4.3 Sequence Diagrams

In this section we will be showing our sequence diagrams. The purpose of these diagrams is to display how our systems classes and objects behave in different scenarios.

4.3.1 Static Pedestrian

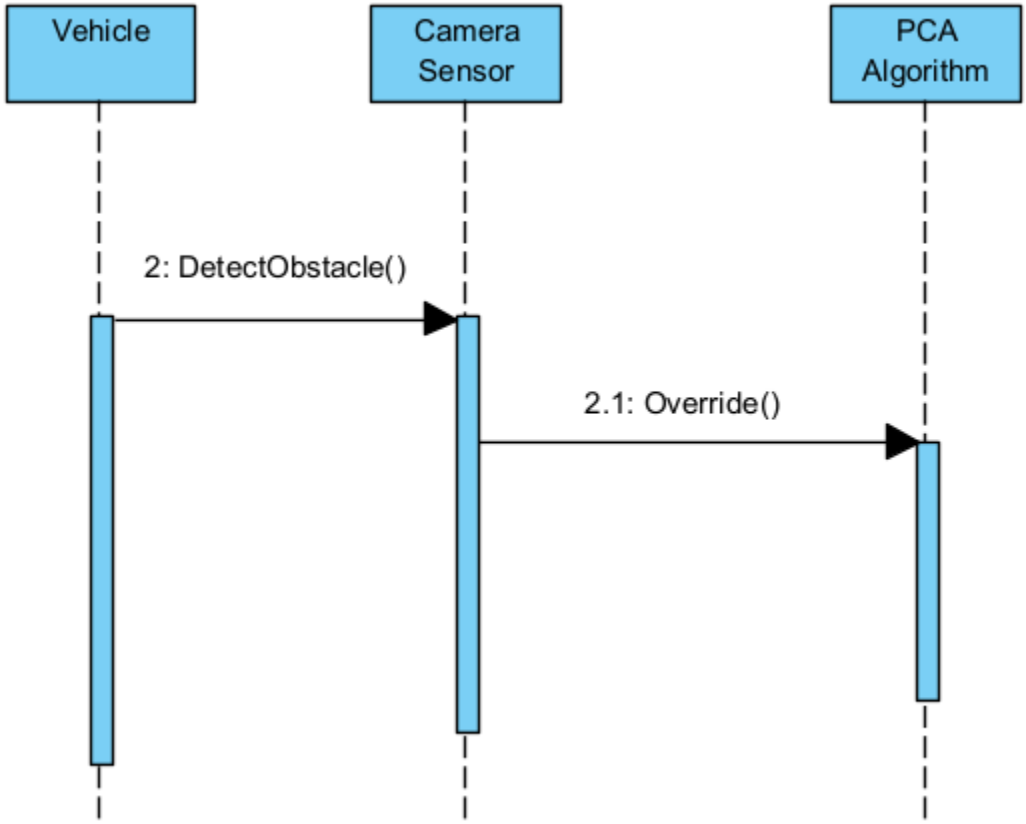

Figure 4: Static Pedestrian Sequence Diagram

Figure 4: This sequence diagram represents a scenario where the pedestrian is static. The pedestrian is detected by the camera sensor which is received by the PCA algorithm. The system overrides since nothing happens when a pedestrian is static.

4.3.2 Static Then Moving Pedestrian

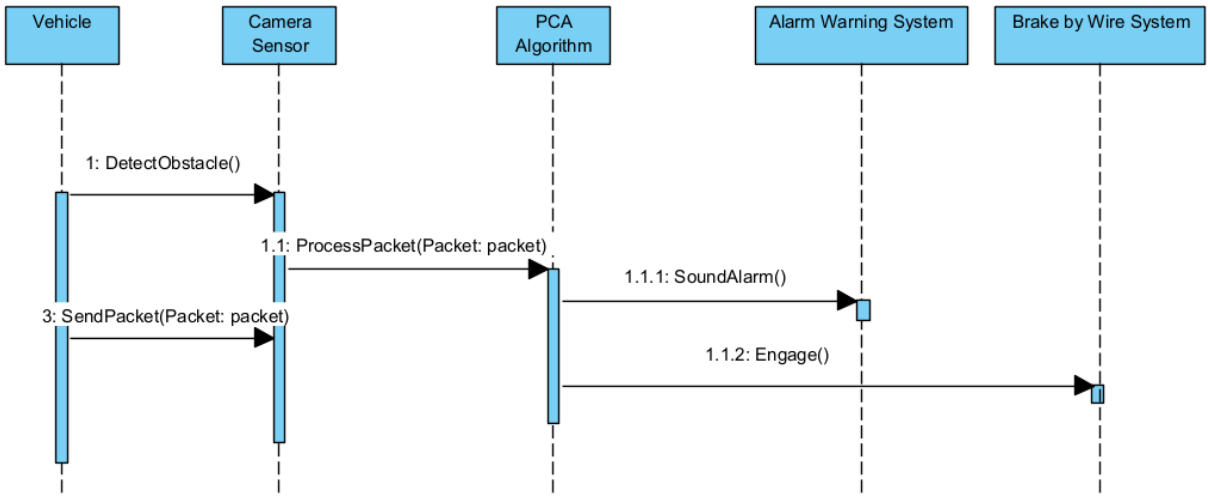

Figure 5: Static Then Moving Pedestrian Sequence Diagram

Figure 5: This sequence diagram represents a scenario where the pedestrian is static then moving. From the camera sensors, the obstacle is detected and packets are sent to the sensor which are processed and received from the PCA algorithm. The system sounds the alarm warning system and the brake by wire system is engaged since the pedestrian is detected and moving.

4.3.3 Moving Then Stopped Pedestrian

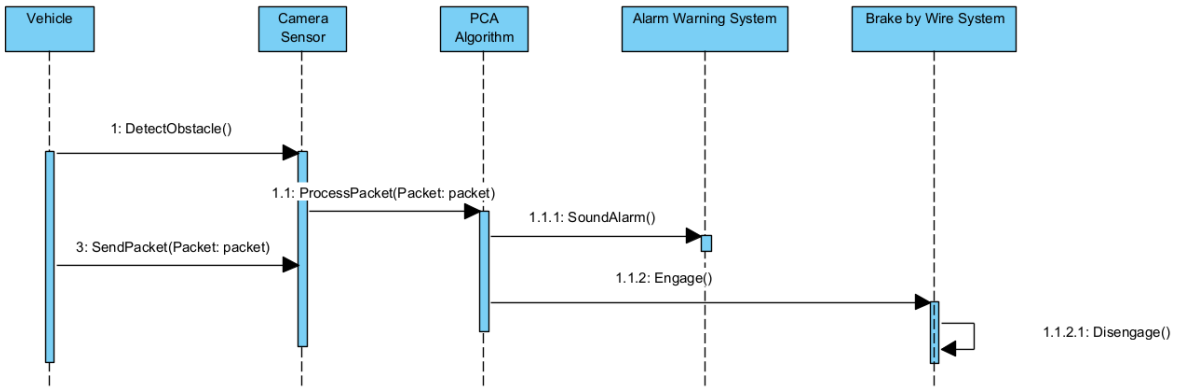

Figure 6: Moving Then Stopped Pedestrian

Figure 6: This sequence diagram represents when a pedestrian is moving then stopped. From the camera sensors, the obstacle is detected and packets are sent to the sensor which are processed and received from the PCA algorithm. The system sounds the alarm warning system and engages the brake by wire system but disengages when the pedestrian has stopped.

4.4 State Diagrams

In this section we will be showing our State diagrams. The purpose of these diagrams is to display how our systems objects behave in their system.

4.4.1 PCA System

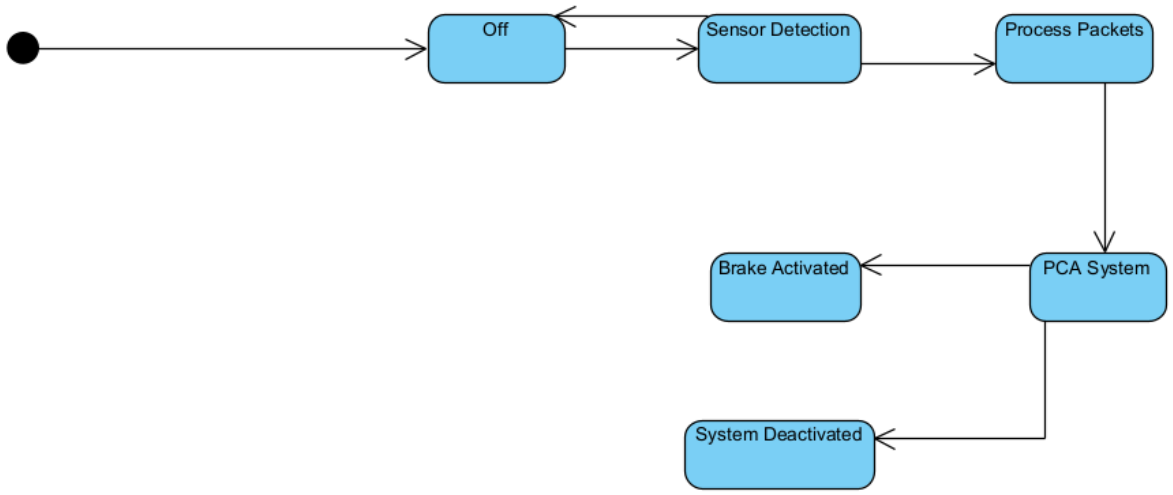

Figure 7: PCA System

Figure 7: This state diagram shows how the PCAS runs. When the system is turned on the sensor detection will trigger and will the process the packets to send to the PCAS. When it has been sent to the PCAS the brakes are activated depending on the scenario. The system is able to be deactivated as well.

4.4.2 Brake by Wire System

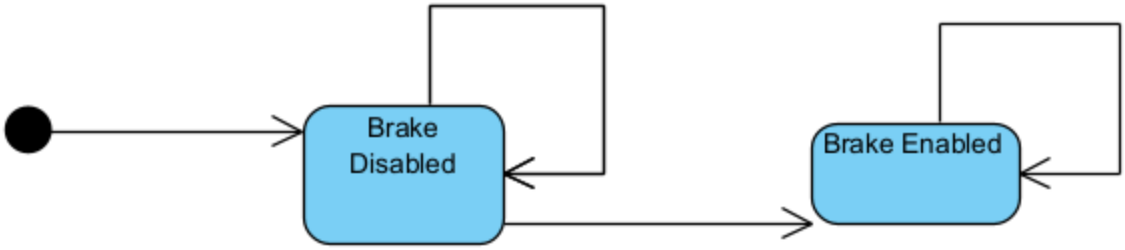

Figure 8: Brake by Wire System

Figure 8: This state diagram shows how the brake by wire system functions. The system, when turned on, enables or disables the brakes depending on the data sent to the system.

4.4.3 Alarm Warning System

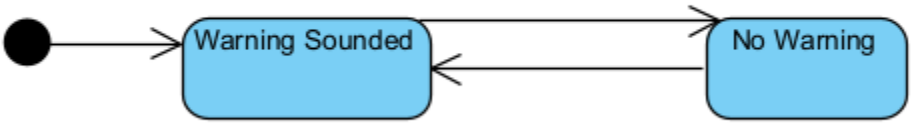

Figure 9: Alarm Warning System

Figure 9: This state diagram shows how the Alarm Warning system works. The system is either triggered with a warning and a sound or there is no warning. The system also sends vibrations depending on whether the warning is triggered or not.

4.4.4 Failsafe System

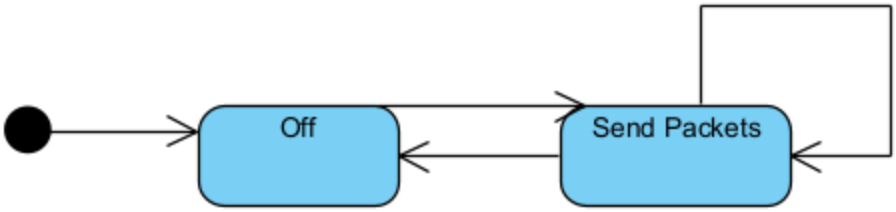

Figure 10: Fail Safe System

Figure 10: This state diagram shows how the failsafe operates. The system is turned on and the system sends the data in to then trigger the failsafe.

4.4.5 Camera System

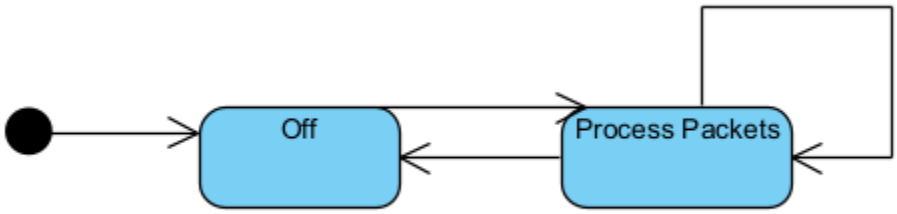

Figure 11: Camera System

Figure 6: This state diagram shows how the Camera System works. When the vehicle is on, the camera sensor processes the data sent to the system to further detect an object.