

Buttons

Home

Summary

Timeline

Archive

Report

Info

Events

Summary Page



Report Page

The screenshot shows a report page interface with the following highlighted components:

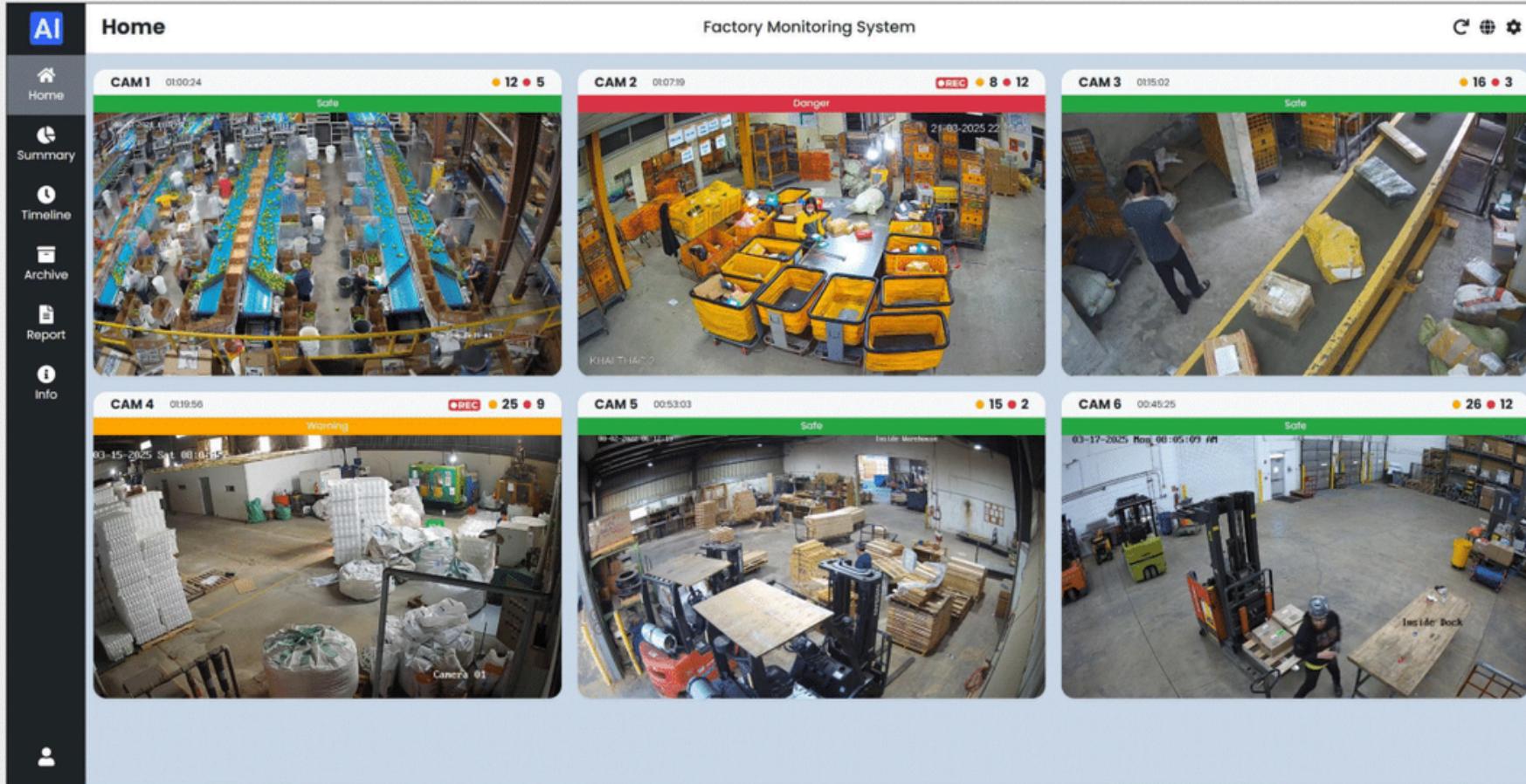
- Filter**: A button on the left sidebar.
- Worker Details**: A section in the sidebar under the Timeline tab.
- Search**: A search bar at the top of the main content area.
- More info**: A "More Info" button next to a row in the table.
- Alert Button**: An "ALERTED" button in the Notify Advisor column.
- Select All**: A "Select All" checkbox in the Select column.
- Select**: A "Select" checkbox in the Select column.
- Alert & Download Buttons**: Buttons for "Alert" and "Download" located at the bottom right of the table.

Search Results Table Data

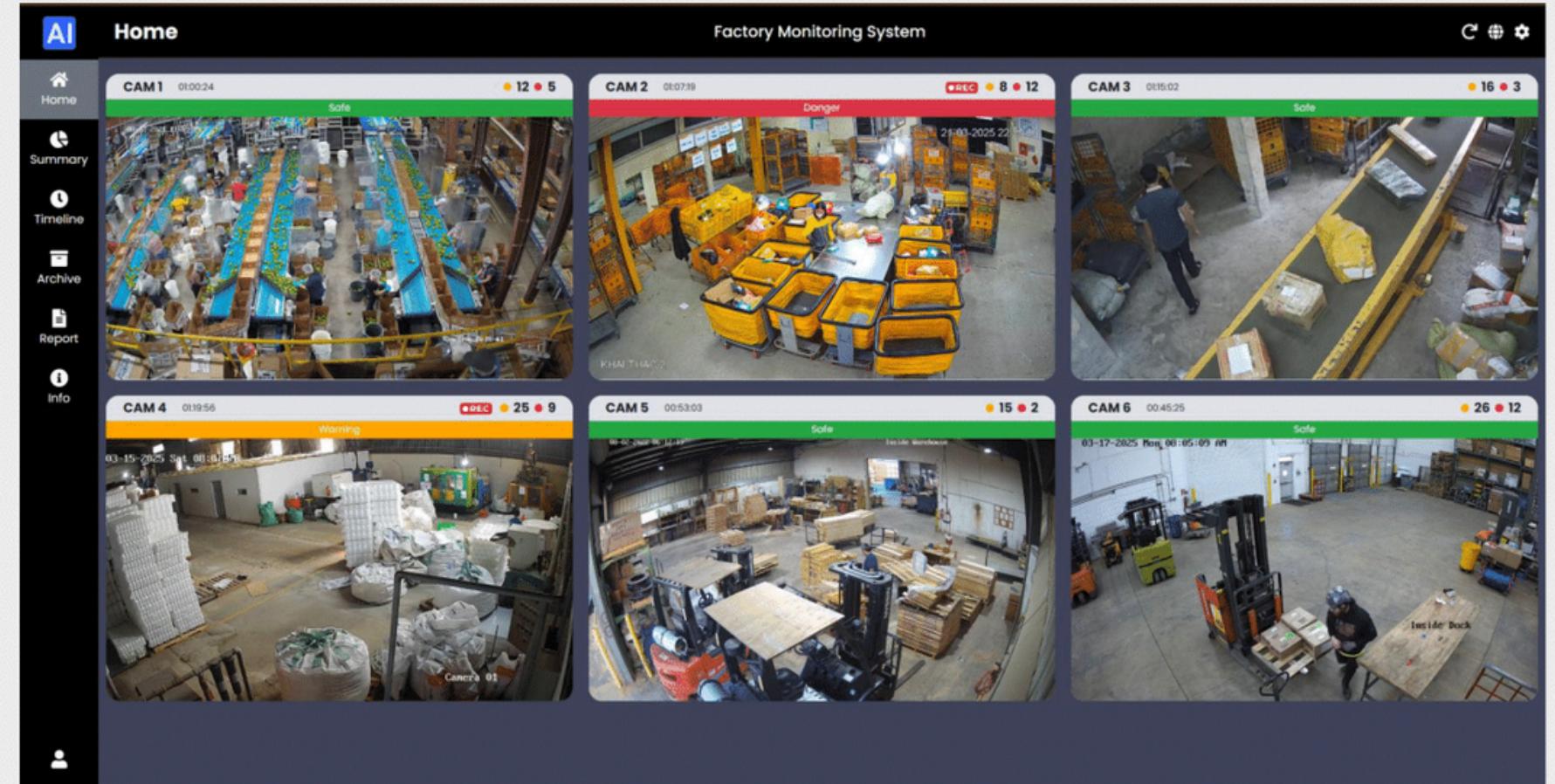
ID	Name	Date	Event	Notify Advisor	Select
2025041	Kim Su Min	2025.05.12 18:01	<button>More Info</button>	ALERTED	<input checked="" type="checkbox"/>
2025167	Lee Min Ho	2025.05.12 17:55	<button>More Info</button>	ALERT	<input type="checkbox"/>
2025793	Kang Dong Won	2025.05.12 15:48	<button>More Info</button>	ALERTED	<input checked="" type="checkbox"/>
2025041	Kim Su Min	2025.05.12 12:42	<button>More Info</button>	ALERT	<input type="checkbox"/>
2025041	Kim Su Min	2025.05.11 13:39	<button>More Info</button>	ALERTED	<input checked="" type="checkbox"/>
2025793	Kang Dong Won	2025.05.11 10:35	<button>More Info</button>	ALERT	<input type="checkbox"/>
2025167	Lee Min Ho	2025.05.11 08:32	<button>More Info</button>	ALERT	<input type="checkbox"/>
2025041	Kim Su Min	2025.05.10 13:26	<button>More Info</button>	ALERT	<input type="checkbox"/>
2025167	Lee Min Ho	2025.05.10 12:23	<button>More Info</button>	ALERTED	<input checked="" type="checkbox"/>
2025041	Kim Su Min	2025.05.10 10:55	<button>More Info</button>	ALERT	<input type="checkbox"/>
2025793	Kang Dong Won	2025.05.10 10:32	<button>More Info</button>	ALERT	<input type="checkbox"/>
2025041	Kim Su Min	2025.05.10 09:25	<button>More Info</button>	ALERT	<input type="checkbox"/>

Dark and Light Mode

Light Mode

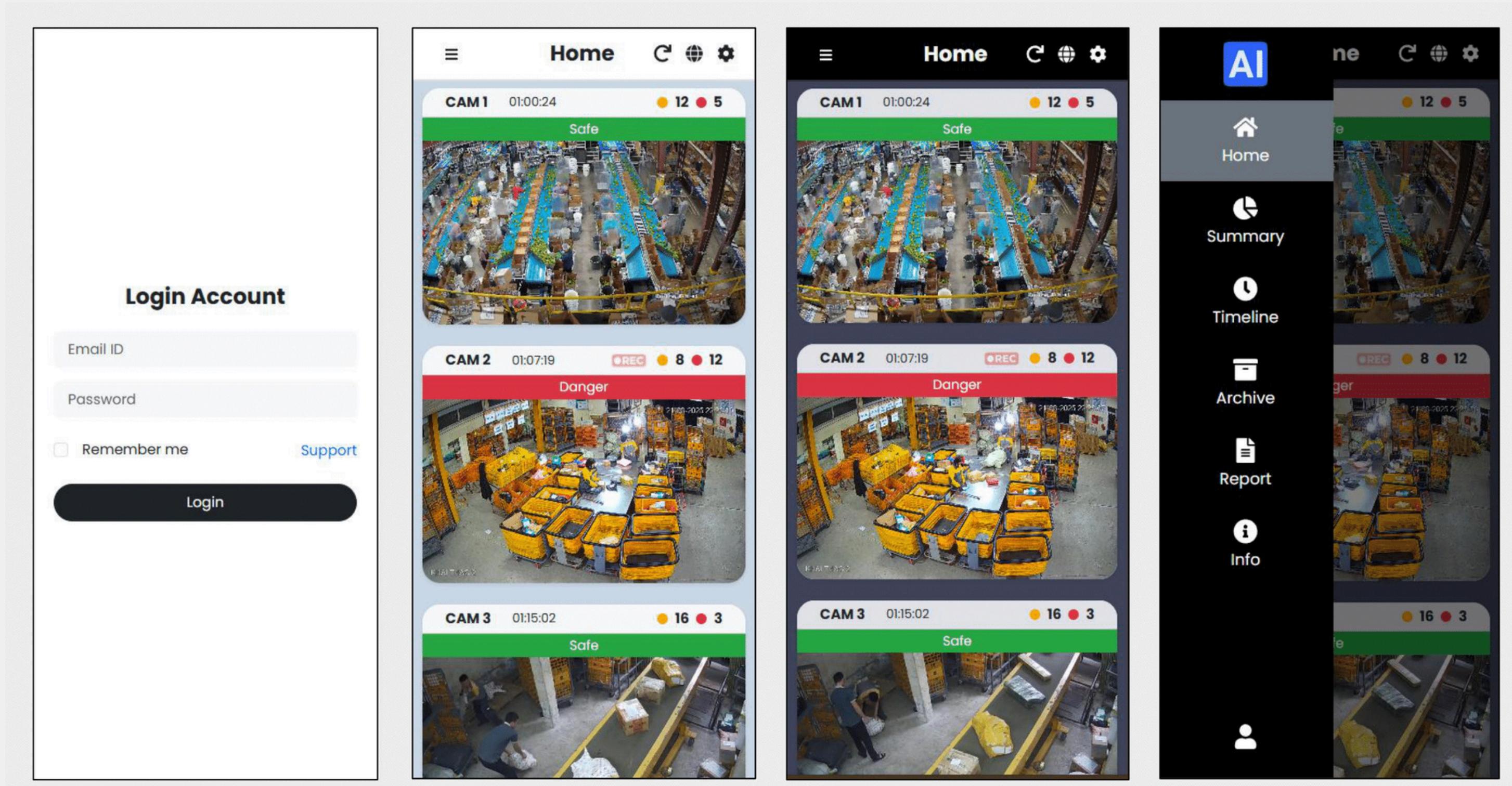


Dark Mode



Responsive Design

Mobile

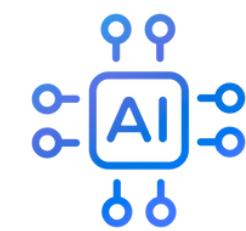


Our Progress

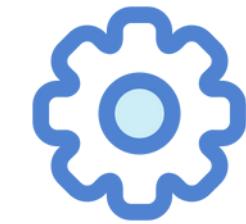
Task	30%	60%	Completed
UI Design			
Frontend			
Backend			
AI Dataset			
YOLO Training			
Full System Integration			

Future Plans

Our Future Plans:



Add More AI modules
(Safety Glass, etc)



Create settings page



Optimize system speed

Thank You

Q & A

MEERKAT