mobileye™

Mobileye Story:

Driving the autonomous vehicle evolutionÅ

Disclaimer

Mobileye Vision

To save lives and enable accessible, sustainable mobility around the world, bringing the life-changing benefits of autonomous technology to everyone, everywhere

Mobileye Past & Future

Some 25 years ago, Mobileye revolutionized driver-assist with a simple, but radical idea:

A single, inexpensive camera sensor could be the basis for life-saving technology.

More than 170 million vehicles later, Mobileye continues to pioneer this driver-assist technology.

Harnessing computer vision and AI to create solutions for the hardest problems facing the automotive and mobility sectors.

Mobileye Global Operations

3,400 +

Employees

80%

Dedicated to R&D

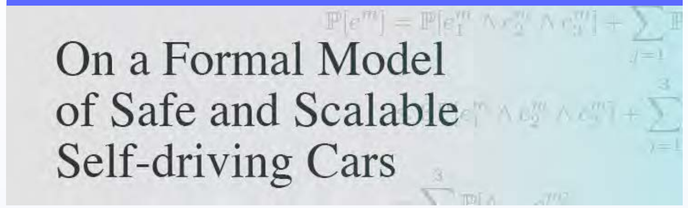
Our Key Technology

Computer Vision

The EyeQÅ SoC Family

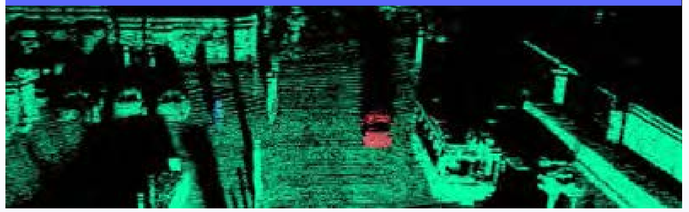
REMÅ Crowdsourced Mapping

RSSÅ-Based Driving Policy



True Redundancy Å Sensing Architecture

Next-Gen Active Sensors

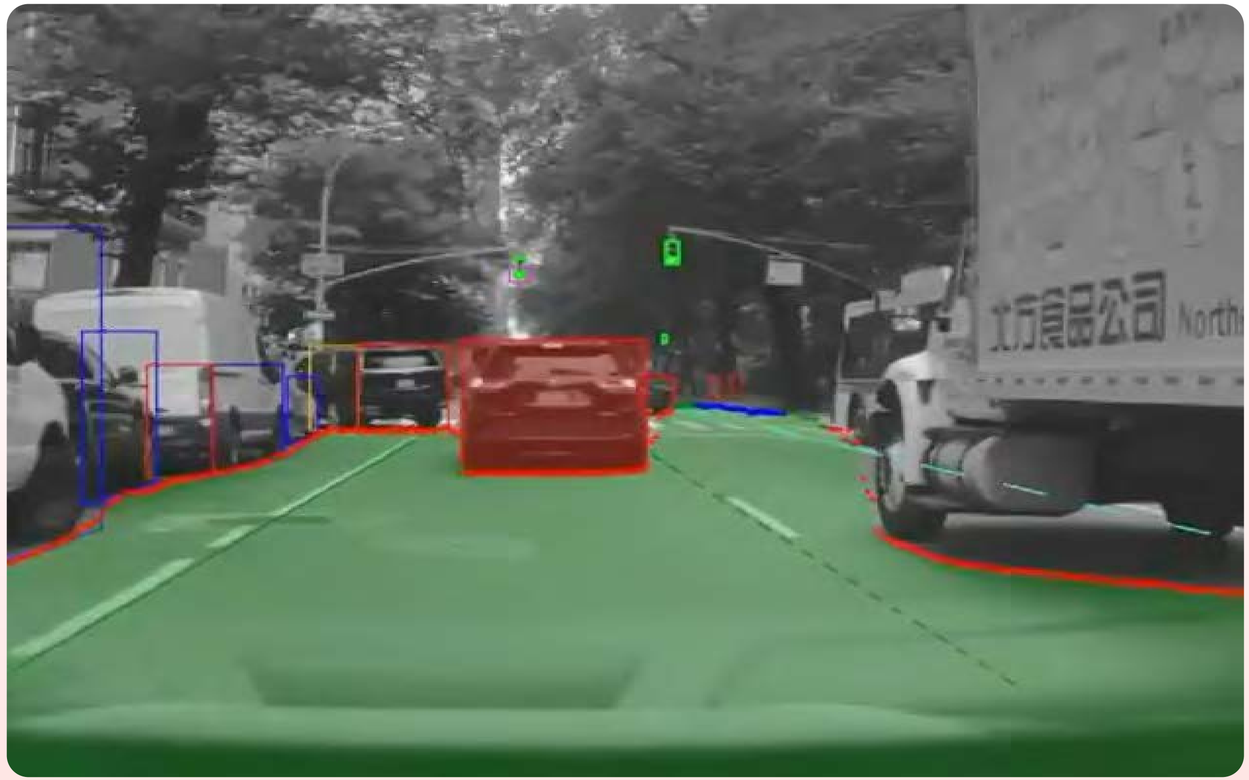


Scalable Architechtures

Computer Vision

Based on cameras, Mobileye's computer vision technology is the basis for everything we do – from driver-assist to autonomous vehicles.

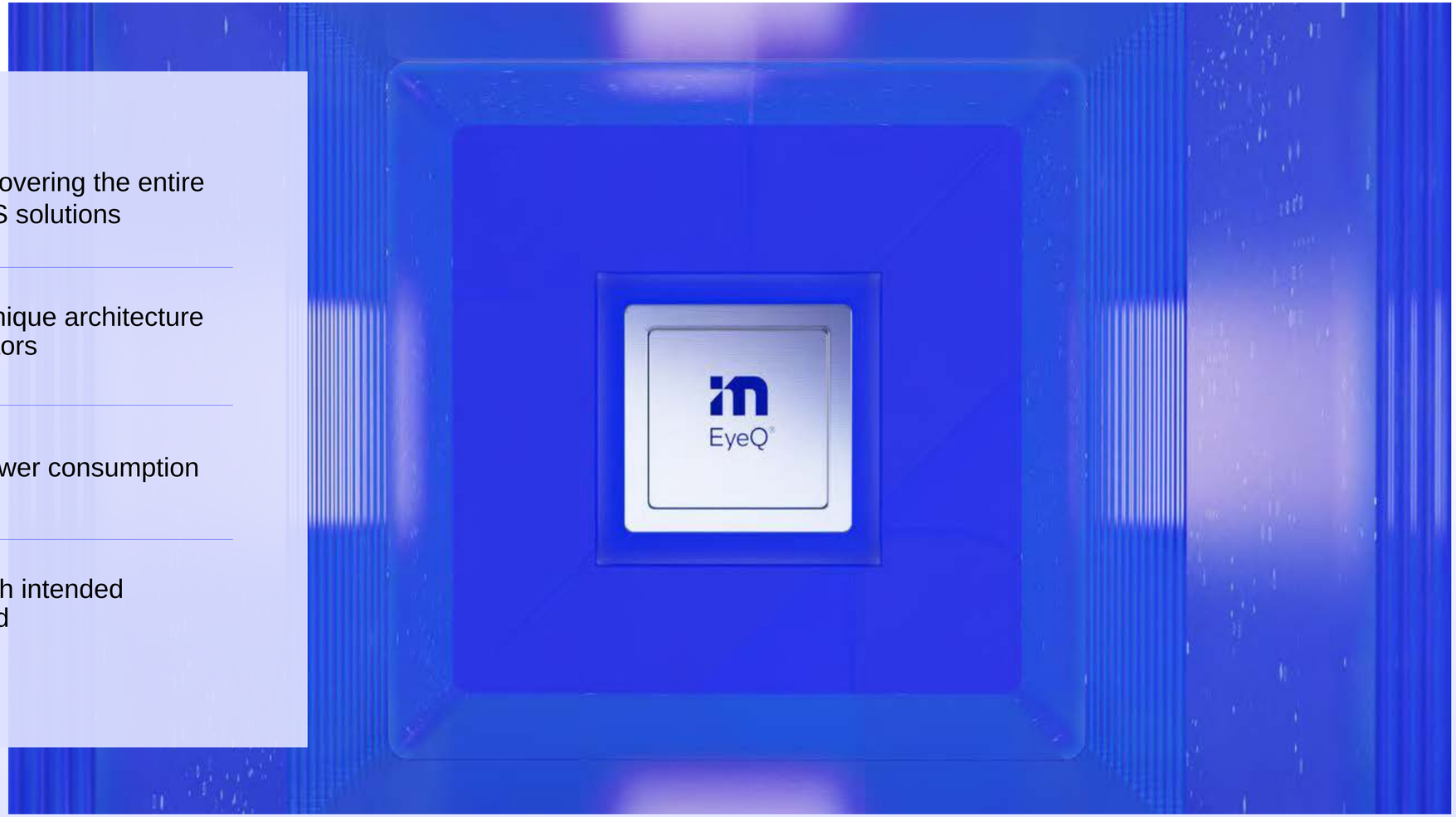
- 20+ years of CV leadership
- Comprehensive environment perception
- Validated via multiple OEM deployments
- Validated in 200 PB+ of worldwide data



EyeQÅ Family of Purpose-Built SoCs

The EyeQÅ chip is the ‘brain’ behind all of Mobileye's technologies.

- Scalable architecture covering the entire spectrum of AV / ADAS solutions
- Efficiency through a unique architecture of diversified accelerators
- Superior cost & low power consumption
- Internally designed with intended software needs in mind



REMÅ Mapping

Mobileye's crowdsourced, highly precise, continuously updated map of the worldwide driving environment

Scalability

Unlocks millions of "mapping agents" in every relevant region

Accuracy

Uses novel stateof-the-art algorithms to achieve high accuracy levels where it matters

Detailed Semantic Features

Uses explicit attributes and crowdsourced data to generalize traffic rules and driving culture

REM™ Global Coverage

12.1B

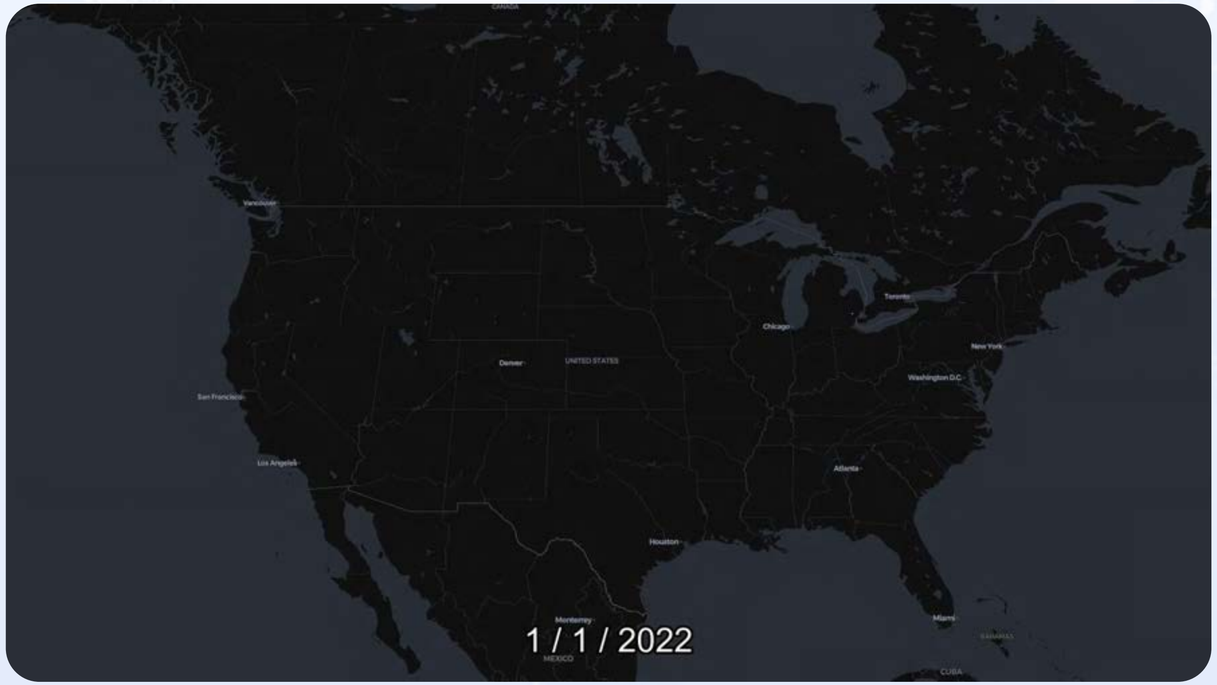
Total miles harvested so far

8.6B

Miles harvested in 2022

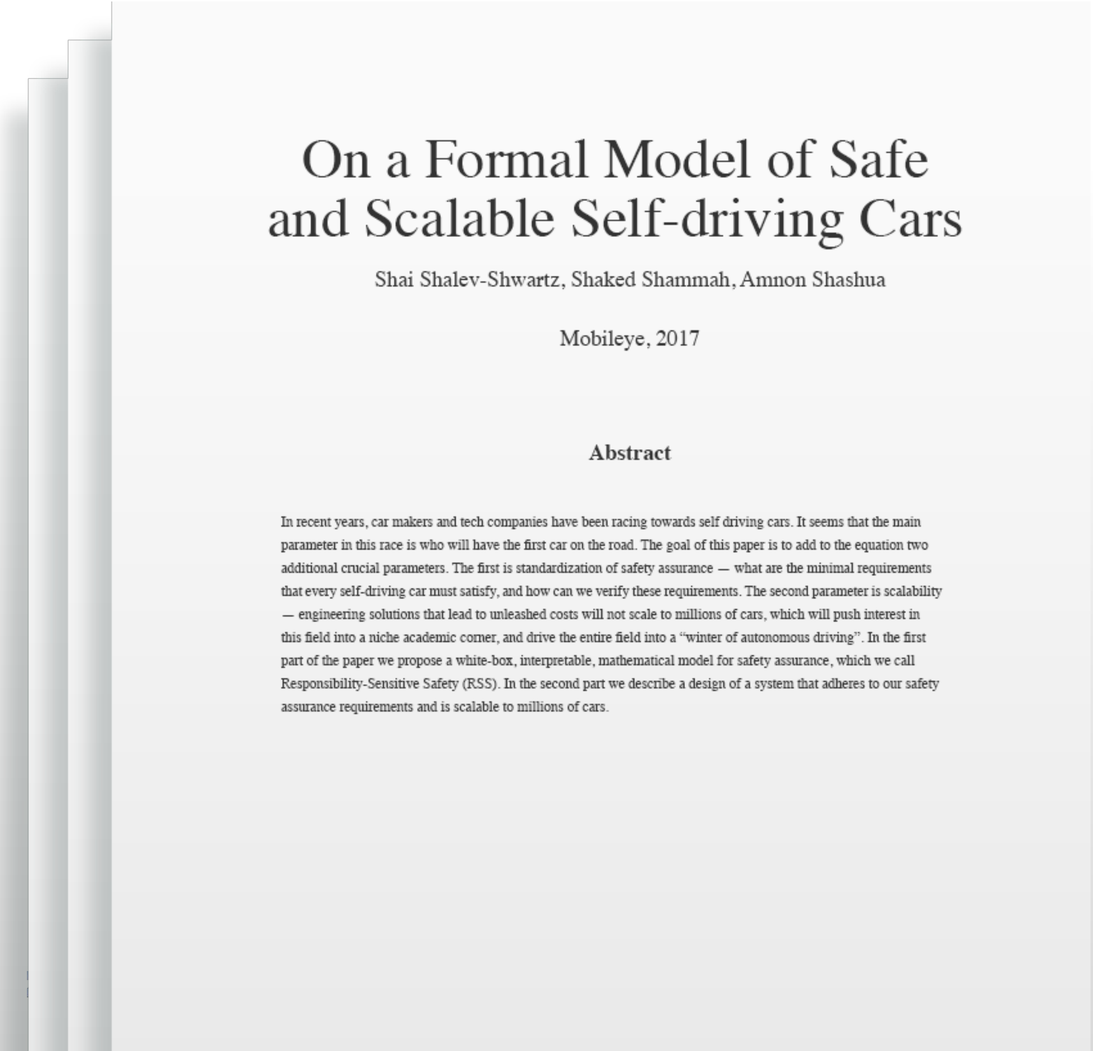
29M

Miles collected daily



RSS Å-Based Driving Policy

A formal model for safety, formalizing the human common sense of balancing safety with usefulness



On a Formal Model of Safe and Scalable Self-driving Cars

Shai Shalev-Shwartz, Shaked Shammah, Amnon Shashua

Mobileye, 2017

Abstract

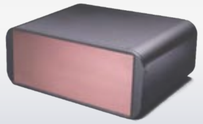
In recent years, car makers and tech companies have been racing towards self driving cars. It seems that the main parameter in this race is who will have the first car on the road. The goal of this paper is to add to the equation two additional crucial parameters. The first is standardization of safety assurance — what are the minimal requirements that every self-driving car must satisfy, and how can we verify these requirements. The second parameter is scalability — engineering solutions that lead to unleashed costs will not scale to millions of cars, which will push interest in this field into a niche academic corner, and drive the entire field into a "winter of autonomous driving". In the first part of the paper we propose a white-box, interpretable, mathematical model for safety assurance, which we call Responsibility-Sensitive Safety (RSS). In the second part we describe a design of a system that adheres to our safety assurance requirements and is scalable to millions of cars.

Mobileye has proposed a technology-neutral, mathematical safety model to help define what it means for an automated vehicle to drive safely. Composed of formal logic and rules, our model – called Responsibility-Sensitive Safety (RSS) – adheres to five safety rules:

1. Safe Distance – Don't hit the car in front of you.
2. Cutting In – Don't cut in recklessly.
3. Right of Way – The right of way is given, not taken.
4. Limited Visibility – Be cautious in areas with limited visibility.
5. Avoid Crashes – If you can avoid a crash without causing another one, you must.

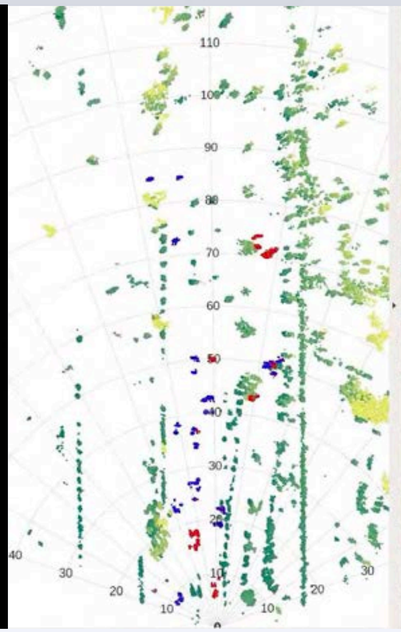
Mobileye's Active Sensors

Next generation lidar and radar sensors, developed by Mobileye to help power hands-off/eyes-off driving solutions



Frequency Modulated Continuous Wave Lidar

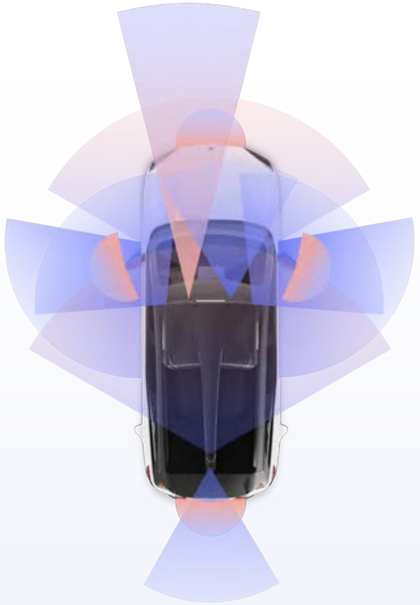
Software-Defined Imaging Radar



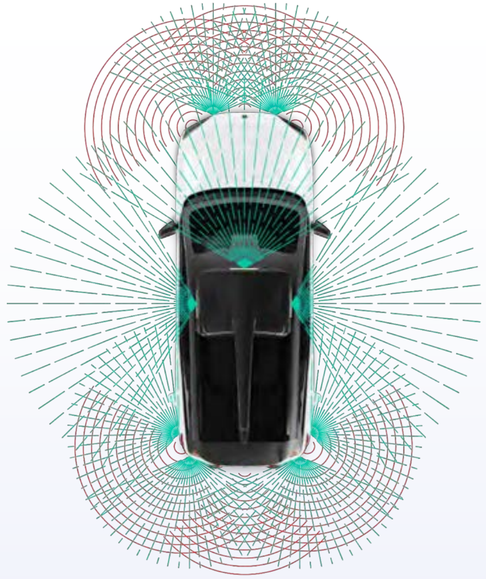
True RedundancyÅ

A unique approach whereby two independent subsystems serve as backups to each other, providing enhanced safety for hands-off/eyes-off driving solutions. Not merely redundancy, but True RedundancyÅ

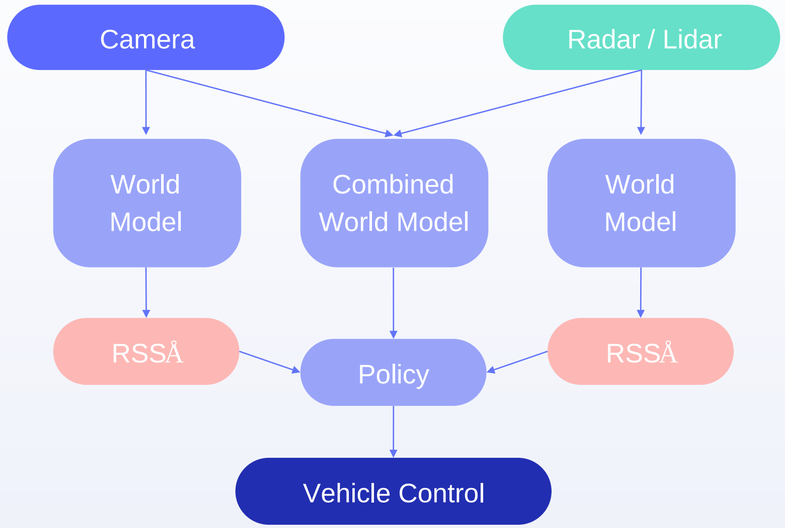
Two separate perception systems:



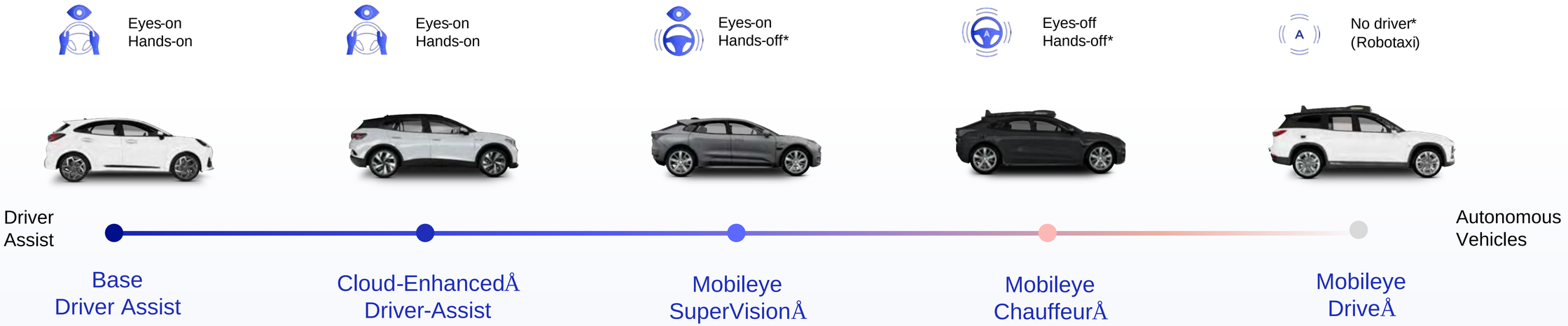
Primary subsystem
cameras alone



Secondary subsystem
radar/lidar alone



Product Portfolio



*Operates within specified ODD, and subject to local law and regulation

Thank you!