

Rapidise leverages extensive Artificial Intelligence (AI) and Computer Vision capabilities to develop advanced features for its dashcam and Edge AI Box solutions, focusing primarily on enhancing vehicle and driver safety. This technology is integrated via their proprietary **RISE platforms** and supported by a dedicated AI model portfolio.

1. Core AI Capabilities and Model Libraries

Rapidise classifies its AI work under **AI Development**, which includes general competencies in Computer Vision, Edge Computing & AI, and Algorithm Development.

Model Library (Telep AI)

Rapidise utilizes a specific, named AI portfolio library for automotive applications: the **Telep Library AI Portfolio (Automotive Specific)**. This library contains a comprehensive suite of models designed for both Advanced Driver Assistance Systems (ADAS) and Driver Monitoring Systems (DMS).

• **Note on Specific Algorithms (e.g., YOLOv8):** While Rapidise lists general AI development capabilities such as Deep Learning, TensorFlow, TensorFlow Lite, OpenCV, Pose Estimation, CPM, MACE, and SNPE in other AI projects (like healthcare and fitness), the sources **do not explicitly mention YOLOv8 or specific object detection network names** being used in the **Telep Library** for their dashcam products.

Hardware Integration and Edge AI Processing

The ability to run complex AI algorithms, known as **Edge Computing & AI**, is central to Rapidise's ODM capabilities for dashcams. This processing is handled by dedicated Neural Processing Units (NPUs) within the Qualcomm processors utilized in their RISE platforms.

• **RISE Platforms:** Dashcam solutions are built on platforms like **RISE X1** (Qualcomm QCS5430, featuring 3.5 TOPS NPU) and **RISE Y1** (Qualcomm SM6225, featuring 2 TOPS NPU). The **Dashcam** variant of the **RISE C1** platform features a Hexagon DSP and a 1 TOPS NPU.

• **Edge AI Processing Platform:** Rapidise provides the **Rapidise Edge AI Processing Platform** as part of its vehicle telematics solution, confirming that the inference occurs locally on the device.

• **Sensor Integration:** The AI relies on inputs from the integrated compact 2-camera unit (front and in-cabin) and the **IMU Sensor** (Inertial Measurement Unit). The Dual DashCam (SM6225) runs **IMU-based algorithms** to deliver safety features.

2. Automotive AI Applications and Safety Outcomes

The AI algorithms support two main categories of safety monitoring, often running concurrently on the dual-camera hardware.

A. Driver Monitoring System (DMS) Applications

DMS focuses on monitoring the driver's state and actions inside the cabin.

Application	Description / Safety Outcome
Drowsiness Detection	Algorithms identify signs of driver fatigue.

Mobile Distraction	Detects when the driver is using a mobile phone, addressing a major safety risk.
Driver Seat belt Detection	Verifies if the driver is correctly utilizing the seat belt.
Stress Monitoring / Driver Health Monitoring	Provides insights into the driver's physical or mental state.

B. Advanced Driver Assistance Systems (ADAS) & Road/Traffic Monitoring

ADAS applications monitor the external environment captured by the road-facing camera.

Application	Description / Safety Outcome
Accident Detection / Front Collision Alert	Accident detection is critical for the DashCam + LTE Edge AI Box, triggering the automatic SOS Call system. Front Collision Alert warns the driver of impending impacts.
Lane Departure Warning	Algorithms monitor lane lines and alert the driver if the vehicle drifts unintentionally.
Blind Spot Detection	Assists the driver in identifying objects or vehicles in their blind spots.
Traffic Light Monitoring	Tracks the state of traffic lights.
Road Safety Compliance (Road and Traffic Monitoring)	Includes algorithms for Overspeed Detection , Red Light Violation Detection , and Wrong Turn Detection .

Fleet Specific Monitoring	Dashcams are integrated with algorithms to detect abrupt events like sudden braking and rapid acceleration using IMU data, vital for fleet management and driver scoring.
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C. Cloud Integration for Analytics

The safety outcomes are not just immediate alerts but also long-term analysis. Rapidise integrates the AI functionality with cloud engineering (AWS, Azure, GCP) to provide centralized management and analytics, specifically offering the **Rapidise ADAS & DMS Analytics Dashboard** and a **Rapidise Device Management & Analytics** solution.