Universidade Federal de Pernambuco

Centro de Informática - CIn

Residência Tecnológica em Software Automotivo

System and Software Requirements Specification:

AEB - Auto Emergency Braking

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Changelog			
Version	**Description**	**Edited By**	**Date**
1.0	First version delivered	Whole Group	27/02/2025
1.1	- Corrects missing traceability of some requirements. - Updates the description or conditions of some requirements, such as SwR-5, SwR-7, SwR-8, SwR-11, and SwR-12. - Corrects minor English mistakes. - Adds SwR-16. - Adds DBC document to attachments.	Paulo, Victor	27/03/2025

SUMMARY

1 INTRODUCTION

The **Autonomous Emergency Braking (AEB)** system is an innovative technology designed to enhance vehicle safety by preventing or minimizing the impact of collisions. With the increasing complexity of urban and highway traffic, combined with the growing number of vehicles on the roads, traffic accidents remain one of the leading causes of harmful events worldwide. AEB aims to significantly reduce these numbers by providing automated responses in critical situations where human action may not be fast enough.

The AEB system uses sensors such as radars, cameras, and other devices to constantly monitor the environment around the vehicle. These sensors identify the presence of obstacles and assess the distance between the vehicle and nearby objects, such as other cars, pedestrians, or fixed obstacles. When the system detects a potential collision risk, it automatically applies the vehicle's brakes, either preventing the collision or reducing its severity.

In addition to saving lives, AEB also contributes to reducing material damage in accidents. The system is especially useful in situations of heavy traffic, poor visibility, or emergency braking maneuvers. It complements other driver assistance technologies, such as Adaptive Cruise Control (ACC) and Blind Spot Detection Systems, forming a comprehensive safety suite.

This document aims to establish and specify the requirements necessary for the development and implementation of an effective, safe and simplified AEB system. The documentation will include key functionalities that the system must meet, its components, interfaces, and performance expectations. The focus is to ensure that the system, once integrated into the vehicle, meets safety requirements and provides a reliable user experience, meeting the needs of various driver profiles and traffic conditions.

By the end of this document, it is expected that all the necessary requirements for AEB development will be clearly defined, allowing the system's implementation to be carried out effectively, with a focus on safety and usability.

1.1 Motivation

The motivation for the development and implementation of the **Autonomous Emergency Braking (AEB)** system is closely linked to the increasing number of traffic accidents and the constant evolution of automotive technologies. While road safety has improved over the past few decades, the number of fatalities and injuries caused by frontal collisions remains alarming. Factors such as distracted driving, fatigue, and unforeseen traffic situations make automated intervention an effective solution to prevent or reduce the consequences of critical crashes. In addition to that, rear collisions while driving in reverse may cause damage too, making the use of an AEB system in this situation a good feature.

Autonomous emergency braking becomes essential in situations where the driver's reaction time may not be sufficient to avoid a collision. Scenarios such as approaching vehicles that suddenly brake, pedestrians or animals crossing unexpectedly, or adverse traffic conditions like fog and heavy rain are situations in which AEB can make a significant difference, reacting faster and more accurately than a human driver.

In addition to human factors, the motivation for the development of AEB also stems from the constant drive for innovation in the automotive industry. The demand for safer vehicles, equipped with advanced safety technologies, has significantly increased. AEB not only meets this demand but also stands out as one of the key features to improve vehicle passive safety.

Another motivating factor is the advancement of autonomous driving technologies. As driver assistance systems become more sophisticated, AEB represents an important step toward a future of increasingly intelligent vehicles. It not only acts as a life-saving autonomous system but also sets a precedent for other automated systems aimed at creating fully autonomous vehicles.

The pursuit of greater efficiency in terms of accident reduction and life preservation is complemented by the growing pressure from safety regulations in various markets. Governments and road safety organizations are increasingly requiring vehicle manufacturers to integrate advanced technologies like AEB to meet stricter safety standards. In this context, AEB is not just a desirable innovation, but a necessary one to meet the global safety requirements.

Lastly, the motivation also arises from consumer demand for greater reliability and comfort while driving. In a world where automation is becoming ever more present in our daily lives, technologies like AEB address the growing expectation for vehicles that offer higher safety and ease of driving, without compromising the driving experience.

1.2 Target Audience

The target audience of the Autonomous Emergency Braking (AEB) system encompasses a wide range of stakeholders, from vehicle manufacturers to end consumers who use cars equipped with this technology. Below are the main groups who benefit from or are directly involved in the development and implementation of the AEB system:

1.2.1 Vehicle Manufacturers

Vehicle manufacturers, like Stellantis, are one of the primary target audiences, as they are responsible for implementing and integrating AEB into vehicle models. For manufacturers, AEB represents an opportunity to meet the growing demand for advanced safety technologies and to stay competitive in the global automotive market. Additionally, implementing systems like AEB is crucial to comply with the increasingly stringent safety regulations in various regions.

This audience seeks to ensure that the AEB system is efficient, reliable, and easy to integrate into various vehicle models. The system must be adaptable to different types of vehicles, from passenger cars to high-performance models, without compromising safety, comfort, or efficiency.

1.2.2 Engineers and Developers

Engineers and automotive developers also constitute a key part of the target audience. These professionals are responsible for the design, programming, testing, and implementation of the AEB system in vehicles. They need a detailed understanding of the system's technical requirements, safety specifications, and performance expectations. Furthermore, engineers must have a clear understanding of how AEB interacts with other vehicle systems, such as traction control, stability control, and proximity sensors.

For developers, AEB represents a technical challenge that involves integrating different technologies, such as radars, cameras, proximity sensors, and electronic control units. These professionals must ensure that the system is robust, scalable, and capable of operating under various environmental and traffic conditions.

1.2.3 Drivers and End Consumers

Drivers and end consumers are the most important target audience, as they are the primary beneficiaries of AEB. The technology aims to increase safety and confidence on the road, providing a safer and less stressful driving experience. Drivers who use vehicles equipped with AEB may feel more protected, especially in heavy traffic, low visibility situations, or when unexpected events occur, such as the sudden approach of another vehicle, pedestrian or animals, as previously mentioned. Thus, the AEB system provides an additional layer of safety, especially for novice or less experienced drivers, who may struggle to react quickly in emergency situations.

1.2.4 Regulatory Authorities and Road Safety Organizations

Regulatory authorities and road safety organizations also play a significant role in the target audience of AEB. These entities are responsible for establishing the standards and regulations that govern vehicle safety, including the requirement for technologies like AEB. Additionally, they are involved in monitoring the effectiveness of these systems and defining criteria for performance evaluation.

These organizations play an essential role in setting safety standards and promoting the adoption of technologies that can reduce traffic accidents and save lives. AEB, when integrated into vehicles, contributes to meeting these standards and the implementation of public road safety policies.

1.2.5 Research Centers and Academic Institutions

Research centers and academic institutions are also involved in the development and improvement of the technologies that make up AEB. These entities conduct studies to assess the system's effectiveness in different traffic and climatic conditions, as well as develop new algorithms and sensors to improve the AEB system's performance.

These groups are interested in testing, analyzing, and validating the capabilities of AEB, contributing to the innovation and evolution of the technology. Academic research and collaboration with the automotive industry are essential for the continuous improvement of vehicle safety systems.

1.3 Specific Use

The **Autonomous Emergency Braking (AEB)** system was developed to be an essential tool in collision prevention and the promotion of active vehicle safety. AEB is designed to be used in a wide range of driving situations, helping drivers avoid accidents by identifying obstacles or imminent risks and, when necessary, automatically applying the brakes to mitigate a collision or even avoid it altogether. Below are the key scenarios and contexts where AEB stands out as an indispensable solution.

1.3.1 Urban Traffic Situations

AEB is especially useful in urban environments, where traffic is more dynamic and unpredictable. In cities, drivers frequently face situations involving congested traffic, with vehicles braking abruptly or pedestrians crossing unexpectedly. AEB comes into play to quickly identify and react to these situations, helping to prevent rear-end collisions or pedestrian accidents. In many cases, autonomous braking can be the only way to avoid an accident, especially when the driver does not react in time.

As shown in Figure 1, the AEB system is designed to detect and respond to potential collisions in real time, ensuring safer driving in urban environments. Additionally, the system is valuable in situations of heavy traffic, such as traffic jams, where vehicles are moving at low speeds or stopping suddenly. In these scenarios, AEB ensures that the vehicle maintains a safe distance from the car ahead, and it applies braking as needed to prevent collisions.

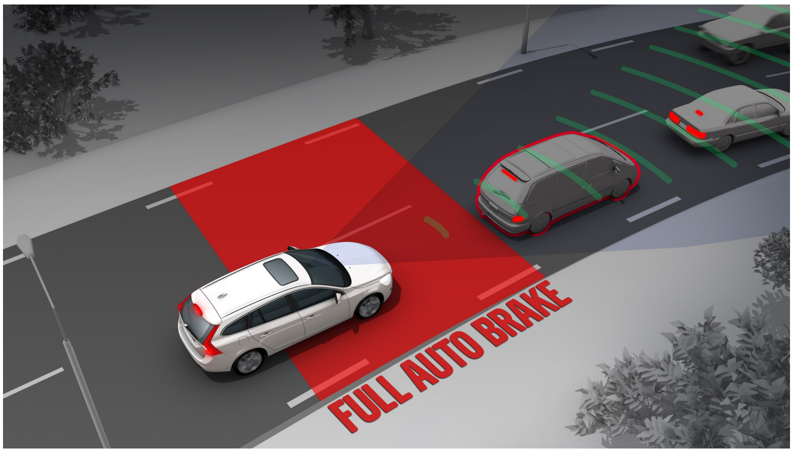

Figure 1: AEB system on a Volvo vehicle. Source: Cars Guide (2025)

1.3.2 Emergency Situations

In emergency scenarios, where the driver needs to react quickly to avoid a collision, AEB offers an automatic response that can save lives. For example, if a pedestrian crosses the road unexpectedly or a vehicle ahead brakes suddenly, AEB detects the risk and applies the brakes instantly. In many cases, AEB can be the only way to prevent a fatal accident or reduce the impact's severity, especially in situations where the driver's reaction time is insufficient.

Moreover, AEB can be integrated with other driver assistance systems, such as Blind Spot Detection and Forward Collision Warning, to provide even more efficient responses in critical situations. The combined use of these systems enables AEB to offer comprehensive protection across a variety of emergency scenarios.

1.3.3 Night Driving

During night driving, where visibility is naturally reduced, AEB becomes even more critical. Detecting obstacles is more challenging in low-light environments, but AEB is designed to overcome these limitations by using advanced sensors that work well even in low-light conditions. AEB's quick response to risks can make the difference between avoiding an accident or not having enough time to react.

1.4 Scope

The Autonomous Emergency Braking (AEB) system is designed to act as a complementary tool to the driver's reactions, aiming to prevent accidents and reduce the severity of collisions. The system's scope encompasses all the necessary functionalities to ensure that AEB operates efficiently and safely in a wide variety of scenarios, automatically adjusting to traffic conditions to provide maximum protection for the vehicle and its occupants.

1.4.1 Main Functionalities

AEB will be responsible for continuously identifying and evaluating collision risks in front of the vehicle using sensors and algorithms to calculate the distance and reaction time. When the system detects an imminent collision risk, it will automatically apply the brakes, either preventing the collision or reducing its severity.

1.4.2 System Components

The AEB system will be composed of several integrated components that work together to detect risks and apply emergency braking in a coordinated manner. The main components include:

- **Sensors (Cameras):** Responsible for detecting obstacles and measuring distances and speeds in relation to objects ahead of the vehicle.

- **Electronic Control Unit (ECU):** The system's processing unit, which analyzes the data from the sensors and makes braking decisions.

- **Braking System:** The implementation that allows AEB to autonomously apply the brakes, adjusting braking intensity as needed.

- **User Interface:** Responsible for informing the driver of the system's status, notifying when AEB is active and providing alerts in critical situations. This unit is composed of the instrument cluster and the sound system.

1.4.3 Limitations and Constraints

While AEB is an advanced technology, it will have limitations under certain conditions. The system may be affected by extreme weather conditions (heavy rain, snow, dense fog), poor visibility, or sensor malfunctions. In such cases, AEB may require the driver's support to ensure safety. Additionally, AEB will not replace the need for constant attention and vigilance from the driver, acting as a complementary tool, not a complete substitute for human oversight.

The system will also be designed to operate within a defined speed range, being most effective at medium and low speeds typical of urban and some highway environments. At very high speeds, AEB's effectiveness may be limited by the system's reaction capabilities. For such a reason, this implementation of AEB will not be designed to work at higher speeds. In addition, the main goal of this project is to simulate an AEB system, with the development being made entirely in C programming language, and all the conditions above will be tested and simulated in a virtual environment.

1.4.4 Applicability

AEB will be implemented in a variety of vehicle models, from passenger cars to SUVs and light trucks. The system's adaptability will be crucial to ensure it can be integrated into different vehicle types, taking into account variables such as vehicle size, sensor type, and braking system configuration.

The system will also be designed to be scalable, allowing additional features, such as integration with other driver assistance systems (ADAS), to be added in the future, expanding its functionalities and improving overall vehicle safety.

1.4.5 Performance Expectations

Performance expectations for AEB include the ability to detect and react to a wide variety of risk scenarios with high precision and speed. The system must be able to identify obstacles in real time, assess distance and relative speed, and make braking decisions within fractions of a second. AEB's effectiveness will be measured by its ability to prevent collisions, reduce impact severity, and minimize material and personal damage.

The system must also operate in different traffic and weather conditions, adjusting automatically to changing driving environments.

1.5 User Needs

User needs are essential for the development and implementation of an effective Autonomous Emergency Braking (AEB) system that meets the expectations of drivers and other stakeholders. These needs involve not only safety aspects but also usability, cost, and integration with other vehicle systems. Below are the key user needs that the AEB system must address.

1.5.1 User Safety

The primary user need for AEB is safety. The system must be designed to provide additional protection for the driver and passengers by helping to avoid or minimize the consequences of a collision. User safety is the most important factor, and AEB must be reliable, operating effectively in a variety of scenarios and traffic conditions. This includes the ability to detect obstacles with high precision and react quickly, applying the brakes when necessary to avoid accidents.

Trust in the system must be reinforced by a fast and accurate response, ensuring that the driver can rely on AEB to act effectively when they are unable or unprepared to react in time.

1.5.2 Ease of Use and Integration

The AEB system must be easy to use and integrated into the vehicle seamlessly. The driver should not need to worry about the system's operation while driving, as it should function automatically and intuitively.

Additionally, the system should have a clear interface that informs the driver of its status, such as whether it is activated, deactivated, or in alert mode. This can be done through dashboard lights and audible alerts. Communication with the driver should be clear without causing distractions or information overload.

1.5.3 User Experience

User experience is a critical need to ensure that AEB is well-received and adopted by drivers. The system should be discreet and non-intrusive, operating in the background to provide additional safety without causing discomfort to the driver. The user experience also involves appropriate feedback in case the system is activated, such as notifying the driver when AEB has been engaged, as well as the ability to deactivate the system if the driver prefers not to use it in certain situations.

The system should be designed to avoid interfering with the driver's personal driving preferences, allowing them to take control of the vehicle when necessary without feeling that AEB is overly intrusive.

2 REQUIREMENTS

2.1 High Level Functional Requirements

Requirement Code	Action	Description
HLR-1	The system must be able to brake the vehicle when it detects the risk of a collision	If the system detects that an imminent collision is unavoidable, it automatically applies the vehicle's brakes to reduce speed and avoid or minimize damage.
HLR-2	The system must be able to detect obstacles	The AEB system uses sensors such as radar, cameras or LiDAR to detect obstacles in front of the vehicle, such as cars, pedestrians and objects. It constantly analyzes the environment around the vehicle to identify any possible collision threat.
HLR-3	The system should be able to identify likely collision situations	Based on distance and speed data and the existence of an obstacle, the system assesses whether an imminent collision is likely. The algorithm estimates the TTC to know whether to apply the emergency brake.
HLR-4	The system should be able to issue audible and visual alerts to the driver	Before triggering automatic emergency braking, the system emits audible and visual alerts to the driver, warning of the proximity of an obstacle and the need for immediate action. These alerts are essential so that the driver has the chance to react before automatic intervention.
HLR-5	The system should be able to operate at speeds of up to 60 km/h	The system should work in a speed range between 0 and 60 km/h. Above that, it should remain on standby.
HLR-6	The system should be able to record relevant data	The system must be able to record data on braking events and provide diagnostic information
HLR-7	The system must be able to be turned on or off by the driver	If the driver take action while the system detect some obstacle, the system must withdraw from action and let the driver take control

2.2 System Requirements

Requirement Code	Action	Condition	Traceability
Sys-F-1	Breaking Action: The AEB system must be capable of automatically applying the brakes to reduce speed or avoid an imminent collision.	When the risk of a collision is detected	HLR-1
Sys-NF-2	Performance and Latency: The system must process sensor data in real-time with a latency of less than 200 milliseconds* to ensure immediate action in case of collision risk.	As long as the AEB system is enabled	HLR-2
Sys-F-3	Auto-Suspension due to Manual Braking: If the AEB system detects a risk situation but the driver has already started applying the brakes, the system should reduce or suspend autonomous braking to avoid command conflicts.	As long as the AEB system is enabled	HLR-1, HLR-5
Sys-F-4	The system must be able to be turned on or off	When requested by the driver	HLR-7
Sys-F-5	Obstacle Detection: The AEB system must be capable of detecting and computing the distance to obstacles in the vehicle's path, such as other vehicles, pedestrians, cyclists, and fixed objects at a minimum distance of 100 meters (under ideal conditions).	As long as the AEB system is enabled	HLR-2
Sys-F-6	The AEB system must be able to calculate the TTC based on the sensors and the vehicle's current speed, evaluating situations in real time.	As long as the AEB system is enabled	HLR-3, Sys-F-5
Sys-F-7	Alarm Trigger: The AEB system should provide a visual and/or audible alert before autonomously activating the brakes, when possible.	As long as the AEB system is enabled	HLR-4

Sys-NF-8	If the driver takes corrective action or the car is no longer in a risky situation, the alerts should be turned off immediately.	When the alerts are on	HLR-4, Sys-F-7
Sys-F-9	When the vehicle exceeds 60 km/h, the system should go into stand-by.	As long as the AEB system is enabled	HLR-5
Sys-F-10	When the vehicle slows down to a speed of less than 60 km/h, the system must switch from stand-by mode to active mode.	As long as the AEB system is enabled and the system is in Stand-by mode	HLR-5
Sys-F-11	The system must record data on braking events: speed, braking intensity, calculated TTC, and response times, for diagnostic purposes and continuous improvement.	As long as the AEB system is enabled	HLR-6
Sys-F-12	The system must break to prevent a collision or reduce impact force while the car is traveling in reverse.	While the car is travelling in reverse	HLR-1
Sys-NF-13	Scalability: The system should be designed in a way that new features or sensors can be integrated in the future without major changes to the existing architecture.	As long as the AEB system is enabled	HLR-1
Sys-F-14	The system must prepare for imminent collision by unlocking doors and tightening belts	If the collision is certain	HLR-3

2.3 Software Requirements

Requirement Code	**Action**	**Condition**	**Traceability**
SwR-1	The software must calculate the TTC (time to collision) to the obstacle being detected	As long as an obstacle is being detected	Sys-F-5, Sys-F-6
SwR-2	The software must send a signal to the ICM to activate an alarm	When TTC <2s	Sys-F-6 Sys-F-7

SwR-3	The software must send a signal to the ABS system to brake the car	When TTC <1s and the driver is not pressing the brakes	Sys-F-1, Sys-F-3, Sys-F-6, Sys-F-12
SwR-4	The software must store brake and alarm events	When TTC <2s	Sys-F-11
SwR-5	The Software, when in off-state, must keep the ECU active but shouldn't send messages.	When the driver turns it off	Sys-F-4
SwR-6	The Software, when in on-state, must continuously query sensor data, calculate TTC, and send messages as needed.	When the driver turns it on	Sys-F-4
SwR-7	The software must be able to change the AEB system to standby state	When the vehicle velocity exceeds 60 km/h or is less than 10 km/h	Sys-F-9
SwR-8	The software must change the AEB system from standby mode to active mode	When the vehicle slows down to a speed of less than 60 km/h and more than 10 km/h	Sys-F-10
SwR-9	The software must be able to receive data from the sensors	While is activated	Sys-NF-2, Sys-F-6
SwR-10	The software must be able to calculate the relative speed of the vehicle and the obstacle detected	As long as an obstacle is being detected	Sys-F-5, Sys-F-6
SwR-11	The software must be developed in a way that the functionalities are decoupled and modularized	During the software development process	Sys-NF-13
SwR-12	The software must define the following operational states: on-state, alarm, brake, off-state and standby	During the software development process	Sys-F-1, Sys-F-3, Sys-F-4, Sys-F-9
SwR-13	All parameters must allow callibration	When developing or updating the system	Sys-F-5, Sys-F-6

SwR-14	The software must send a message to deactivate the alarm in the instrument cluster	When TTC is >2 and alarms are active	Sys-NF-8
SwR-15	The CAN message sent by the AEB must signal an imminent collision so that the actuators can take action	When a collision is imminent	Sys-F-14
SwR-16	The AEB must be kept in the "on-state"	When the vehicle is in reverse mode	Sys-F-12

2.4 Use Case Diagram

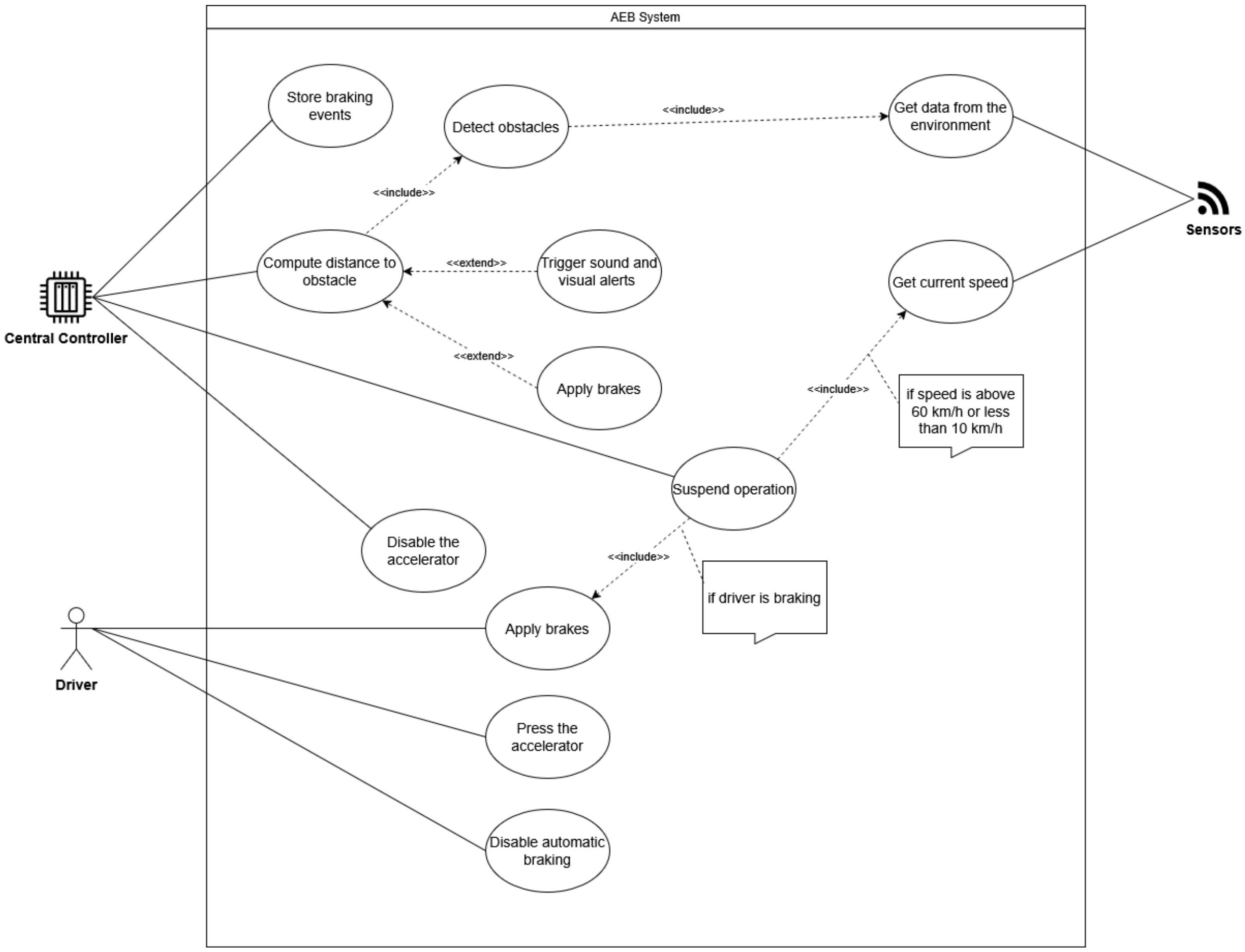

Figure 2: Full Use Case Diagram

The Use Case Diagram depicts the roles of actors in the system to achieve a goal. In our case, we have the AEB System and the representation of three actors: the driver, the central controller and the sensors, along with their main functionalities within the system.

The Driver can perform three main functions: apply the brakes, press the accelerator and disable/enable the AEB system. When the brakes are pressed, the system suspends its operation. The sensors' role is to provide data on the environment and the vehicle so that the system can make decisions. The Central Controller is the brain of the system and plays the main roles of computing distance to obstacles, sending the signal to activate the alarms and brakes and storing braking events, as well as suspending the system operation in special occasions. The computation of the distances depends on the detection of the obstacle, which uses the input from the Sensors, and can be extended to the actions of applying the brakes and triggering sound and visual alerts.

2.5 Simplified Requirements Diagram

The Requirements Diagram is a graphical representation of the hierarchy and relationships between the requirements. It is used for facilitating communication between stakeholders, assisting with traceability and supporting impact analysis. In Figure 3, we present a Simplified Requirements Diagram, which depicts a High-Level Requirement and its relationship with System and Software Requirements.

The High-Level Requirement, HLR-1, refers to the main functionality of the system: applying the vehicle's brakes. From it, four System Requirements are derived: Sys-F-1 Braking Action, Sys-F-3 Auto-Suspension due to Manual Braking, Sys-F-12 Brake while in reverse and Sys-NF-13 Scalability. Finally, from Sys-F-1 and Sys-NF-13 are derived, respectively, two Software Requirements: SwR-3 Send signal to ABS system and SwR-11 Code Modularization.

2.6 Functional Block Diagram

This functional block diagram (FBD) shows the relationship between certain actors in the system and the hardware and software components represented by each block. These elements work together to ensure that the AEB System operates properly. The "Brake Pedal" and "Accelerator Pedal" components change their states according to the driver's actions, sending position data to the AEB System. The "Car Cluster" also depends on driver interaction, although not exclusively, and is responsible for activating or deactivating the AEB System via the "on_off_AEB" variable.

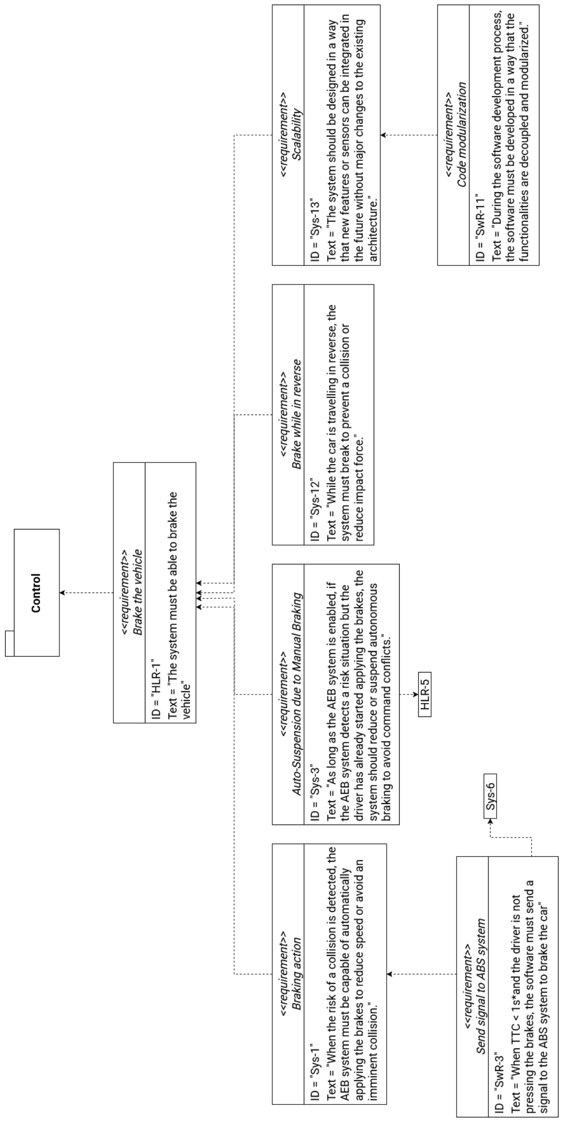

Figure 3: Part of the Requirements Diagram

The speed and obstacle sensors play a key role, acquiring essential data for the operation of the AEB System from the camera and the vehicle itself. The variables “has_obstacle”, “obstacle_distance” and “velocity” are sent to the AEB System, allowing the TTC to be calculated and appropriate measures to be taken. The system remains on standby for speeds below 10 km/h or above 60 km/h, disregarding these values in the analysis. In addition, the type of obstacle (stationary or moving) influences the calculation of the TTC and the decision on whether to apply the brake.

Finally, while in the on state, the AEB System processes all this information and performs the necessary calculations to determine the most appropriate action for the situation detected. In emergency scenarios, the system sends messages to the Car Cluster, triggering the “alarm_led” and “alarm_buzzer” indicators. In critical cases, if it is neces-

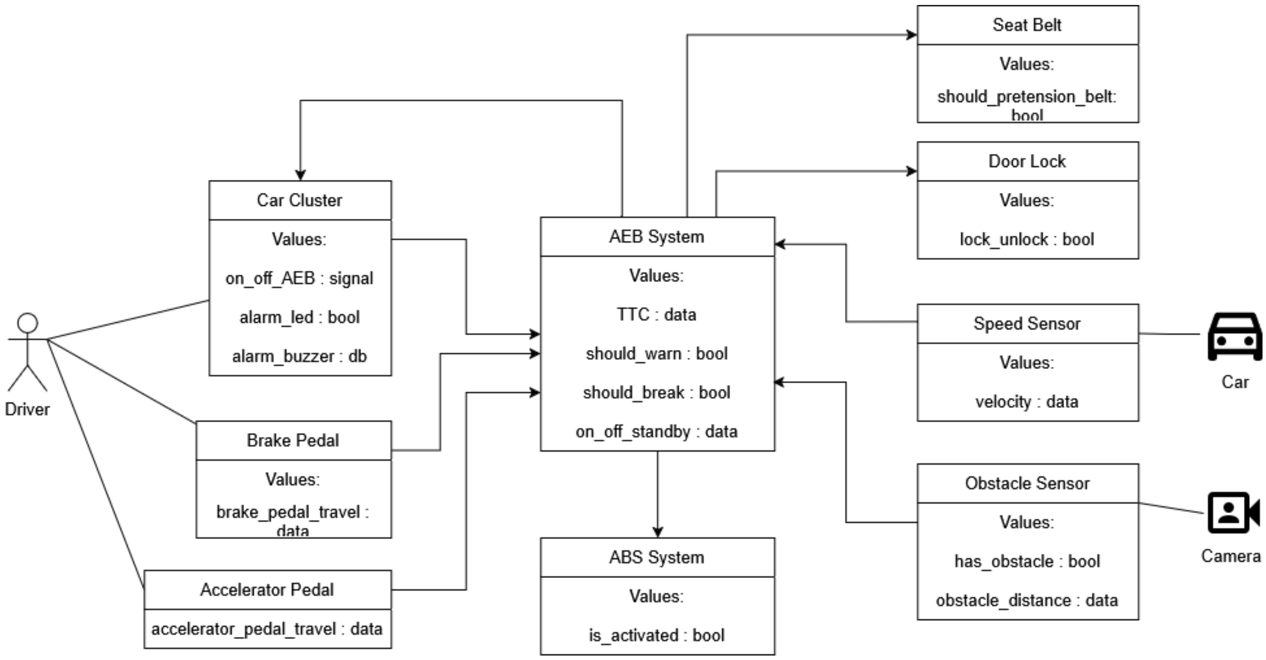

Figure 4: Full Functional Block Diagram

sary to activate the brake, a door unlocking signal is transmitted via the "lock_unlock" variable, together with a belt tightening signal to the "should_pretension_belt", while the ABS brake is activated to prevent or mitigate the impact of the collision.

.1 DBC Specification

CAN interface for AEB (SWT2 Final Project)

Detailed description of CAN messages

Pedal Controller information

Identifier: 18 FE F1 00

Byte	Bit	Length	Explanation	State	Resolution	Limits	Note
1	1	2	**Accelerator Pedal Activation**				
			Accelerator pedal released	00			
			Accelerator pedal depressed	01			
2	1	2	**Brake Pedal Activation**				
			Brake pedal released	00			
			Brake pedal depressed	01			

.2 DBC Specification

CAN interface for AEB (SWT2 Final Project)

Detailed description of CAN messages

Speed Sensor

Identifier: 18 FF FD 64

Byte	Bit	Length	Explanation	State	Resolution	Limits	Note
1	1	16	**Relative vehicle velocity**		1/256 km/h per bit	0 to 251 km/h	
			Clear data	FFFE			
			Don't Update	FFFF			
3	1	2	**Movement Direction**				
			Forward	00			
			Reverse	01			

.3 DBC Specification

CAN interface for AEB (SWT2 Final Project)

Detailed description of CAN messages

Obstacle Sensor

Identifier: 0C FF B0 27

Byte	Bit	Length	Explanation	State	Resolution	Limits	Note
1	1	16	**Obstacle Distance**		1/20 m per bit	0 to 300 m	A
			Clear data	FFFE			
			Don't Update	FFFF			
3	1	2	**Obstacle Detected by camera**				
			No obstacle detected	00			
			Obstacle detected	01			

A: This resolution is based on the heuristic that a LIDAR can detect objects with an accuracy of more or less 5 cm.

.4 DBC Specification

CAN interface for AEB (SWT2 Final Project)

Detailed description of CAN messages

Instrument Cluster

Identifier: 0C FF AF 27

Byte	Bit	Length	Explanation	State	Resolution	Limits	Note
1	1	2	**AEB System Activation**		1		A
			Off	00			
			On	01			

A: Indicates if the driver deactivated the AEB or not.

.5 DBC Specification

CAN interface for AEB (SWT2 Final Project)

Detailed description of CAN messages

AEB SYSTEM

Identifier: 18 FF A0 27

Byte	Bit	Length	Explanation	State	Resolution	Limits	Note
1	1	2	**Warning System**				A
			Deactivated	00			
			Activated	01			
2	1	2	**Break System**				B
			Deactivated	00			
			Activated	01			

A: Always works, even when on Off of Standby mode; Sends message to Car Cluster
B: Works only when AEB System is in On Mode; Sends message to the Belt, Door Lock and ABS System