

## **Experiment 4**

### **Aim:**

To prepare Use Case Diagrams for the application software, Object Detection Solution.

### **Theory:**

#### **What is a Use Case Diagram?**

In the Unified Modelling Language (UML), a use case diagram can summarize the details of your system's users (also known as actors) and their interactions with the system. To build one, you'll use a set of specialized symbols and connectors. An effective use case diagram can help your team discuss and represent:

- Scenarios in which your system or application interacts with people, organizations, or external systems
- Goals that your system or application helps those entities (known as actors) achieve
- The scope of your system

#### **When to apply Use Case Diagrams?**

A use case diagram doesn't go into a lot of detail. Instead, a proper use case diagram depicts a high-level overview of the relationship between use cases, actors, and systems. Use cases are represented with a labelled oval shape. Stick figures represent actors in the process, and the actor's participation in the system is modelled with a line between the actor and use case. To depict the system boundary, draw a box around the use case itself. Use case diagrams are ideal for :

- Representing the goals of system-user interactions
- Defining and organizing functional requirements in a system
- Specifying the context and requirements of a system
- Modelling the basic flow of events in a use case

#### **What are the Components of Use Case Diagram?**

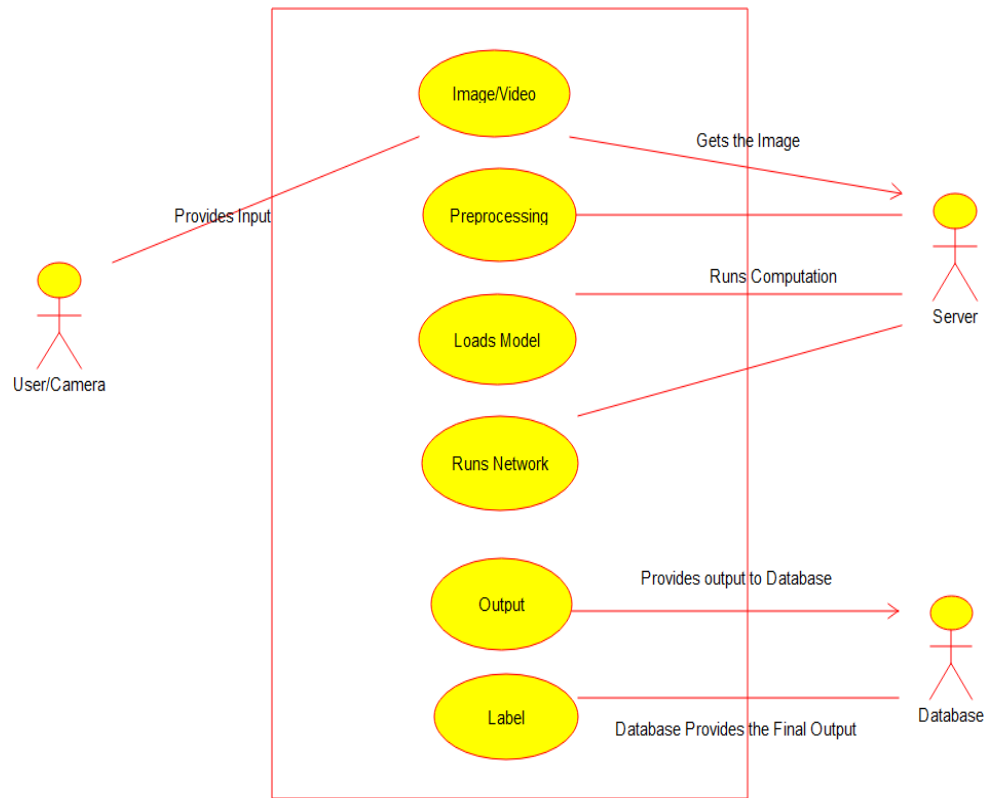
- **Actors:** The users that interact with a system. An actor can be a person, an organization, or an outside system that interacts with your application or system. They must be external objects that produce or consume data.
- **System:** A specific sequence of actions and interactions between actors and the system. A system may also be referred to as a scenario.
- **Goals:** The end result of most use cases. A successful diagram should describe the activities and variants used to reach the goal.

#### **Use Case Diagram Symbols and Notation:**

- **Use Cases:** Horizontally shaped ovals that represent the different uses that a user might have.
- **Actors:** Stick figures that represent the people actually employing the use cases.
- **Associations :** A line between actors and use cases. In complex diagrams, it is important to know which actors are associated with which use cases.
- **System Boundary Boxes :** A box that sets a system scope to use cases. All use cases outside the box would be considered outside the scope of that system.
- **Packages :** A UML shape that allows you to put different elements into groups. Just as with component diagrams, these groupings are represented as file folders.

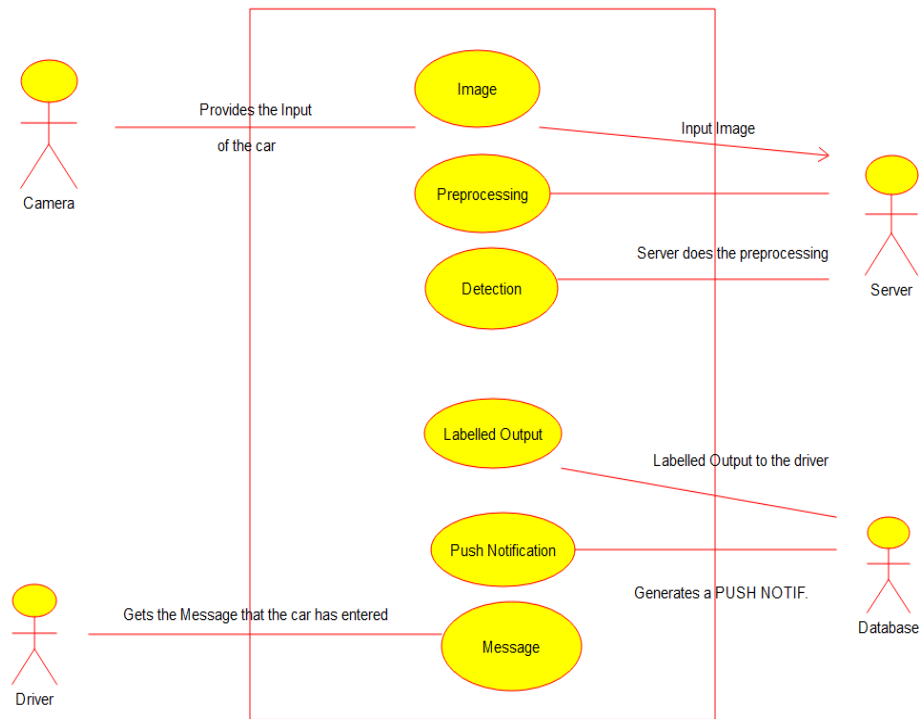
## Use Case Diagram for the Application Software – Object Detection Solution:

Use Case 1:



Use Case Diagram for the Object Detection Model, it takes image/video, runs the computation interacts with the server and the database then it provides the relevant results.

## Use Case 2:



Use Case Diagram of the Car Detection in Car Parking Management Solution, and it also provides a push notification to the driver that the car has entered the parking system.

## **Conclusion:**

The Use Case Diagram has been implemented, and created for the project.