CS331: SOFTWARE ENGINEERING LAB

Assignment 2:

USE CASES :

>> **Count Vehicles**: The system analyzes video to count cars, trucks, and bikes in lanes.

>> **Adjust Signal Timing**: The program decides green light duration based on vehicle density.

>> **Detect Emergency Vehicle**: Specifically identifying ambulances or fire trucks to prioritize them.

>> **Display System Status**: Showing the real-time video, car counts, and timers on a screen.

>> **Manual Signal Override**: Allowing an authorized person to take control of the lights manually.

>> **Fail-safe Mode**: Automatically reverting to a fixed-timer mode if the camera fails

ACTOR :

>> **Traffic Camera**: The hardware device that provides the video feed for car counting.

>> **Traffic Officer**: The human user who can manually click buttons to control lights during special problems.

>> **Emergency Vehicle**: An external entity (ambulance/fire truck) that triggers the priority "Emergency Mode".

>> **Pedestrian**: An external entity for whom the safety timers (minimum green light time) are maintained

>> **AI Agent** : Intelligent software module that analyzes traffic data and decides signal timing, triggers emergency mode, and updates the status display

UML :