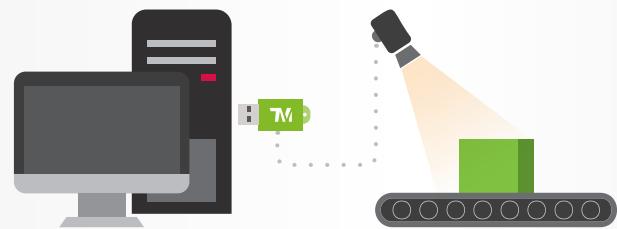# AI Vision-
TM AI+™ AOI Edge

The smart function software that helps you to deploy TMvision™ to all required spots in the factory

If you have requirements for setting up pure visual working areas in the factory or require multiple cameras in a single visual working area, TM AI+™ AOI Edge will be the best solution for you to optimize your implementation costs while fulfilling visual function needs.

Features

- Easy integration of TM AI+™ to improve the precision and width of AOI inspection
- Support TM Plug&Play™ camera to save the time of camera integration
- User-friendly TMflow™ interface is easy to master. No need for experienced workers to learn new software

- TM AI+™ AOI Edgecan be installed on any personal/industrial computer at production lines. After connecting the computer to external camera, the user can perform vision tasks like item recognition, image enhancement and measurement through TMvision™.

Installation requirements

Installation requirements	
TM AI+ Software version	Ver. 2.12
Hardware requirements	
Operating System	Ubuntu 20.04 LTS (64-bit)
CPU	Intel i7 Gen 7 or above
RAM	32 GB
Graphics cards	Supports NVIDIA GPU micro-architectures Maxwell, Pascal, Volta, Turing, and Ampere. Followings are recommended: NVIDIA GeForce RTX 30 series (3060 12GB or above) NVIDIA RTX professional GPUs (A2000 12GB or above) NVIDIA Quadro RTX professional GPUs (4000 or above)
Storage	2TB (SSD Recommended)
Communication interface	Ethernet
Language support	EN, TW, CH, DE, ES, FR, JP, KO, PT, TH, VI
Additional Notes	Linux on VM is not compatible

TM AI+™

TM AI+™ Video

- If you're interested in this solution, please contact Techman Robot sales for TM AI+™ training server free-trial. Contact email: tmsales@tm-robot.com
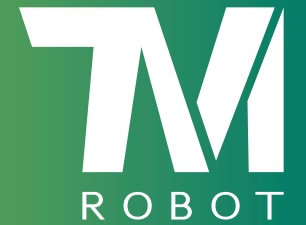
TM AI vision solution

Evolve Your Robot Vision with TM AI+™

▪ All rounded Machine Vision Capability
The embedded vision of TM Robot includes our basic vision functions such as positioning, barcode reading, OCR, etc. With AI, it can execute more difficult tasks like classification, detection, segmentation and can be widely used in inspection applications.
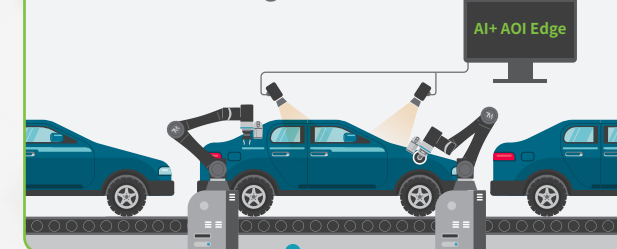
▪ Graphical User Interface
Both vision task editing and AI model training functions is designed with a graphical interface that is easy to learn and operate.
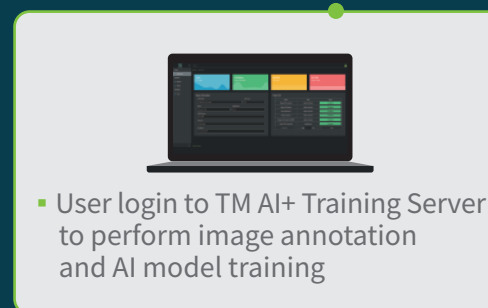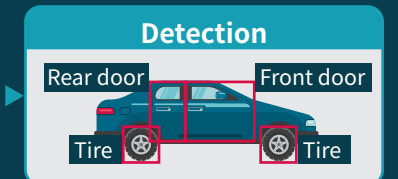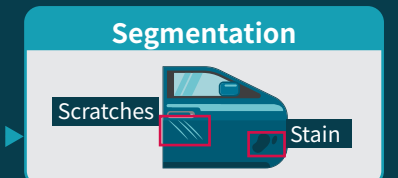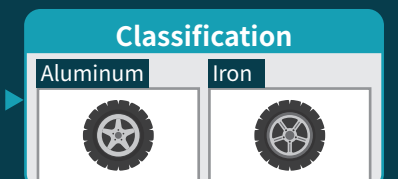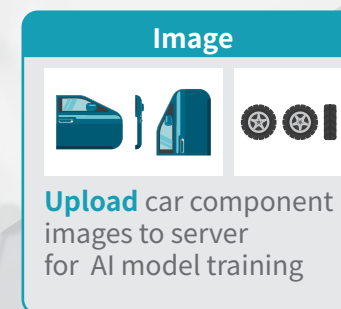
▪ The Perfect Combination of Arm, Vision and Brain(AI)
Using embedded vision, TM Robot can help collect the image data necessary for your AI model training. A trained AI model can be easily imported into TM Robot without coding effort.

TM Robot & AI+ AOI Edge inspect the car from different angle

AI+ AOI Edge

Download AI model for inference to robot and AOI Edge

Image
Upload car component images to server for AI model training

TMAI+ Training Server

Classification
Aluminum   Iron

Segmentation
Scratches   Stain

Detection
Rear door   Front door
Tire   Tire

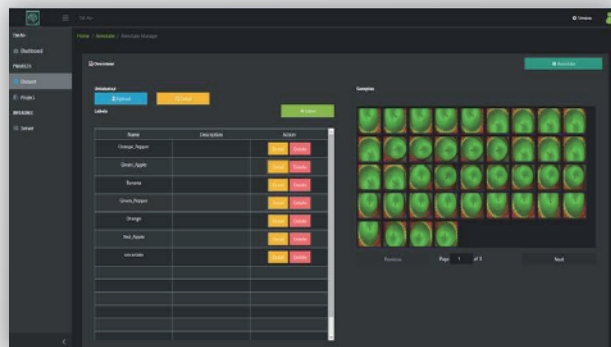- User login to TM AI+ Training Server to perform image annotation and AI model training

AI Vision-
TM AI+™ Training Server

TM AI+™ Training Server is a part of the TM AI+™ solution that can help you manage image data, adjust model training parameters and perform AI model evaluation.

Secure Your Data

The software can be installed on the server within enterprise buildings or factories. All image data used for AI model training are saved locally instead of cloud to prevent data leakage.
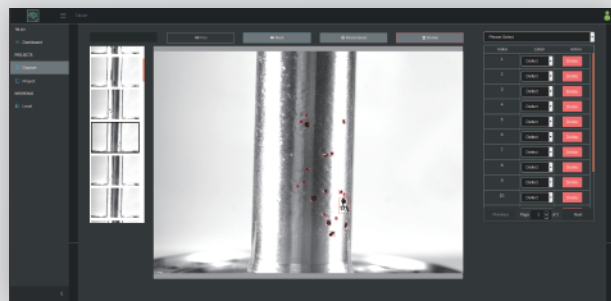
Train Your AI Model Effortlessly

As a browser-based software, users can access TM AI+™ training server via web browser from any location. And the graphical UI allows users to train AI models with ease.

4 Steps to Train an AI Model

STEP **1** Image collection → STEP **2** Annotation → STEP **3** Training → STEP **4** Deployment

Collect Image Data
- Take multiple photos of the object and upload them to TM AI+™ Training Server
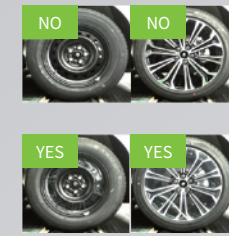
TM AI+™ Training Server
- Select the type of vision task
- Label the uploaded image samples
- Configure training parameters and begin training
- Evaluate the training outcome

Import AI model to the production line
- Download the trained AI model from the training server to TM Robot or external camera
- Begin AI inference

Application Examples

Assembly Inspection

- Checking if the tires are wrapped with PE film
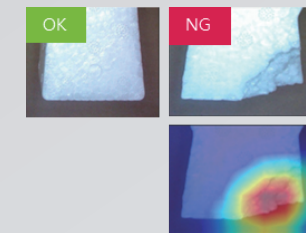- Checking if all wires are connected correctly

Classification

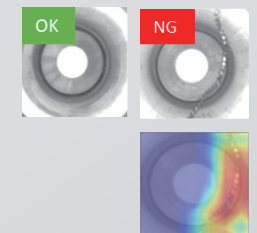- Sorting different materials for wooden furniture
- Recognition of pizza flavor and crust

Defects Inspection

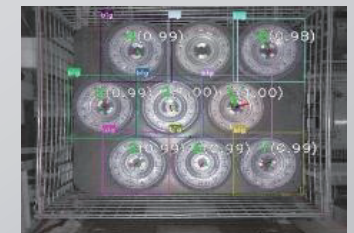- Identifying objects with damage on the edge
- Checking if there are metal scrap on the surface
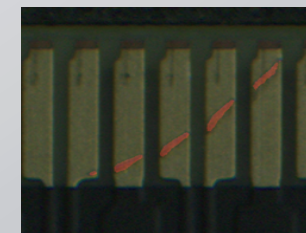
Counting / Detection

- Counting the amount of the object in the tray
- Objects detection and 3D positioning

Scratches /Cuts / Dents Inspection

- Checking scratches on DRAM gold fingers
- Checking the dents on metal parts