

**SATURN** ROBOTICS

An autonomous future.

# The future and market size

By 2030, the autonomous vehicle market is projected to be worth \$2.3T.

It's a paradigm shift in how we transport everything. To achieve this, a highly modular vehicle platform is essential, capable of automating customers' wildest ideas. The future envisions a fleet of automated vehicles, each with a distinct purpose, owned by large corporations.

# Problem

Autonomous vehicles will have vastly different purposes. They need to come in all shapes and sizes to be able to automate the transportation of everything.

# The solution

A modular "Universal Autonomous Vehicle Platform" adaptable to become a wide range of autonomous vehicles.

“Automation is the one thing that has brought mankind the most value”

# The product - SATURN UNIVERSE

I present to you the SATURN UNIVERSE. Here's a taste of what its capable of:

SATURN UNIVERSE PLATFORM	
Market	
COMPETING MARKET SEGMENTS	Autonomous Mobile Robot to Autonomous Delivery Vehicle to Semi Truck.
COMPONENTRY AND R&D CAPITAL	Made from off-the-shelf components from the US and EU.
OPTIONS	Hybrid, Delivery vaults, Trailer hitch/w trailer, Trailer hitch/w Delivery trailer, Semi Trailer Coupling, MIL-SPEC.
SIZE AND WEIGHT	
EXTERNAL DIMENSIONS (L x W x H)	Any dimensions
GROSS VEHICLE WEIGHT (base + battery + payload)	>80000lbs (max GVW of a semi)
GROUND CLEARANCE	Any ground clearance or approach/departure angle imaginable. (Even 45° approach and departure angles)
SPEED AND PERFORMANCE	
MAX. MOTOR OUTPUT	>5x250kW
TRACTION	10x10 / 8x8 / 6x6 / 4x4 / (Wheels/Casters)
BATTERY AND POWER SYSTEM	
BATTERY CHEMISTRY	Amprius Silicon Nanowire Battery (Or Solid-state battery from Sakuu/Blackstone)
CAPACITY	Any capacity
ENVIRONMENTAL	
IP RATING	>IP68

# Competition in various segments

The **SATURN UNIVERSE** will have these competitors. There is currently very little or no competition in a market that will eventually be worth \$2.3T by 2030.

AMR – Autonomous mobile robot

- Otto Motors.

Autonomous delivery vehicles (with the help from GEM motors)

- Nuro, Hyundai and Google

Autonomous semi (with the help from Magna eBeam™)

- Tesla Semi


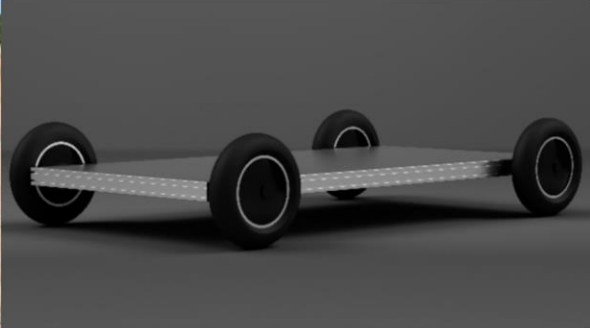

# Competition – Nuro

They're worth \$8.6 billion. Their R2 isn't as modular, simple or capable.

	Nuro R2	SATURN PETA
		
Base MSRP	≈\$60000	\$60000
Delivery capacity	634l	8006l
Max payload	190kg	1300kg
Top speed	25mph	53.6mph
Range (Loaded)	219 mi	175 mi

# Competition – army UGV's

This is where it all began. Could I make a better UGV for the army? Yes, I can! But since then, the idea has evolved and gone past that.

	General Dynamics MUTT 8x8	SATURN TERA	Clearpath Robotics Moose
			
Base MSRP	\$259,615	\$99,500	\$206,500
Max Payload	545 kg	1300 kg	512 kg
Max Speed		80 km/h	30 km/h
Range(Electric only)	97 km	350-1499 km	180 km
Hybrid option	no	Yes	no
Ingress protection		IP68 (First of its kind)	IP67/IP65



# Investment- a platform for Toyota to experiment

One appealing aspect is that new technologies can be swiftly implemented and tested with the **SATURN UNIVERSE**. This enables a gradual integration into mainstream vehicles. A halo platform.

- Fully Submerged Battery Pack from XING/RICARDO. 40% more peak power and charge. Lower weight and better packaging. Cost and weight savings.
- Flexible carbon fiber suspension. [LIFT from Warwick MG](#). A 40% reduction in suspension weight and no need for a strut tower.

Using off-the-shelf components and simple manufacturing processes, the **SATURN UNIVERSE** allows for cost-effective development. This enables the creation and launch of multiple prototypes with minimal financial investment.

- How can more experimental technologies from suppliers be embraced? By having a Halo platform.

# Goals

Create a fully working “Autonomous delivery vehicle” prototype for showcasing and low-volume production. Implement technologies from the last page. The prototype will cost \$200,000 to create.

I've already completed some of the initial engineering work. Hint! The use of metal profiles is crucial.

Create a fully working “Autonomous semi” prototype for showcasing and low-volume production. Implement technologies from the last page and eBeam™ from Magna. The prototype will cost \$1,000,000 to create.