

# CRUISE CONTROL – Overspeed Alert System (AUTOSAR Based Design)

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## 1. System Overview

The Cruise Control Overspeed Alert System continuously monitors vehicle speed.

If the speed exceeds **70 kmph**, the system generates an **alert to the driver** (buzzer / display message).

This system is modeled using **AUTOSAR architecture**, where:

- Sensors provide speed input
  - Application Software Component (SWC) checks the limit
  - Runtime Environment (RTE) handles communication
  - Basic Software (BSW) handles IO and hardware access
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## 2. System Requirements

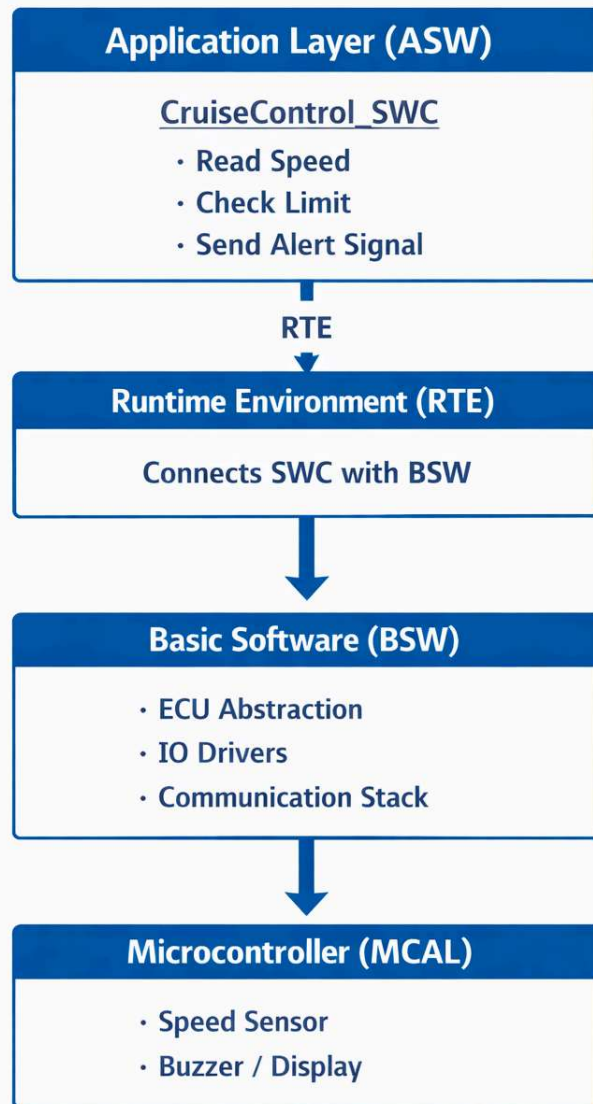
### Functional Requirements

- Read vehicle speed continuously
- Compare speed with threshold (70 kmph)
- Trigger alert when speed > 70 kmph
- Alert should stop when speed ≤ 70 kmph

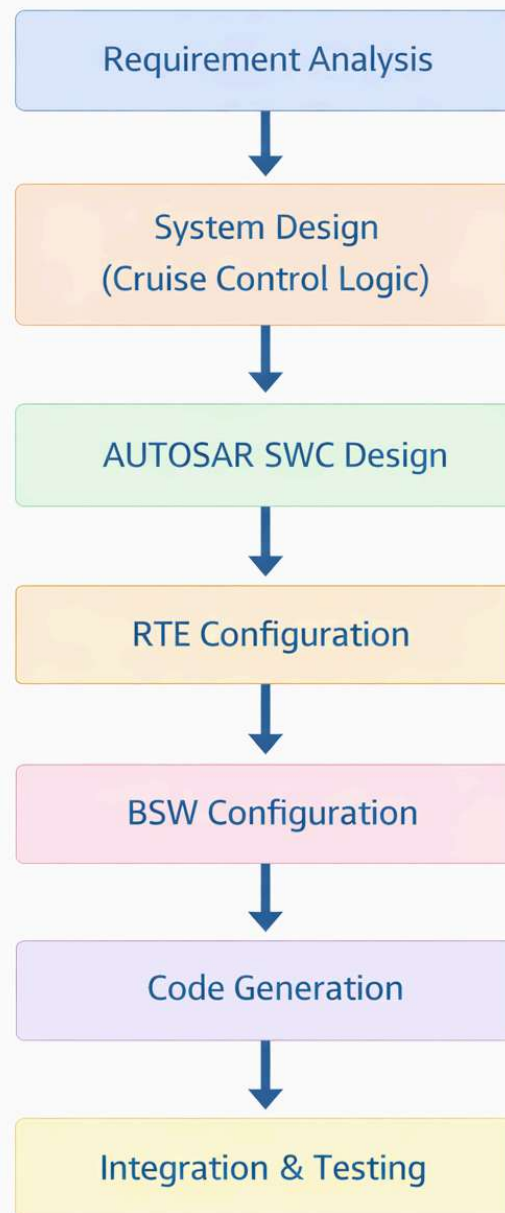
### Non-Functional Requirements

- Real-time execution
- Platform independent (AUTOSAR)
- Scalable for future ADAS features

### 3. AUTOSAR Architecture Usage



#### 4. Design Flow (AUTOSAR Development Flow)



## 5. Software Component Design (SWC)

CruiseControl\_SWC

Inputs

- VehicleSpeed (kmph)

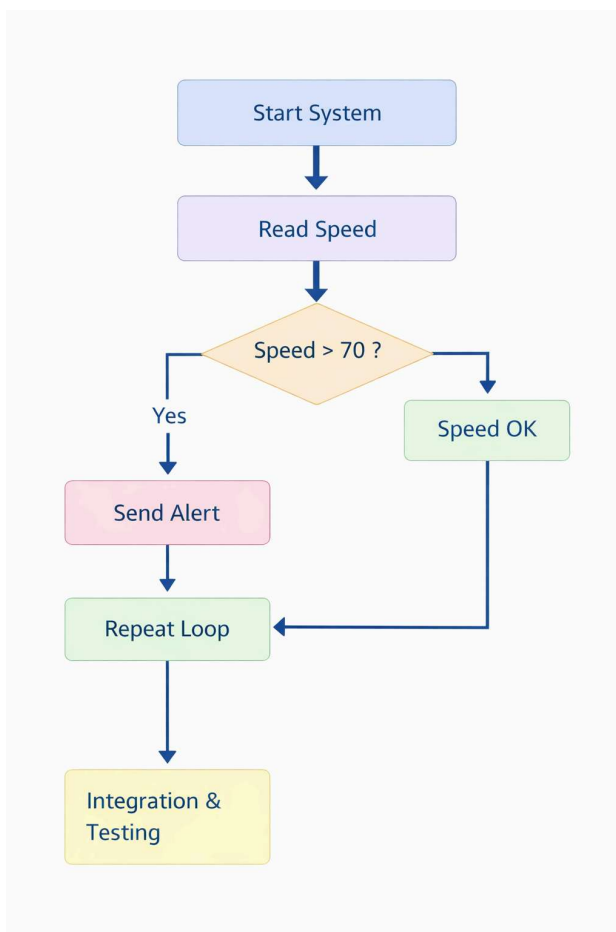
Outputs

- OverspeedAlert (ON / OFF)

Runnable

- SpeedMonitorRunnable (every 100 ms)

## 6. Execution Flow



## 7. Testing Scenarios

Input Speed	Expected Output
50 kmph	Speed OK
70 kmph	Speed OK
80 kmph	Overspeed Alert Triggered
100 kmph	Overspeed Alert Triggered

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## 8. Future Enhancements

- Integrate with CAN bus
  - Automatic throttle control
  - Adaptive Cruise Control (ACC)
  - Integration with ADAS
  - Real ECU deployment (AUTOSAR Classic)
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## 9. Conclusion

This design demonstrates how **AUTOSAR architecture** can be applied to a **cruise control overspeed alert system**, using a Python simulation to represent the application logic.

The same flow can be implemented in **C (AUTOSAR Classic)** for real ECU deployment.

# PROJECT CERTIFICATE

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**Certificate No.:** CC-AUTOSAR-2026-001

**Date of Issue:** 19 January 2026

**Issuing Authority:** Department of Automotive Software Engineering

**Institution / Training Platform:** Corporate Guides – Automotive & Embedded Systems

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## 1. Project Title

**Design and Implementation of Cruise Control Overspeed Alert System  
using AUTOSAR Architecture and Python Simulation**

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## 2. Student Information

**Student Names:** Group-1 students

**Course / Program:** Automotive Testing Training

**Platform:** Corporate Guides

**Trainer Name:** Mr. Abhishek sir

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## 3. Project Description

This project focuses on the **design and simulation of a Cruise Control Overspeed Alert System**, which monitors vehicle speed and triggers an alert when the speed exceeds **70 kmph**.

The system is designed following **AUTOSAR (AUTomotive Open System ARchitecture)** principles and includes:

- Application Software Component (SWC) design
- RTE communication flow
- Basic Software (BSW) abstraction

- Design flow from requirement to testing
  - Python-based simulation of cruise control logic
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## 4. Technologies & Standards Used

- AUTOSAR Classic Architecture
  - Python (Simulation of Application Layer)
  - Automotive Software Design Flow
  - Embedded System Concepts
  - Automotive Safety Logic
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## 5. Project Outcome

The project successfully demonstrates:

- Real-time speed monitoring logic
  - Overspeed alert generation (>70 kmph)
  - AUTOSAR layered software design
  - Clear separation of application, RTE, and BSW
  - Readable, scalable, and automotive-compliant design
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## 6. Certification Statement

This is to certify that the above student has **successfully designed and implemented** the project titled:

**“Cruise Control Overspeed Alert System using AUTOSAR and Python”**

The project meets academic and industry-level design standards and reflects a clear understanding of **automotive embedded software architecture**.

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## 7. Approval & Authorization

**Trainer Signature:** \_\_\_\_\_

**Name:** Mr. Abhishek

**Designation:** Automotive Software Trainer

**Department Seal / Stamp:**

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**Date:** \_\_\_\_\_