

# Waste Management Detection

■ Innovative Technologies for Efficient Waste Management Detection with Vision AI.

## *Waste Management Detection event*

### Overview

Waste management is the process of collecting, transporting, processing, and disposing of waste materials in an environmentally responsible manner. Effective waste management is essential for protecting the environment and public health, and it is becoming an increasingly important issue in the context of global sustainability.

Waste management includes a range of activities, from waste reduction and recycling to the safe disposal of hazardous materials. One of the key challenges in waste management is the need to balance environmental and economic concerns, as well as the health and safety of workers and the general public.

### Vision AI based monitoring

Vision AI based monitors can be used to for the detection of waste management events by providing real-time video feeds of the factory area. The cameras scan every frame and help identify opportunities for waste reduction, recycling, and cost savings.

### Events

VisionAI model's generated events would be:

- Waste level exceeds limit

It is recommended that any instance of waste level's exceeding should be reported. This is because it is a sign of inefficiency and can be used to optimize processes and reduce waste costs.

An event data for this may include the following information: - Date and time of waste collection: This is important for tracking the frequency of waste collection and ensuring that the waste is collected on time.

- **Type of waste:** This refers to the category of waste, such as organic waste, paper waste, plastic waste, hazardous waste, etc. It helps in sorting and recycling waste efficiently.
- **Quantity of waste collected:** This information helps in tracking the amount of waste generated and collected, which can help in planning waste management strategies.
- **Location where waste is exceeding level:** This refers to the address or area where the waste was collected, which helps in identifying areas with high or low waste generation rates.
- **Identification of the waste collector:** This refers to the name or ID number of the person or company responsible for collecting the waste, which helps in tracking the accountability and reliability of waste collection services.



#### Note

By collecting and analyzing this event data, waste management organizations can develop effective waste management strategies, reduce waste generation, and promote recycling and sustainable waste management practices.

## Configuration

To set up a camera system for waste monitoring, You will need a camera capable of capturing footage of waste collection at the factory. The camera should be able to capture footage of the factory area and the waste collection process.

## Model Details

### Dataset

The dataset for this scenario is based on real-world waste management detection events. The dataset consists of images and videos collected from various sources.

### Model

The model to detect waste management is in progress and it will be released soon.

### Scenario details

The business logic for this scenario is as follows:

- We use existing camera feeds from the premises for raising waste management events.
- VisionAI system is able to run on edge devices. It uses camera feeds for processing.
- From the camera feed we identify opportunities for waste reduction, recycling, and cost savings.
- If waste management event is detected, an alert is raised.

#### **Test now with online Web-Cam**

To test this model & scenario, you can use the following steps:

- Install the visionai package from PyPI

```
$ pip install visionai
```

- Test the scenario from your local web-cam

```
$ visionai scenario test waste-management-detection  
  
Downloading models for scenario: waste-management-detection  
  
Starting scenario: waste-management-detection..
```

- You should be able to see the events generated on your console window with the detections of waste management within the camera field of view.

#### **With RTSP Camera - Pipelines**

[TODO]

#### **With Azure Setup**

VisionAI app is available at a Azure Market place, one can download and use it by following steps mentioned [here](#)

## Features

The VisionAI solution is the most efficient way of implementing this scenario, as evidenced by the following features:

- Accurate measurement: VisionAI's system is designed to provide highly accurate measurements of waste production, disposal, and recycling.
- Real-time monitoring: VisionAI's systems can provide real-time monitoring of waste production, disposal, and recycling.
- Automated insights: Our solution can automatically provide insights and recommendations for waste reduction and recycling based on the data analysis.
- Integration with other systems: VisionAI solution can be integrated with other systems such as smart buildings, waste management systems, and recycling systems.
- User-friendly interface: Our user-friendly interfaces that allow users to easily access and analyze the data.

## Training with custom data

The scenario is provided as part of our GPL-v3 package for VisionAI. If you wish to train this with custom datasets, please contact us and we can provide you with the training code. You can do custom training with your own datasets for free, as long as it complies with GPLv3 license (you give back the code to the community). If you are interested in a custom license, please [contact us](#).

## Contact Us

- For technical issues, you can open a Github issue [here](#).
- For business inquiries, you can contact us through [our website](#).