# Motion Activated Surveillance Camera

A mini-project developed by final year Electronics and Communication Engineering students at Velammal Engineering College, Chennai, under Anna University (Even Sem 2023-24).

## 📌 Project Overview

This project focuses on building a \*\*cost-effective motion activated surveillance camera\*\* system using the ESP32-CAM module and a PIR motion sensor. Upon detecting motion, the system captures an image and sends it to the user via \*\*Telegram\*\*, enabling real-time monitoring from remote locations.

## 🎯 Objective

- Detect motion using a PIR sensor and trigger an ESP32-CAM to capture an image.

- Send notifications and the captured image to a \*\*Telegram bot\*\* for real-time user alerts.

- Ensure seamless integration between hardware and software for reliable performance.

## 🧠 Key Features

- Motion detection using PIR sensor.

- Image capture with ESP32-CAM.

- Real-time image delivery via Telegram bot.

- Image storage on an SD card.

- Low-power and cost-effective design.

## 🔧 Hardware Used

| S.No | Component | Cost (₹) |

|------|------------------|----------|

| 1 | PIR Motion Sensor | 130 |

| 2 | ESP32-CAM | 450 |

| 3 | TTL Programmer | 150 |

| 4 | F-F Jumper Wires | 50 |

## 💻 Software Used

- Arduino IDE (for programming ESP32-CAM)

## 🧩 System Architecture

- \*\*PIR Sensor\*\* detects motion.

- \*\*ESP32-CAM\*\* receives the signal and captures an image.

- Image is stored on an \*\*SD Card\*\*.

- Image is also sent via \*\*Telegram Bot\*\* to the user.

## 🌍 Applications

- Home Security

- Office Surveillance

- Wildlife Monitoring

- Remote Location Surveillance

## 🚀 Outcome

The project successfully delivers a motion-triggered surveillance system with real-time alerting and image transmission via Telegram. It showcases practical integration of microcontrollers, motion detection, and wireless communication for IoT-based surveillance systems.

> 💡 This project serves as a foundation for building more advanced surveillance systems using IoT and AI.