TELIPORT

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Problem Statement: Forward Collision Warning Development using GenAI

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Understanding of the Problem

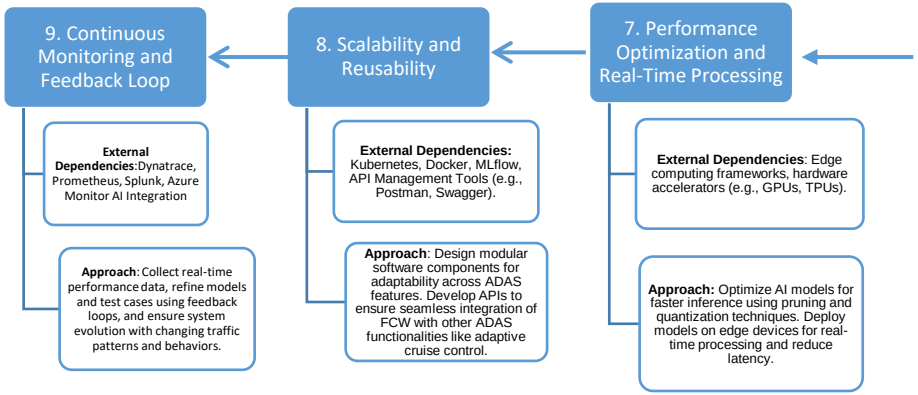
Developing a Forward Collision Warning (FCW) system, a key ADAS feature that alerts drivers to potential collisions, poses significant challenges. **The process is complex, demanding strict adherence to automotive safety standards** like MISRA, ASPICE, and ISO 26262 to ensure system reliability and safety.
Accurate object detection is essential and may involve advanced AI/ML or traditional radar- and vision-based algorithms, adding **technical complexity**. Rigorous design, testing, and extensive validation make development **resource-intensive and delay-prone.** Robust test case creation further complicates the process, underscoring the **need for innovative approaches to streamline development, enhance efficiency, and maintain safety and reliability.**

Technical concept for Solution(s)

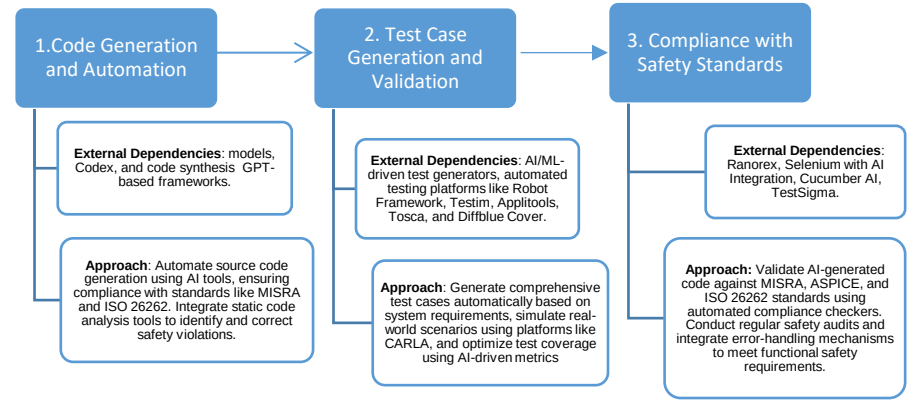
The proposed solution for developing a Forward Collision Warning (FCW) system integrates advanced technologies **to address challenges in accuracy, safety, and efficiency**. **Leveraging Generative AI (GenAI) for automated code and test case generation, sensor fusion-based object detection, and simulation environments for testing,** the solution streamlines the development lifecycle. Key features include real-time decision-making through edge computing, modular architecture for scalability, and adaptive learning models for continuous improvement**. Compliance with MISRA, ASPICE, and ISO 26262 is ensured via automated tools for code analysis and functional safety verification, such as PC-Lint Plus, Axivion Suite, and Parasoft C/C++** Test, enhancing reliability while reducing development time.

Key Performance Indicators (KPIs)

- Efficiency
- Accuracy
- Real-Time Performance
- Compliance and Scalability



Solution domains,approach for implementation and external dependencies:



Validation Approach Workflow: