# WASTECOP

VIPREETH A
4VP24CD049
VCET,PUTTUR

# What is this WASTECOP?

- **AI-Powered Waste Enforcement System**
  Inspired by Intelligent Traffic Enforcement (ITEMS)
- Towards a Cleaner, Smarter Future

# Problem Statement:

>Growing waste disposal in public areas:
Roadsides
Rivers/bridges
Empty lands
Parking lots
> Manual enforcement is ineffective
> Need automated, intelligent, real-time solution

# System Overview(Solution):

An AI-enabled system to **detect, capture, and report** illegal waste disposal in public areas.
Works in two primary cases

**1.Vehicle-based littering:**
**2.Human-based littering:**

## How It Works –

📷 **Camera Setup at hotspots**
1. 🧠 **Edge AI detects waste throwing**
2. 📸 **Capture image with timestamp & GPS**
3. 🌐 **Upload to central dashboard**
4. 🏛️ **Authorities take action**
5. ⏳ **Auto-deletion after 30 days(Optional)**

# 🔍 System Components:

1. Camera Hardware
2. AI Detection Module
3. Backend System
4. Website/Admin Portal
5. Mobile App (Optional)
6. Notifications

# Component Required And Price Estimate (per unit):

| Component | Description | Price (INR) | Price (USD) |
|---|---|---|---|
| Camera Module | USB HD Cam / Pi Cam / ESP32-CAM | ₹500–₹1,500 | $6–$18 |
| Edge AI Device | Raspberry Pi 4 (4GB) / Jetson Nano | ₹5,500–₹10,000 | $66–$120 |
| Cloud Storage Subscription | For logs, evidence photos, and data backups | ₹500–₹1,000/yr | $6–$12 |
| Solar Panel (20W) + Battery | Solar-powered option (with charge controller) | ₹2,000–₹3,000 | $24–$36 |
| 4G LTE Dongle (SIM7600) | Internet access | ₹2,000–₹2,500 | $24–$30 |
| Waterproof Enclosure (IP66) | Weatherproof box for housing | ₹800–₹1,500 | $10–$18 |
| Voltage Converter + Wiring | For 12V to 5V + connectors | ₹300–₹600 | $4–$7 |
| Misc (mount, screws, stand) | Mounting materials, cable ties, clamps | ₹200–₹500 | $3–$6 |

## Total Cost (Estimate)

| Setup Type | INR | USD |
|---|---|---|
| Basic (No Solar) | ₹9,000–₹13,000 | $110–$160 |
| With Solar & 4G | ₹13,000–₹18,000 | $160–$220 |

**Bulk manufacturing can reduce prices by 20–30%.**

## Example Camera Setup at a River Bridge:

## ⚠ Disadvantages of WASTECOP:

1.Initial High Setup Cost
2.Privacy Concerns
3.False Positives
4nternet Connectivity Dependency
4.Data Storage & Management
5. Range Limitations
6.Maintenance Requirements
7.Integration with Government Systems
8.Public Resistance or Vandalism
9.Limited Human Recognition

## ☑ What Exists Already (Past Implementations):

1. Smart Surveillance for Waste Monitoring
2. Waste Management Apps

# ✅ Conclusion:

- **AI-based system** to detect and report illegal trash disposal in public areas
- **Inspired by Intelligent Traffic Enforcement** for real-time action
- **Promotes accountability** and supports **cleaner environments**
- **Challenges exist** (cost, maintenance, range), but benefits outweigh them
- **Supports Smart City goals** with automation and transparency

# THANK YOU