





Autonomous Vehicles Transportation Technologies

TexITE Spring 2025

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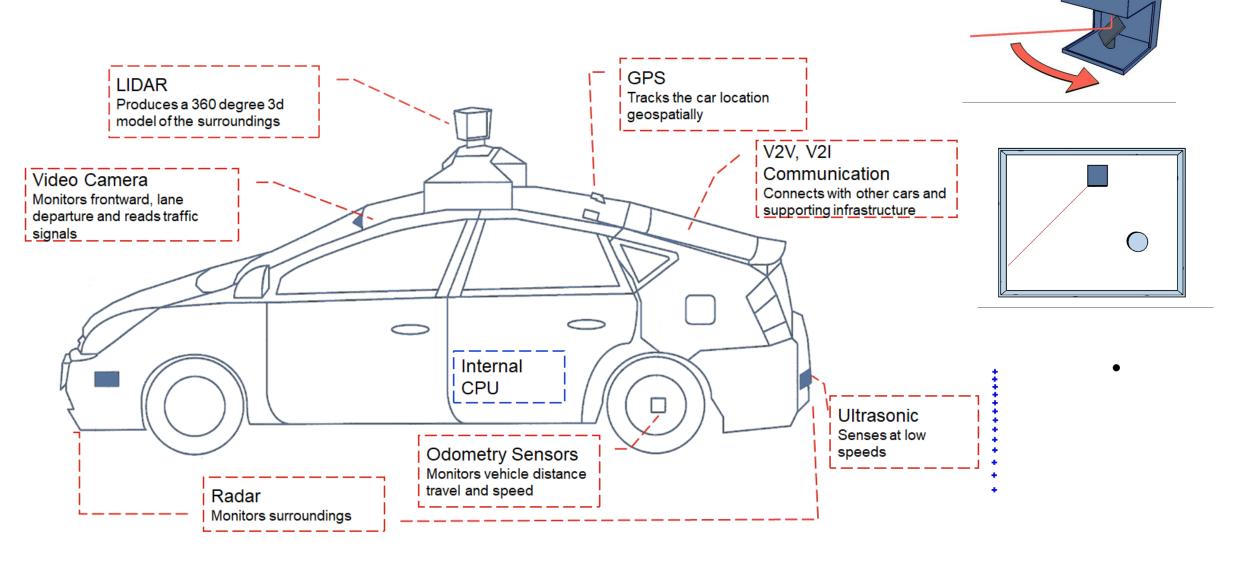






Connected and Autonomous Vehicle Task Force Thank you for choosing to operate in the state of Texas. Texas is home to a robust automated vehicle ecosystem that continues to expand. In 2017, the Texas Legislature authorized the operation of



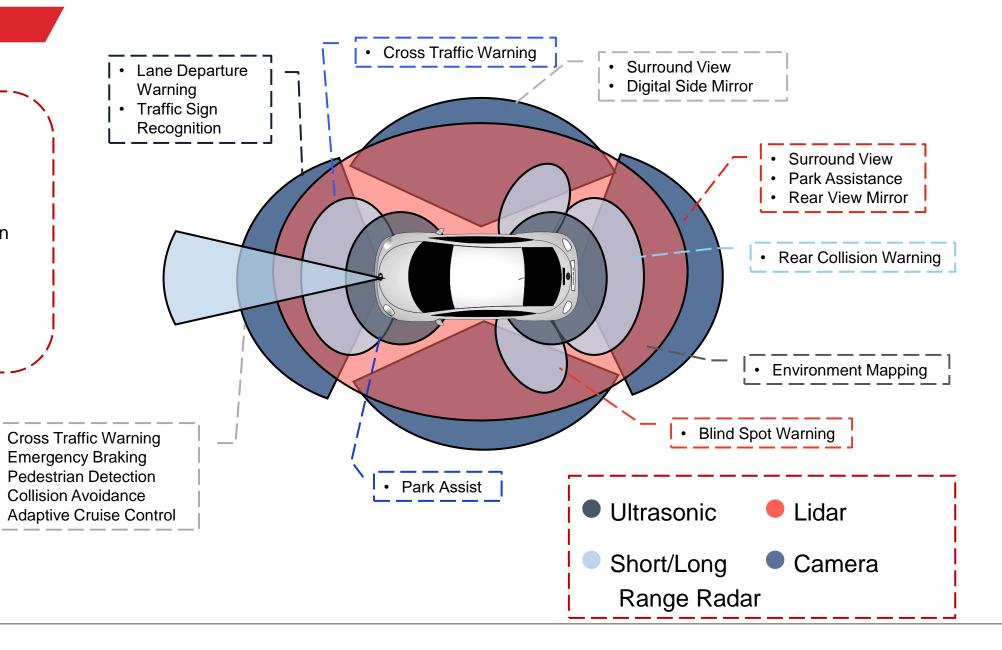




AV 101 – Sensors

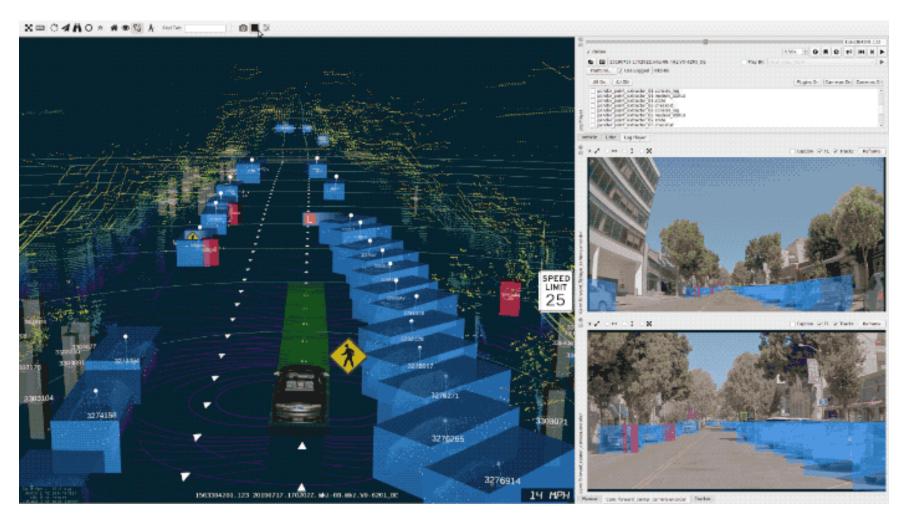
Sensor Requirements

- 1) Traffic-Sign Recognition
- 2) Obstacle Detection
- 3) Lane Detection
- 4) Terrain Mapping
- 5) Vehicle Detection
- 6) Oncoming-Vehicle Detection
- 7) Blind-Spot Monitor
- 8) Parking-Lot Detection
- Scene Classification and Tunnel Detection
- 10)Pedestrian Detection





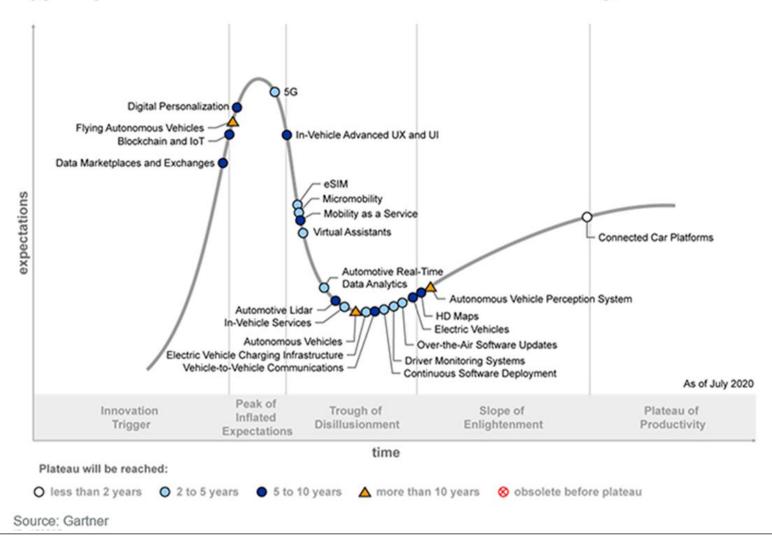
Put it all together



Source: Aurora



Hype Cycle for Connected Vehicles and Smart Mobility, 2020





Where are we – really?

Today, Waymo One provides more than 200,000 fully autonomous paid trips each week, helping riders run errands, connect with friends and loved ones, and experience San Francisco, Phoenix, Los Angeles, and Austin in a whole new way. We'll bring this fully autonomous future to riders in Atlanta and Miami next, with Washington, D.C. to follow.





Operations with AVs







Level 1

Level 2

Level 3

Level 4

Level 5

Increase in Roadway Safety

Automatic Braking

Adaptive Cruise
Control + Lane
Assist

Open Road Automated Vehicle

Generally, Hands Off Driving

> No Steering Wheel

forward collision warning and automatic braking cut rearend crashes in half, while forward collision warning alone reduces them by 27% - IIHS

Lane departure warning has not brought down insurance claim rates but has reduced rates of single-vehicle, sideswipe, and head-on crashes reported to the police (*HLDI*, 2023; *Cicchino*, 2018; *Sternlund et al.*, 2017).

Top Cars with AutoPilot features for 2025:

- Tesla (Model 3, Y, S & X)
- GM (Select GMC and Cadillac vehicles, Chevy Bolt, etc.)
- Audi (A6, A8, and more)
- BMW (X5, 3 Series and more)
- Ford / Lincoln (Mustang Mach-E, Ford F-150)
- Kia / Hyundai (Telluride, Palisade, Sonata)
- Mercedes Benz (S-Class, E-Class, and more)
- Volvo (XC90, XC60, XC40)
- Nissan (Rogue, Leaf, etc.)
- Infiniti (QX50)





Operations with AVs

- Don't Panic, AVs stick to their operation domains
- AVs rely on digital maps, when maps change, they don't work. Work zones, detours change maps. Curb information in dense areas change frequently.
- TIM needs to be coordinated ahead of time
- Watch for push back

Connected Work Zones Implementation Guide and Standard v01.00

Guidance for Setting Up and Operating a Connected Work Zone

December 2024

Previously Work Zone Data Exchange (WZDx)

Developed by: American Association of State Highway and Transportation Officials (AASHTO), ITE—A Community of Transportation Professionals, and National Electrical Manufacturers Association (NEMA)







Supported/Sponsored by: The United States Department of Transportation (USDO

CWZ Implementation Guide and Standard v01.00







FUTURE OF THE OILFIELD: Kodiak's Autonomous Trucks Taking Over

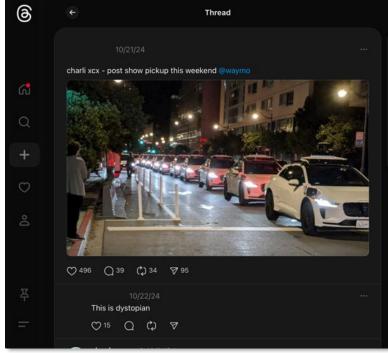
2K views • 7 months ago



Wero Loco Trucking

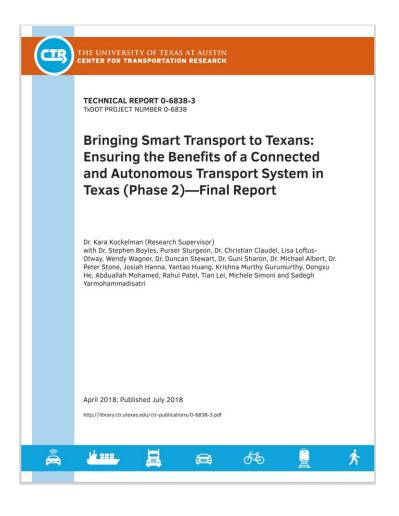
KODIAK ROBOTICS, an autonomous, self driving semi truck company, has just completed their first load of F

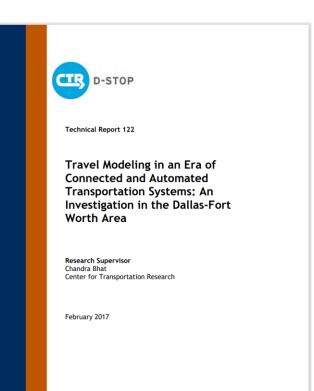






Time to Dust Off those Old Files





Some "fun" questions:

- Volume vs. efficiency
- Land Use Adjustments
- Safety improvements
- Travel mode changes

Table 6: AV Adoption Assumptions for Conservative and Aggressive Scenarios.

Year	Adoption	
	Conservative	Aggressive
2025	5%	6%
2035	20%	25%
2045	45%	51%



MAKING COMMUNITIES BETTER









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