Experiment 1

Aim:

To Prepare the problem statement for Object Detection Solution.

Requirement:

Hardware:

- Processor: Intel i7 Xtreme Edition (4.4Ghz, 8 Cores) or more.
- RAM: 32 GB or more (3500MHz).
- HDD/SSD: 1TB
- Monitor: 4K @ 240 Hz
- Keyboard, Mouse, and other peripherals
- GPU: NVIDIA Titan RTX 12 GB or more.

Software:

- Operation System (MacOS, Linux, Windows)
- Programming Interface/IDE
- Documenting Platform
- A UML Modeler (Umbrello)
- CUDA with CuDNN

Theory:

Object detection is a computer technology related to computer vision and image processing that deals with detecting instances of semantic objects of a certain class (such as humans, buildings, or cars) in digital images and videos.

It is widely used in computer vision task such as face detection, face recognition, video object co-segmentation. It is also used in tracking objects, for example tracking a ball during a football match, tracking movement of a cricket bat, tracking a person in a video.

Every object class has its own special features that helps in classifying the class – for example all circles are round. Object class detection uses these special features. For example, when looking for circles, objects that are at a particular distance from a point (i.e. the center) are sought. Similarly, when looking for squares, objects that are perpendicular at corners and have equal side lengths are needed. A similar approach is used for face identification where eyes, nose, and lips can be found and features like skin color and distance between eyes can be found.

The Main Objective is to create an Object Detection Solution that is able to do all the above specified tasks with ease.

Conclusion:

The problem statement was written successfully by following steps described above.