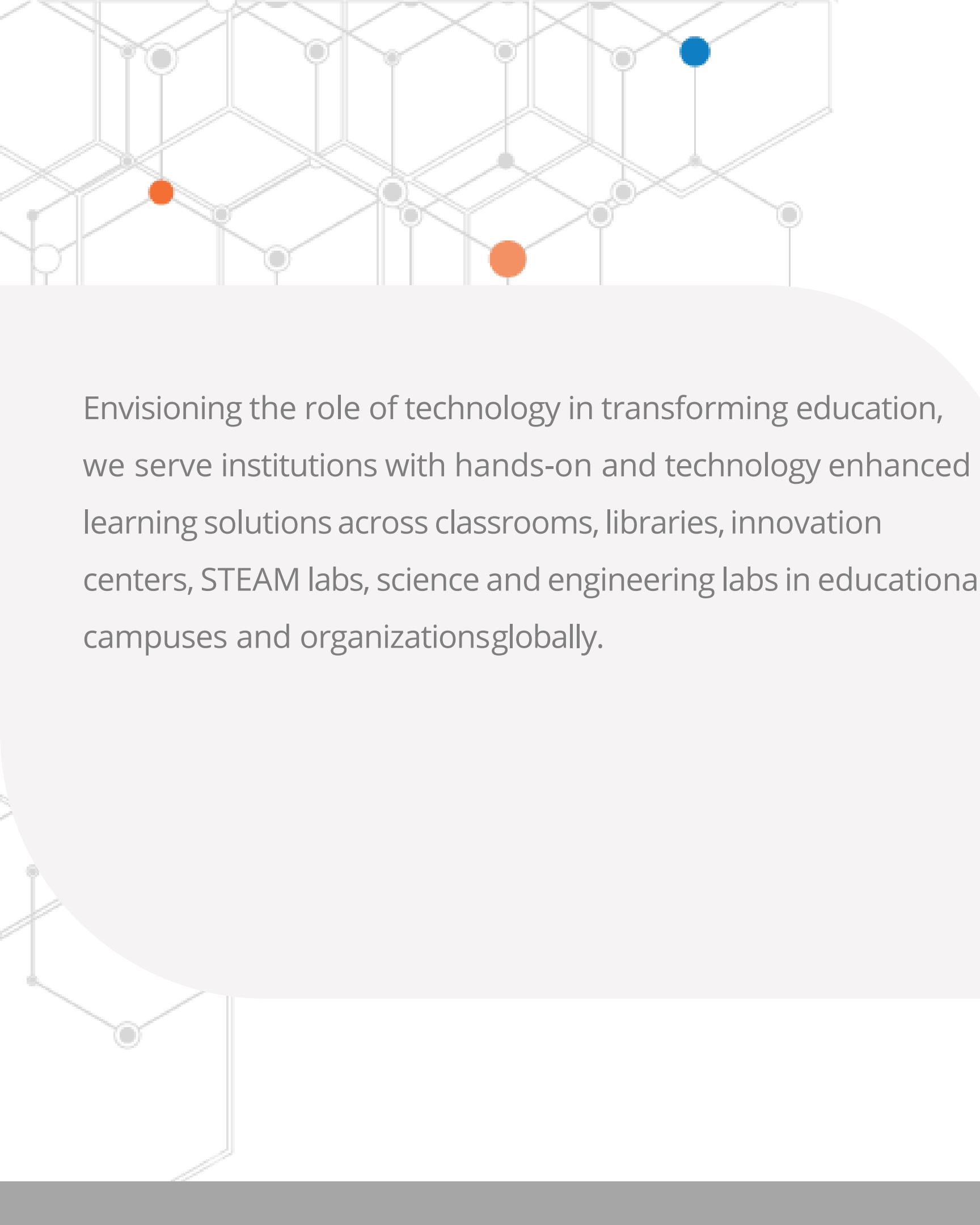




# FUTURE MOBILITY LABS SOLUTIONS



Envisioning the role of technology in transforming education, we serve institutions with hands-on and technology enhanced learning solutions across classrooms, libraries, innovation centers, STEAM labs, science and engineering labs in educational campuses and organizations globally.

**30+**  
Years  
Experience

**7**  
Countries

**1000+**  
Clients

**50+**  
Partners

# EdTech Solutions

STEAM Solutions

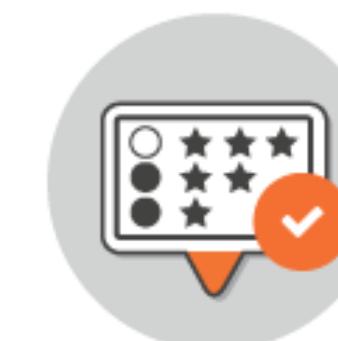
Teaching and Learning



Smart Library



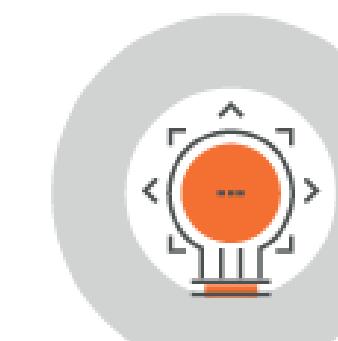
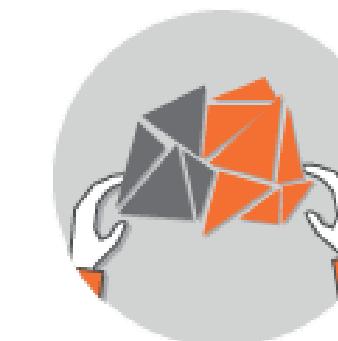
Assessment Tools



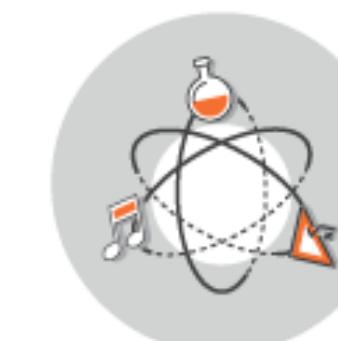
Immersive Learning



Hands-on STEAM Kits



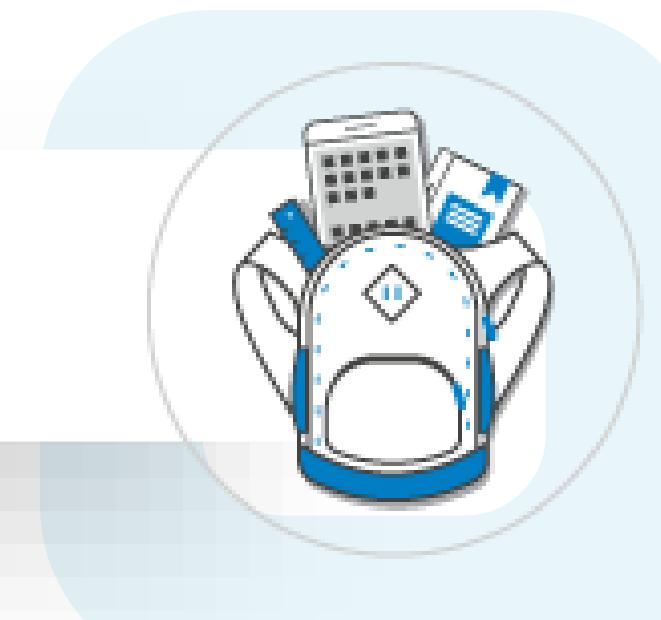
Innovation Hubs



STEAM Experiences

# Sectors We Serve

K-12



Vocational



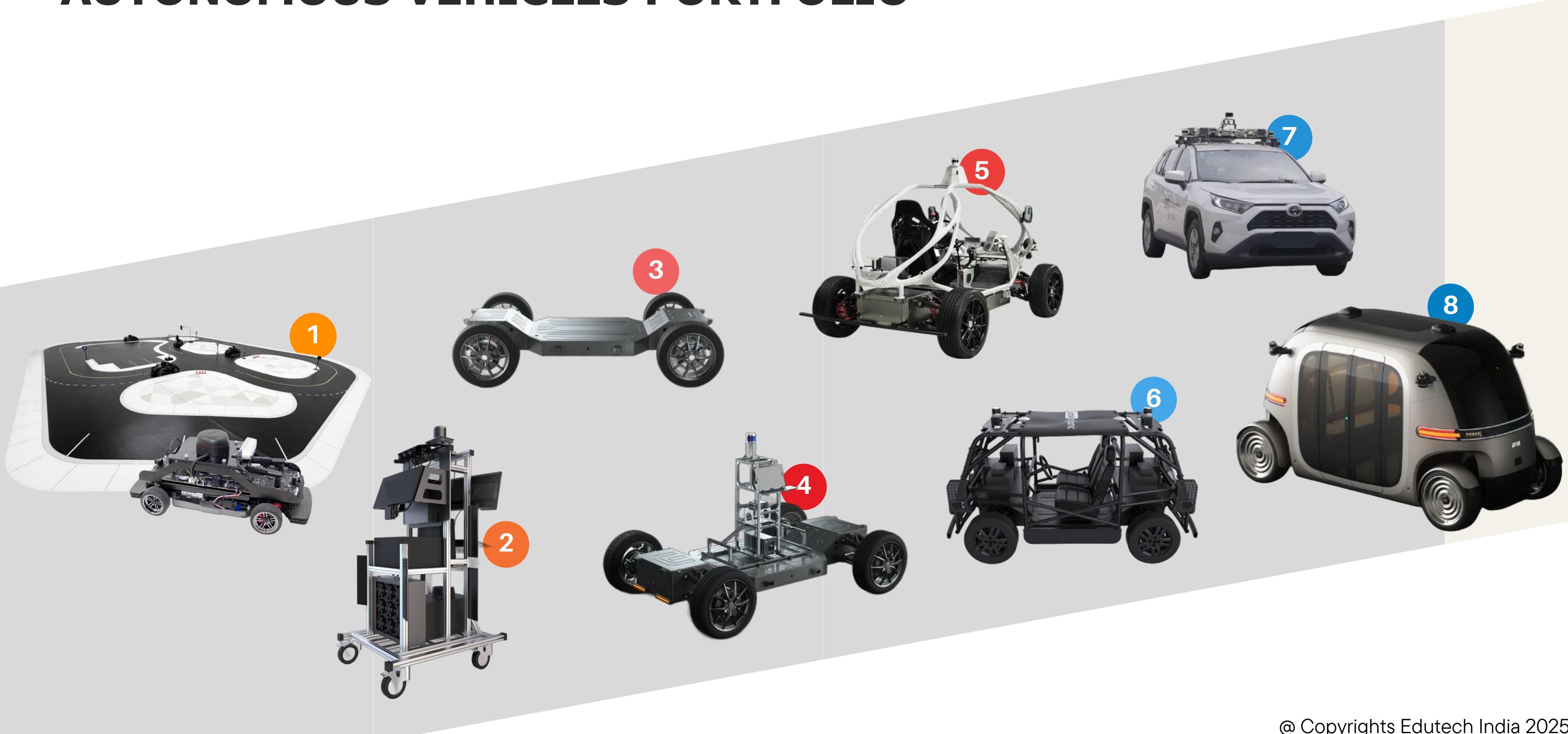
Higher Ed



Industry



# AUTONOMOUS VEHICLES PORTFOLIO



# Agenda

## Day 1

- Overview of AD/ADAS Systems
- QCar System Architecture and Setup
- Working in Virtual QCar Environment

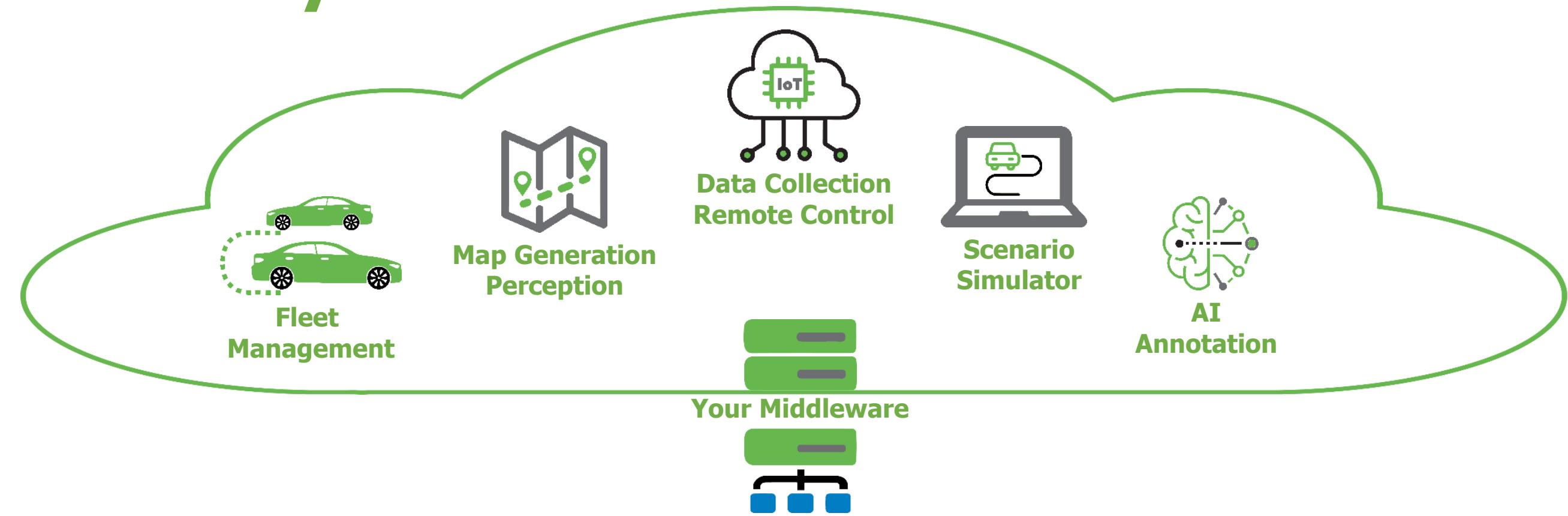
## Day 2

- ADAS Implementation in QCar
  - Lane Keep Assist
  - Automatic Emergency Braking

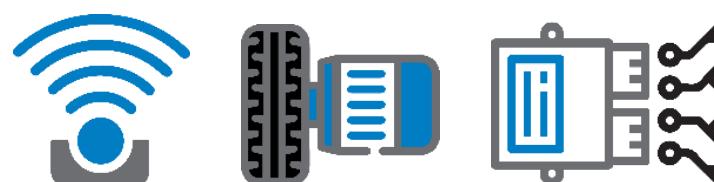
## Day 3

- Cruise Control
- Adaptive Cruise Control
- Physical Hardware QCar Autonomous Driving with Digital Twin with on Map
- Discussion on Course Mapping Edutech offerings and Deliverables

# Enterprises Mobility Solutions



## Our Ready-to-Drive Vehicles



Our HW Platforms  
**OEM Grade**  
**Sensors, Actuators and Controllers**



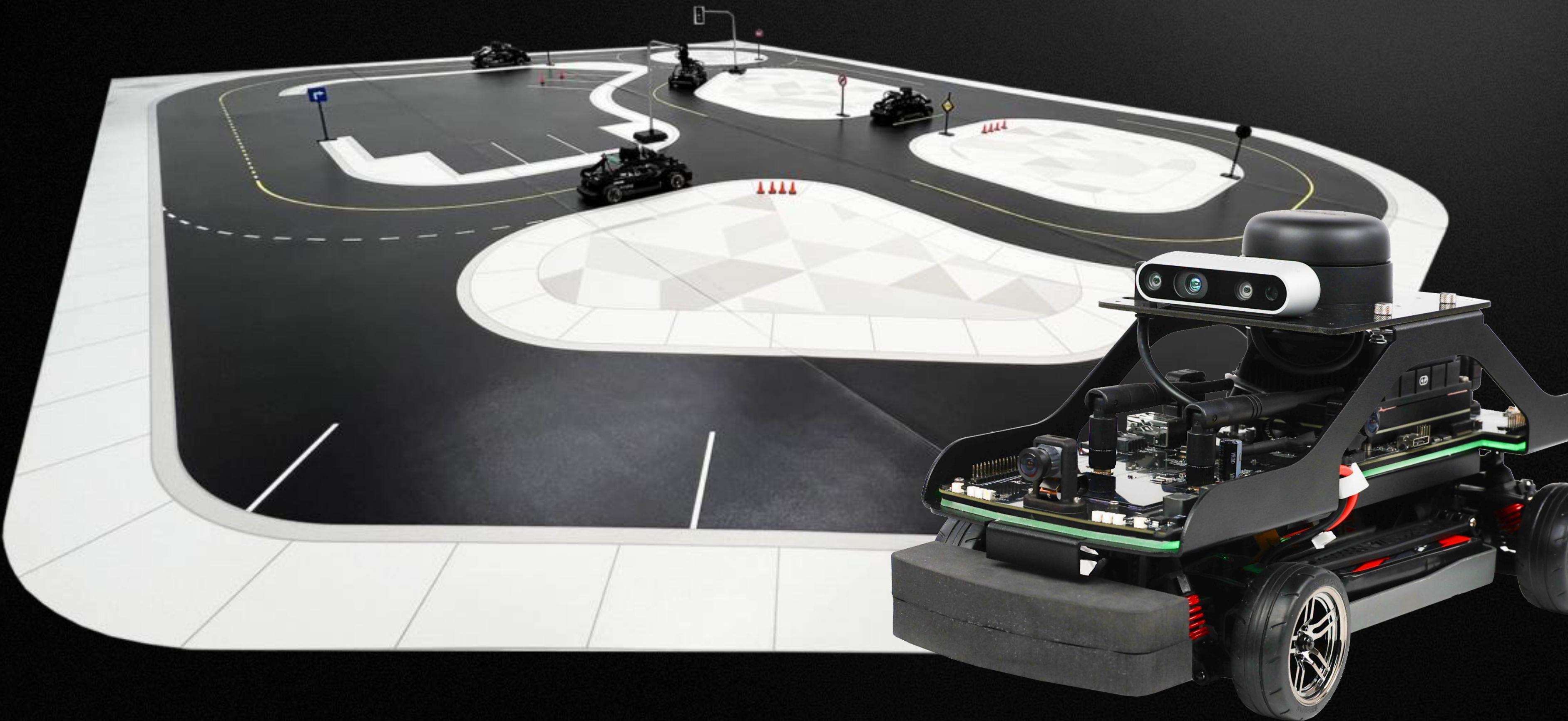
Our SW Stack  
**Open Platform**  
**Localization, Planning and Control**



According to SAE International and ERTRAC



Level	Feature	Requirements	Our SDC-Spec
Zero (No Automation)	Warning System (Ex: Blind Spot Warning and Lane Departure Warning)	Front and Rear End Camera	2D Cameras
One (Driver Assistant)	Park Assist (Adaptive Cruise Control Stop & GO, Lane Keeping)	+Object Detection	Depth Sensor
Two (Partial Automation)	Traffic Jam Assist (Cruise Control in same Lane)	+Speed Detection	IMU and Wheel Encoder
Three (Conditional Automation)	Traffic Jam Chauffeur (Auto Drive and Lane Changing Assist)	+360' View and Long Range Detection	LIDAR
Four (High Automation)	High Way Pilot (High Speed Auto Drive and Overtaking)	V2V	WIFI
Five (Full Automation)	Fully Automated Vehicle (Dynamic Driving)	+Scene Generation	Supports 3D Engine



RESEARCH | TEACHING | PROJECTS | OUTREACH | COMPETITION

## **Multi-Disciplinary Program**

Enabling serving multiple courses and disciplines using same platforms

## **Scaffolded hands-on Activities**

- First year engineering experiences
- Projects
- PBL style courses
- Capstone
- Student competitions, showcase, outreach

## **What Does a SDCS Lab Enable?**

### **Accelerate Research**

- From delivery to publication in as little as 3 months
- Over 300 user publications every year

### **Scalable and Expandable**

Designed for use in undergraduate education to advanced research

# Self-Driving Car Studio



Significantly advancing the accessibility and scalability of self-driving teaching, **project-based learning, research, and outreach.**

Turnkey platform for the **fastest, safest, and most versatile** autonomous systems & applied AI Lab.

The **most powerful** 1/10th scale car, with unmatched **computation power**.

Empowering

## Self-Driving Car Educators and Researchers

- Jumpstart autonomous car programs with complete turn-key package
- Academically appropriate solution featuring Python and MATLAB Simulink courseware and Projects
- Integrated NVIDIA Jetson Orin AGX— the top GPU for edge self-driving, surpassing many real-world car systems.
- AI-ready lab with powerful real-time software APIs through QUARC and Quanser SDK, plus expert faculty consultations.
- Supports unique customization and research access through open architecture and expandable I/O, offering flexibility for general research purposes.

Empowering

## Self-Driving Car Educators and Researchers

- Language-agnostic with support for Python, C/C++, Matlab, Simulink. Over 20 pre-installed API's including ROS 2.0, and TensorFlow to make real-time applied AI more accessible.
- Academically appropriate: Student-proof and robust design
- An extensive sensor array for environmental perception, featuring depth, motion, and high-resolution visual sensing
- High-fidelity digital twin for increased accessibility and scalability
- Access to the Quanser academic support team for complex scenarios and grant assistance

# Self-Driving Car Studio

## COMPONENTS



Set of Academic Resources

Teaching & Research Examples Autonomous Self-Driving Stack Jetson Inference AI Stack



High-Performance Preconfigured PC



High-Definition Monitor



Preconfigured Router

Car Stand



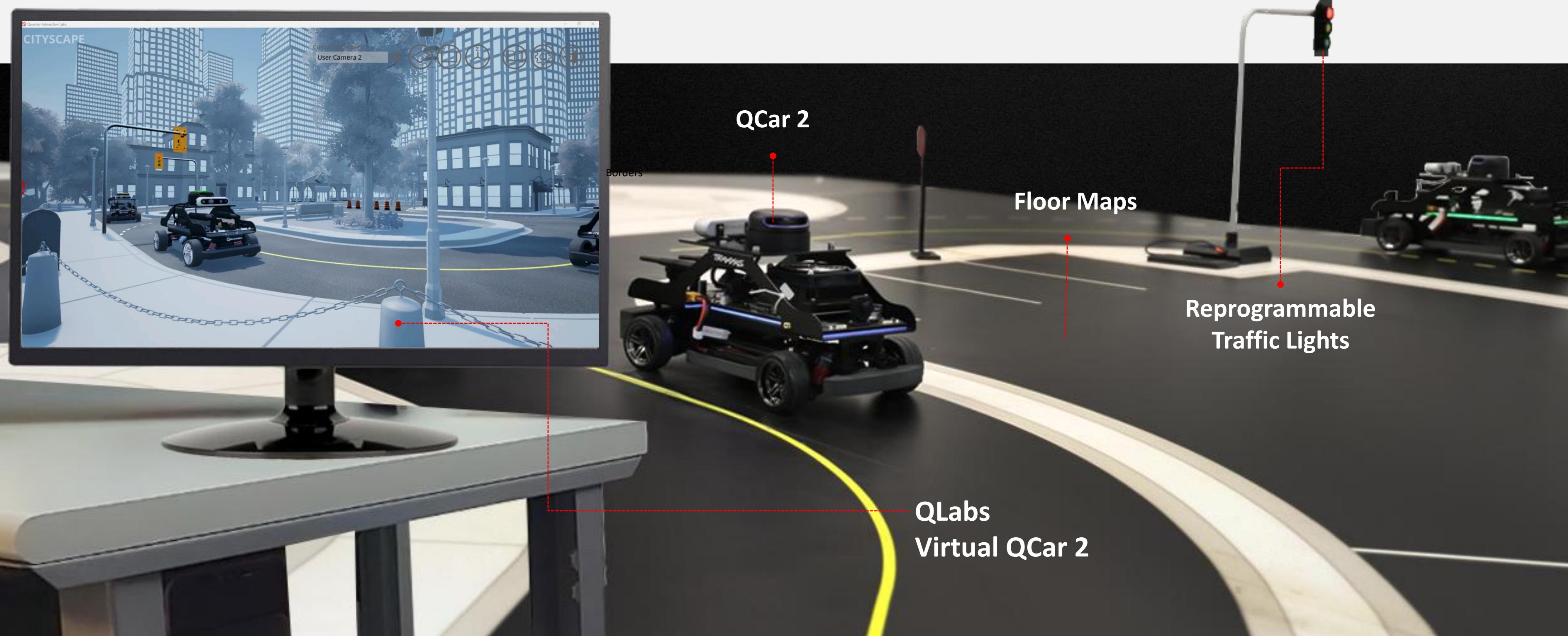
Set of Accessories



Game Controller



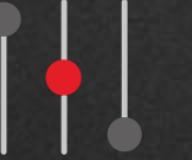
Custom PVC Border





## Project-Ready

Rich sensor suite car, leverage an open architecture and expandable I/O for unparalleled customization in a wide range of projects.



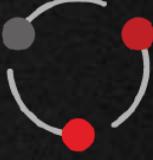
## Research-Ready

Powered by NVIDIA Jetson Orin AGX—the most advanced GPU for edge-node self-driving research. Supports MATLAB, Simulink, Python, C++, and ROS with QUARC and Quanser SDK, and 20+ AI/ML APIs in a software-agnostic platform.



## Course-Ready

Rich laboratory courseware walks students through the design and development of self-driving algorithms.



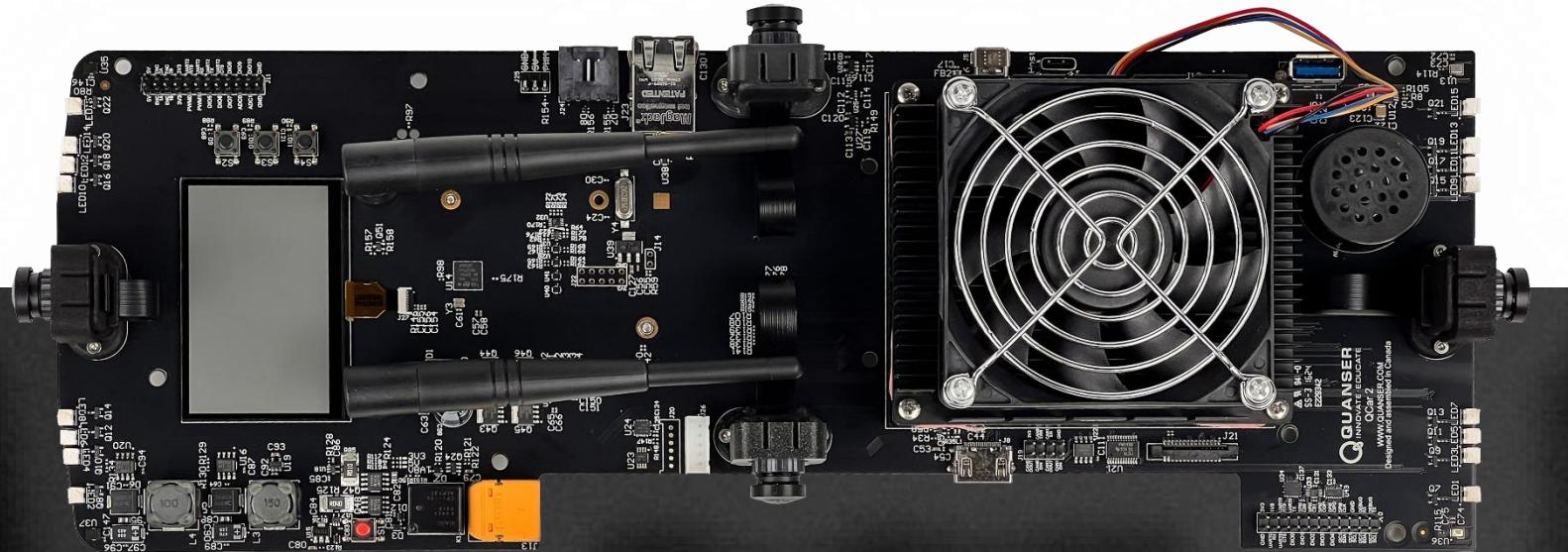
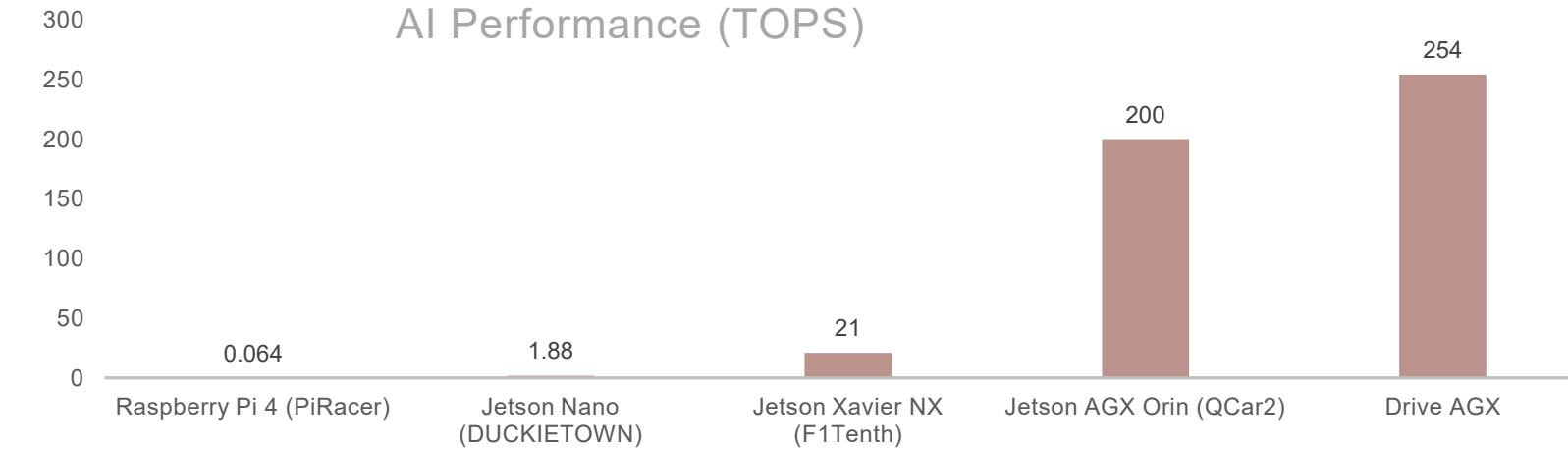
## Outreach-Ready

Easy to set up, featuring out-of-the-box quick demos tailored for diverse audiences. Its flexible user interface supports joystick control, Python, and Simulink integration.



**QCar 2:**  
**Multi-Year**  
**Multi-Disciplinary**  
**Multi-Purpose**

# Advanced Board Design



## Comprehensive Sensor Suite

- 4 x CSI
- 1 x Intel D435
- 16k-point LiDAR
- Encoders
- 6-axis IMU

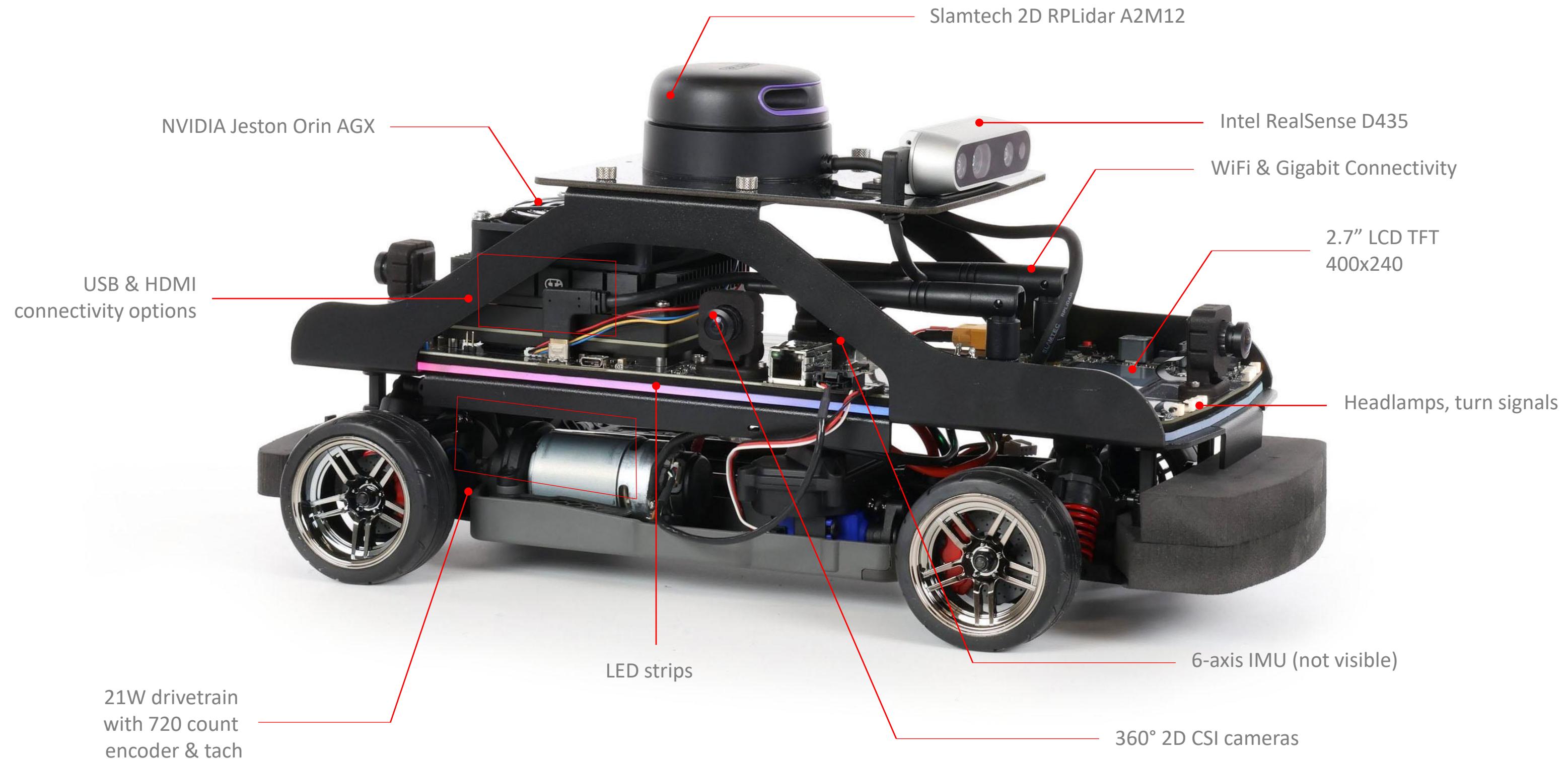
User GPIO, powered USB, HDMI, Ethernet

Onboard GPU enabled computing power  
Powered by **NVIDIA Jetson Orin AGX** — the most advanced GPU for edge-node self-driving research.

Programmable LED  
Improved Status Monitoring and Tracking

User-customizable mechanical breadboard  
for mounting custom hardware







# Software Cross Compatibility



# Digital Environment

