

Classes, Attributes and Methods:

1. Camera:

- Attributes:
 - isNight
 - picture
- Methods:
 - countCars()
 - sendCarsNum()
 - changeMode()
 - compare()

2. Car:

- Attributes:
 - plate
 - isEmergency
- Methods:
 - InitiateCounting()

3. Moror:

- Attributes:
 - EmployeeID
 - department
 - city
- Methods:
 - checkCrowdArea()
 - systemMaintenance()
 - calculateCrowd()
 - updateCrowdArea()
 - sendCrowdArea()
 - AnalyseReports()

4. TrafficLights:

- Attributes:
 - ID
 - isWorking
 - locationX
 - locationY
 - Status
- Methods:
 - turnON(ID)
 - turnOff(ID)
 - setStatus()

5. ControlUnit:

- Attributes:
 - isEmpty
 - redLightTimeCounter
- Methods:
 - prossesTraffic()
 - calculateLanePriority()
 - generateStatistics()
 - calculateRedLight()
 - generateLogs()
 - generateReports()
 - checkEmergency()

Relationships:

1. Camera has an association with ControlUnit

- Relationship: Aggregation (many-to-one)
- Explanation: ControlUnit uses the camera to know which lines contain cars.

2. Car has an association with Camera

- Relationship: Aggregation (many-to-one)
- Explanation: The camera detects cars and counts them.

3. Moror has an association with TrafficLight

- Relationship: Aggregation (one-to-many)
- Explanation: moror maintains and observes TrafficLight.

4. TrafficLight has an association with ControlUnit

- Relationship: Aggregation (many-to-one)
- Explanation: ControlUnit is responsible for controlling the traffic light and when to open and close.

5. ControlUnit has an association with Moror

- Relationship: Aggregation (one-to-one)
- Explanation: ControlUnit generates reports and sends them to moror for analysis.