Nuro Investment Proposal:
Autonomous Driving Meets Last-Mile Delivery

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1. Company Introduction

1.1 Origins and Strategic Positioning

Nuro was founded in 2016 in Mountain View, California, by former Google self-driving project lead engineers **Jiajun Zhu** (Chief Architect of Waymo's perception system) and **Dave Ferguson** (computer vision and machine learning expert). Leveraging their expertise in autonomous perception and behavioral prediction, the company pioneered the concept of "**driverless cargo vehicles**," dedicating itself to revolutionizing last-mile logistics through purpose-built, human-free designs. Unlike competitors focused on passenger transport, Nuro prioritized maximizing cargo space efficiency.

As of 2025, Nuro employs ~900 people, with R&D staff constituting 65% of its workforce. Core technical talent hails from Waymo, Tesla, and Apple's Project Titan. The company has raised 3.642 billion over 8 funding rounds. Despite a valuation drop from its 2021 peak of 8.6B to $6.0B (post-2025 Series E), continued investment from T. Rowe Price, Fidelity, and SoftBank signals strong confidence in its capital-light pivot.

1.2 Complete Funding History & Strategic Implications

Table 1. Funding History of Nuro

Date	Round	Amount	Lead Investors/Notable Participants	Critical Use of Funds
Nov 2017	Seed	$92M	Google, Y Combinator	R0 prototype development
Feb 2018	**Series A**	**$940M**	SoftBank Vision Fund	R1 production scale-up & logistics network rollout
Jun 2019	**Series B**	**$940M**	Coatue Management, Gaorong Capital	Custom LIDAR procurement, Kroger partnership
Nov 2020	**Series C**	**$500M**	T. Rowe Price, Fidelity	NHTSA federal exemption compliance costs
Dec 2021	**Series D**	**$600M**	Tiger Global, Google	R3 mass-production prep, AI compute cluster expansion
Jul 2022	Strategic	**$100M**	**Chipotle**(client → shareholder)	Restaurant-delivery tech customization
Mar 2024	Convertible Note	**$400M**	KKR, Silver Lake	Transition to licensing model; bridge financing
Apr 2025	**Series E**	**$106M**	T. Rowe Price, Fidelity	AI cluster upgrade, OEM

Total raised: $3.642B.

Pattern Shift: 72% of 2018–2021 funds directed at vehicle manufacturing , while 90% of 2024–2025 capital allocated to AI/software and licensing model.

1.3 Systemic Technological Breakthroughs

(1) Hardware Architecture: Multi-Layered Perception

Nuro Driver's sensor suite achieves ASIL-D functional safety certification:

a. **Primary LIDAR**: Luminar Hydra (1550nm wavelength) maintains 300m range (±2cm accuracy) in heavy rain.
b. **Vision System**: Six 2MP fisheye cameras with embedded NPUs for glare suppression.
c. **Radar Array**: Five 77GHz millimeter-wave radars penetrate fog/rain + twelve ultrasonic sensors.
d. **Compute**: Dual NVIDIA Thor chipsets (2,000 TOPS) at <800W power consumption.

(2) Algorithmic Innovations

a. **ST-GCN Model**: Tracks 256 dynamic objects (pedestrians, cyclists) with <0.1s trajectory prediction error.
b. **Mapless Navigation**: Generates 3D semantic maps of unmapped zones (e.g., construction sites) in <50ms.
c. **Dual-Controller Safety**: 100% collision avoidance rate over 1M+ miles of real-world testing.

(3) Vehicle Engineering Revolution

Table 2. Parameter Information of Each Vehicle Model

Parameter	R2 (Active)	R3 (Cancelled)
Cargo Volume	50 cu ft (1.4m³)	80 cu ft (2.3m³)
Max Speed	45 km/h	60 km/h
Body Material	Energy-absorbing composite	Carbon fiber-aluminum hybrid
Unit Cost	$150,000	Target $80,000 (not achieved)

Core Advances: 300% space efficiency gain vs. human-driven vans; Phase Change Material (PCM) cooling sustains operation at 50°C; R2 remains the **world's only NHTSA-exempted vehicle without steering wheel or pedals**(2020).

1.4 Strategic Transformation Anchored in Critical Turning Points

Nuro's corporate journey epitomizes the volatile trajectory of autonomous vehicle innovation, defined by audacious technological bets punctuated by decisive pivots. Founded in 2016 by Waymo pioneers Jiajun Zhu and Dave Ferguson, the company initially pursued a capital-intensive path: designing purpose-built driverless vehicles (R1/R2) for last-mile delivery. Early success came through landmark partnerships, Domino’s Pizza in Houston achieved 96% on-time delivery using Nuro fleets by 2020, while Walmart saw fresh-produce spoilage drop 37% in Silicon Valley trials. Yet this operational phase exposed an existential flaw: each R2 vehicle cost 150,000 to manufacture, requiring 30,000 annual deliveries just to break even—a scale impossible without billions in continuous funding. This economic reality collided with industry headwinds in 2022 when interest rate hikes vaporized 32 billion from global AV sector valuations within months.

It was against this backdrop that Nuro confronted its first existential crisis in **November 2022**. Having raised 600 million at an 8.6 billion valuation just eleven months prior—funds largely allocated to R3 mass-production plans with BYD—the company faced imminent runway depletion. Leadership made agonizing cuts: 300 employees (20% of staff) were dismissed, primarily from manufacturing and field operations, preserving 220 million in capital. Simultaneously, the R3 program was shelved despite 120 million in sunk tooling costs. Crucially, this retreat became strategic repositioning: R&D resources were redirected toward hardening Nuro Driver’s algorithms for extreme conditions. By December 2023, this focus yielded a pivotal victory—Nuro completed **1,052 miles of continuous driverless operation in Northern California’s winter storms**, achieving zero disengagements during heavy rain, fog, and 45-mph crosswinds. California DMV subsequently granted its first-ever permit for zero-occupant testing (no safety driver onboard), validating two years of technical refinement under duress.

The insights from this operational crucible catalyzed Nuro’s transformation from hardware manufacturer to software licensor—a shift formalized in **Q1 2024**. CEO Dave Ferguson personally negotiated the termination of the BYD production pact,

absorbing 45 million in penalties but liberating engineering capacity.

Simultaneously, a 400 million convertible note from KKR and Silver Lake **provided non-dilutive capital at a $5.5 billion valuation (a 36% discount to peak), enabling investments in modularizing Nuro Driver for integration into third-party vehicles. This reinvention bore fruit within months: Uber Eats contracted a 10-year exclusive delivery partnership deploying 100 Nuro-equipped vehicles across Palo Alto. By Q4 2024, these units delivered meals in** 18 minutes on average—7 minutes faster than human riders, while slapping per-mile costs by 41%. The model's scalability became undeniable—Kroger reported produce spoilage plunging from 4.2% to 0.8% using Nuro's licensed tech on commercial Renault vans, proving the architecture could succeed without proprietary hardware.

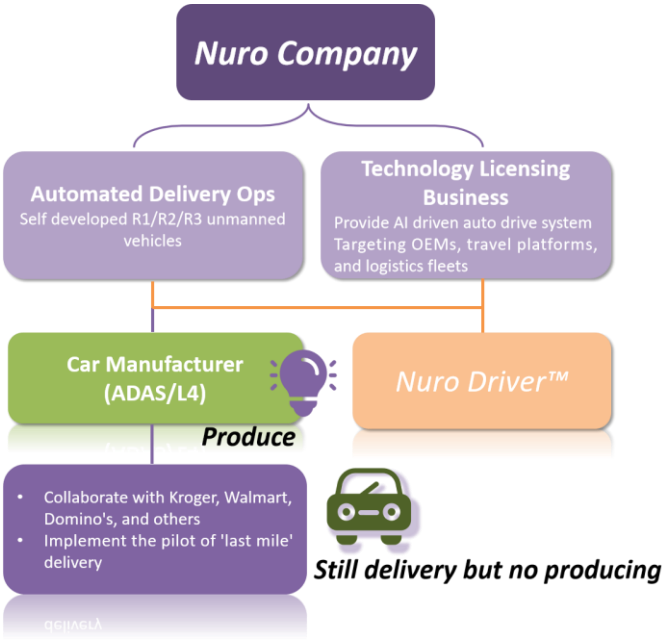

Figure 1. Overview of Nuro's new business model framework

Nuro cemented this rebirth with a 106 million Series E in April 2025. Led by T. Rowe Price at a 6 billion valuation—a calibrated recovery from the crisis-era lows—the round financed NVIDIA H100 GPU clusters accelerating AI training. Crucially, funds anchored production agreements with two undisclsosed Detroit-based OEMs to embed Nuro Driver into 2027-model light commercial vehicles. This licensed-L4 approach projected 62% gross margins by 2028, dwarfing the <15% margins possible under the old model. Ferguson framed the pivot philosophically: *"Automakers have*

perfected the art of building durable vehicles at scale. We now focus on what we do best—making them profoundly intelligent."

1.5 Organizational & Cultural Metamorphosis

Underpinning this technical renaissance was a cultural reinvention. The 2022 layoffs, while financially necessary, devastated morale—Glassdoor ratings plummeted to 2.7/5 as engineers criticized leadership's "hubris" in pursuing capital-heavy manufacturing. Ferguson responded with radical transparency: he hosted monthly "no-slide" town halls detailing burn rates, published engineering incident logs, and created a "Black Swan Council" where junior staff could veto features lacking fail-safes—echoing aviation industry protocols. This cultural reboot paid dividends: retention rates among critical AI roles rebounded to 92% by 2024, while the 2025 Stanford Organizational Resilience Index ranked Nuro #1 among AV firms. The company's near-collapse had become its most potent teacher—a reality Ferguson acknowledged when California Governor Newsom awarded him the 2024 Technology Pioneer Medal. *"Our survival wasn't heroism; it was painful adaptation to unignorable truths. That lesson now defines our DNA."*

This narrative of reinvention continues unfolding. When Hurricane Alberto flooded Houston in June 2025, Nuro's licensed vehicles navigated chest-high water using multimodal sensor fusion—a capability inconceivable during its hardware-centric era. As one Kroger logistics manager observed: *"We don't care what drives our vans—only that they deliver. Nuro finally understood that."* The company that once raced to build proprietary vehicles now quietly powers deliveries across three continents—not as a manufacturer, but as an intelligence embedded within other machines. Its most profound innovation, it turns out, was learning how to transcend its own original vision.

1.6 Socioeconomic Legacy

a. **Environmental**: Each vehicle eliminates 50 tons of CO_2/year (equiv. to 550 mature trees) per EPA.
b. **Labor**: Creates 120 high-skill jobs per operations center (e.g., remote monitors).

c. **Academic**: Core algorithms open-sourced and adopted by MIT Autonomous Vehicles Lab.
d. **Policy**: Lobbied Texas/Arizona to lift driverless bans; drafted 70% of California's 2024 autonomous freight regulations.

Sources: NHTSA docket #2020-001; CA DMV Permit #AVT-0001; SEC Forms D; Nuro 2025 Technical Whitepaper; Bloomberg Terminal financials.

2. Industry Analysis

Nuro is a U.S.-based robotics company founded in 2016 by Waymo engineers Jiajun Zhu and Dave Ferguson. The company develops fully driverless, zero-occupant electric vehicles designed specifically for last-mile delivery of goods like groceries, pizza, prescriptions, and packages.

Nuro initially focused on the "last mile" delivery scene, developing driverless delivery vehicles to replace traditional couriers or riders. Starting from 2024, Nuro will gradually abandon its own delivery network and car manufacturing business and turn to the "technology licensing and software platform" model. The core is to export its autonomous driving system to other car manufacturers and travel companies.

2.1 Last-mile delivery market

2.1.1 Market status and size

The global last-mile delivery market reached a scale of $161 billion in 2024 and is projected to maintain an annual growth rate of about 10% over the next eight years (2024-2032). This growth is primarily driven by the rapid development of e-commerce, particularly in emerging markets like China, where the volume of express deliveries reached 11.05 billion items in 2022, marking a 21% year-on-year increase. Additionally, as consumer demand for fast delivery and personalized services grows, the market demand for last-mile delivery continues to rise.

2.1.2 Market drivers

The rise of e-commerce: The rapid growth of e-commerce is the main driver of the last-mile delivery market. Consumers are increasingly inclined to shop online, and last-mile delivery is a key component in achieving "door-to-door" service.

Technological progress: The application of real-time tracking and traceability

technology, GPS, RFID and other technologies has improved the efficiency and transparency of distribution, while reducing operating costs

For example, Amazon's Scout delivery robot and Matternet's drone logistics network show the potential of technology to improve delivery efficiency.

Changes after the Epidemic: The COVID-19 pandemic has accelerated the demand for contact-based delivery services, prompting companies to invest in automated and intelligent delivery solutions. For example, in March 2020, Matternet launched Matternet Station, which supports a point-to-point drone logistics network in urban environments.

2.2 Autonomous driving software licensing market

2.2.1 Market status and size

According to CIC's research data, the global market size of autonomous driving software will increase from $300 million in 2020 to $16 billion in 2025 (China and other regions are $4.7 billion and $4.7 billion respectively$11.3 billion), the market size in 2030 will be $142.8 billion (China and other regions will be $46.2 billion and $96.6 billion respectively), and the CAGR growth rate of the market size from 2020 to 2025 and 2025 to 2030 will be 122% and 55% respectively.

The Robotaxi market will reach $10.6 billion in 2025 (China and other regions are $5.4 billion and $5.2 billion respectively), $370.4 billion in 2030 (China and other regions are $181.2 billion and $189.2 billion respectively), and the CAGR growth rate of the market size from 2025 to 2030 is 105%.

2.2.2 Market drivers

Government support: Government support and encouragement of autonomous driving technology is an important driver of market growth. For example, China, the United States and other countries and regions are promoting the development of autonomous driving technology through policies.

Consumer demand: Consumer demand for safety and convenience has driven the popularity of autonomous driving technology. For example, Tesla's FSD (fully autonomous) software is constantly optimized through over-the-air updates to improve

the user experience.

Technological advances: Improvements in sensors, AI components and algorithms have reduced costs and improved performance, making autonomous driving software more competitive.

Electrification trend: Electric vehicles (EVs) are considered an ideal platform for autonomous driving technology due to their advanced digital infrastructure. The global electric vehicle market is expected to reach $786.2 billion in revenue in 2024.

3. Competitor Analysis

Nuro currently operates primarily within the United States, focusing on autonomous last-mile delivery using self-driving vehicles. Its industry competitors fall into two main categories: domestic autonomous delivery companies and autonomous driving technology firms.

In the terminal delivery sector, key players include Starship, Marble, Kiwibot, Serve Robotics, and Coco. These companies primarily focus on small-scale sidewalk delivery robots. In the autonomous driving sector, companies such as Waymo, Cruise, Aurora Innovation, Mobileye, and Zoox are mainly engaged in highway-capable autonomous taxi services.

Nuro occupies a unique niche at the intersection of these two domains. While Gatik operates in a somewhat related field, it primarily focuses on medium- to long-distance autonomous truck-based delivery, and thus does not compete directly with Nuro's urban last-mile delivery business.

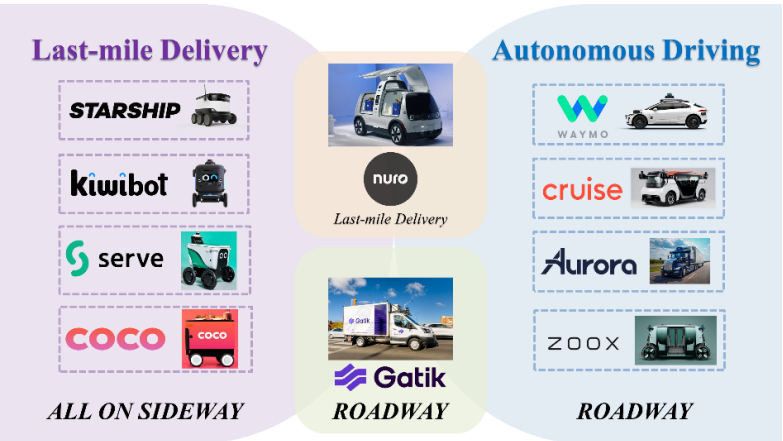

Figure 2. Overview of Nuro's Industry Position

3.1 Comparison with Delivery Firms

In the terminal delivery sector, the mainstream solution currently involves four- or six-wheeled sidewalk delivery robots. These robots are relatively small, operate at low speeds—typically around 6 to 8 km/h—and are generally limited to short-range deliveries within communities or campuses.

In contrast, Nuro's autonomous delivery vehicles are capable of detecting and responding to real road conditions, with a top speed of up to 72 km/h. They also offer a payload capacity approximately 15 times greater than that of smaller sidewalk robots like those developed by Kiwibot or Coco. This significantly expands the range and scale of deliveries Nuro can support.

Due to their compact size, lower manufacturing costs, and slower speeds—which reduce the risk of accidents—sidewalk delivery robots have gained considerable popularity at a time when real-time road perception and processing systems remain underdeveloped.

However, the limitations of sidewalk robots are equally significant. First, their low speed severely restricts delivery efficiency. Unlike vehicles on roads, pedestrians on sidewalks move unpredictably and irregularly, forcing sidewalk robots to adopt slow speeds or rely on remote human intervention to avoid collisions. This persistent "human-path conflict" is a major factor constraining their performance.

Second, the narrow width of sidewalks inherently limits the robots' payload capacity, creating a mismatch between their delivery capability and users' growing demand for speed and volume. In 2024, the U.S. online food delivery market reached approximately $353.3 billion and is projected to grow at a compound annual growth rate (CAGR) of 7–10% over the next four years, indicating the market is still in an expansion phase. Against this backdrop, whether low-speed, low-capacity sidewalk robots can continue to meet rising consumer expectations remains an open question. Although Nuro's autonomous delivery vehicles face challenges such as higher production costs and the need for advanced real-time road analysis, the inherent limitations of sidewalk robots have undoubtedly opened a window of opportunity for

road-based autonomous delivery solutions like Nuro's.

Table 3. Comparison of Companies in the Autonomous Last-Mile Delivery Industry

	Nuro	Starship Technologies	Marble	Kiwibot	Serve Robotics	Coco Robotics
Founding Date	2016	2014	2015	2017	2021	2020
Location	California, USA	California, USA	California, USA	California, USA	California, USA	California, USA
Last Funding	Apr, 2025 Series E (0.1 B)	Jul, 2024 Series C (0.09 B)	Apr, 2018 Series A (0.01 B)	Feb, 2023 Series A (0.01B)	Aug 2023, reverse merger go public	June, 2025 Series B (0.08 B)
Main Products	1610 kg, self-driving car 225 kg payload 52 kWh battery 72km/h	25kg, 6-wheeled sidewalk robot 9 kg payload 1260Wh battery 6 km/h	18-36kg,4-wheeled sidewalk robot 10-45 kg payload 960Wh battery 6 km/h	17kg, 4-wheeled sidewalk robot 15 kg payload 750Wh battery 6 km/h	73 kg, 4-wheeled sidewalk robot 5 kg payload 750Wh battery 17.7 km/h	45kg, 4-wheeled sidewalk robot 10-15 kg payload 750Wh battery 8 km/h
Cooperation	7-Eleven, Uber Eats, Kroger	Bolt, Co-Op, Tesco, Grubhub	Yelp Eat24, DoorDash	Sodexo, Shopify, Rappi, Olo	Uber Eats, Wing Aviation	Subway, Wingstop
Main Scenario	30-minute driving-distance delivery	Campus and community food delivery	General urban sidewalk delivery	Campus and community food delivery	General urban sidewalk delivery	General urban sidewalk delivery

3.2 Comparison with Delivery Firms

In the autonomous driving sector, most companies are currently focused on developing robotaxi services. Major players such as Waymo, Cruise, and Amazon (via Zoox) have shown no recent indication of entering the unmanned delivery market. This strategic focus likely stems from the fact that robotaxis offer higher marginal returns and provide a complete, self-contained service chain—from ride-hailing and passenger pickup to drop-off—without the heavy reliance on partnerships with supermarkets, restaurants, or convenience stores, which are essential in the last-mile delivery business. Moreover, robotaxi operators enjoy greater pricing flexibility through dynamic fare models.

However, compared to unmanned delivery, robotaxi services face significantly higher technical requirements. Passenger transport demands greater ride smoothness, stricter safety and comfort standards, and lower space utilization efficiency than cargo delivery.

While Nuro's technology is considered among the most advanced in the industry on paper and is progressing from Level 4 (High Driving Automation) toward Level 5 (Full Driving Automation), the company still lags behind major U.S. autonomous vehicle firms in terms of organizational scale, fleet size, and system maturity—often

measured by average miles per intervention.

Given these constraints, Nuro's strategic decision to avoid direct competition with robotaxi developers and instead focus on the technically less demanding, higher space-efficiency domain of unmanned last-mile delivery represents a pragmatic and well-aligned choice based on its current capabilities and market positioning.

Table 4. Comparison of Companies in the Autonomous Driving Industry

	Nuro	Waymo	Cruise	Aurora Innovation	Mobileye	Zoox
Founding Date	2016	2009	2013	2017	1999	2014
Location	California, USA	California, USA	California, USA	Pennsylvania, USA	Jerusalem, Israel	California, USA
Last Funding	Apr, 2025 Series E (0.1 B)	Oct, 2024 Series C, (5.6 B)	2025, Merged by General Motors	2021, SPAC merger	2017, Acquired by Intel; 2022, Nasdaq re-listed	2020, Acquired by Amazon
Technology	L4	L4	L4	L4	L4	L4
Hands-off Driving Test Cars	37	1,035	1,119	—	—	150
Average mile per Hands-off session	2,044	9,793	2,064,728	—	—	27,996
Main Scenario	Last-mile Delivery	Robotaxi	Robotaxi	Autonomous truck, Robotaxi	Technology Provider	Robotaxi
Cooperation	7-Eleven, Uber Eats, Kroger	Chrysler, Lyft, Uber	GM, Lyft, Amazon, Honda	Uber Freight, Daimler Trucks	BMW, Audi, Ford, Volkswagen	Amazon

Overall, Nuro's competitive advantages can be summarized in the following three areas:

First, through strategic market positioning, Nuro has successfully **avoided the intense competition present in both sidewalk delivery robots and autonomous robotaxis**, carving out a unique niche at the intersection of the two. Compared to sidewalk robots, autonomous vehicles offer significantly greater delivery capacity and, to a certain extent, represent the future direction of technological development. At the same time, unmanned delivery vehicles face lower technical barriers and offer higher spatial efficiency than robotaxis. These two factors have enabled Nuro to establish an early lead in this cross-sectoral domain.

Second, Nuro's hybrid business model—balancing technology licensing with direct operations in the delivery market—effectively **manages short-term cash flow while supporting long-term market expansion**. In the short term, licensing allows Nuro to monetize intermediate technological achievements, generating revenue to fund continued R&D, vehicle manufacturing, and market rollout. Over the long term, Nuro

is following a phased expansion strategy based on data collection, route testing, and commercial deployment. A stable fleet is already operational in the Bay Area and Houston, Texas, while autonomous driving tests are ongoing in Dallas, Miami, and San Diego. At the same time, data collection efforts are underway in over 40 U.S. cities and in Japan, laying the foundation for potential nationwide—and even global—expansion.

Finally, Nuro's **self-driving delivery vehicle technology aligns with the long-term trajectory of automation in logistics**. The adoption of autonomous vehicles in last-mile delivery has the potential to significantly reduce labor costs associated with bike and scooter couriers while improving delivery efficiency. Currently, human couriers remain dominant due to their adaptability to complex terrains—such as potholes, curbs, stairways, and narrow corridors—as well as their low deployment threshold and broad public acceptance. However, as algorithms, hardware, and regulatory frameworks continue to mature, autonomous delivery systems are expected to achieve more stable operations and lower per-order costs, positioning them as strong competitors to human-powered delivery in the near future.

4. Valuation

4.1 Revenue Projection

Nuro's sources of income include delivery revenue and software revenue. That means: Total revenue = Delivery revenue + Software revenue = Fleet size×Daily average order volume per vehicle × Annual operating days × Average revenue per order + Total new car sales × penetration rate × Nuro market share × unit price.

4.1.1 Delivery revenue

As for the revenue per order, we have got the information from the report from The Drive website that says "While I was in the Phoenix area taking care of family business this month, the local news announced that a company called Nuro, run out of Mountain View, California, would start autonomously delivering groceries in Scottsdale for a fee of $5.95 per order." Considering the possibility of a decrease in average costs and intense competition in the future, we will consider a reduction in the price.

Figure 3. Nuro‘s Delivery

To consider the Warehouse capacity, we have got it from a report “Nuro Introduces Third-Gen Autonomous Delivery Vehicle, Features Sleeker Styling And External Air Bag”. It reveals that Nuro R3 has twice the cargo capacity of the R2. In particular, it boasts 27 cubic feet (765 liters) of storage space and this is enough to hold approximately 24 bags of groceries. The model can carry nearly 500 lbs (227 kg) of cargo and features modular storage inserts as well as the ability to heat or cool items. As a result, one compartment could carry pizzas at temperatures up to 116° F (46.7° C), while the other compartment holds drinks or frozen treats at temperatures as low as 22 °F (-5.6° C).

Assuming a space utilization rate of 80%, Nuro R2 can deliver 9.6 orders per trip (12×0.8=9.6 bags).

Figure 4,5. Nuro’s Internal Space

As for the delivery details, Autonomous vehicle deliveries are available daily from 8:00 a.m. – 9:00 p.m. (Delivery time of 13 hours per day). We assume that it is limited by the assumption that it runs 80% of the time every day, for a total of 10 hours.

Now it’s time for fleet estimation. Nuro's autonomous driving deployment now covers Palo Alto and Mountain View in California, as well as Houston, Texas.

According to the survey, there were 98 registered Nuro R2 vehicles in California in 2023.

Figure 6. AV Testing Makes Strides in California

The deployment time and situation of Nuro in various cities are as follows:

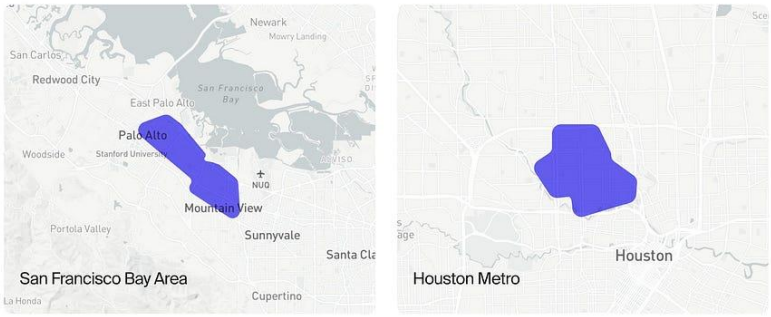

Figure 7,8. Bay Area(Palo Atto, Mountain View)[2021], Houston[2019]

(The California Bay Area covers approximately 200 square miles, while Houston covers approximately 100 square miles)

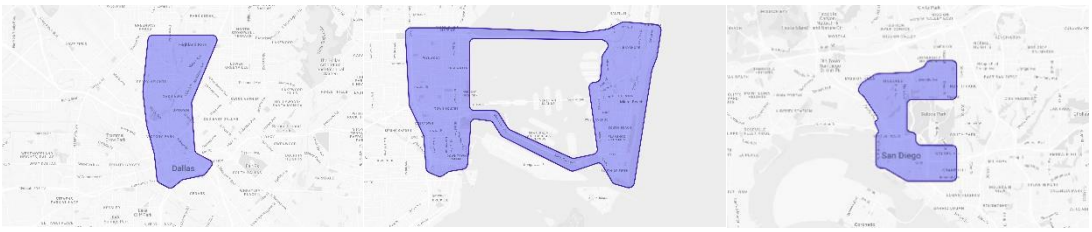

Figure 9,10,11. Dallas[2025], Miami[2025], SanDiego[2025]

(Dallas covers approximately 80 square miles, Miami covers 60 square miles, San Diego covers 70 square miles)

So we decided to predict fleet growth by constructing a logistic growth function.

$$P(t) = \frac{K}{1 + \left(\frac{K - P_0}{P_0}\right) e^{-rt}}$$

- K: Maximum carrying capacity (market cap of 5000)

- P_0: Starting year 2023 fleet size, 98
- r: Initial intrinsic growth rate, 155.6%

(R2 Annual Growth Rate: $15\times(1+r)^2 = 98 \rightarrow r = 155.6\%$)

The predicted fleet size is as below:

Table 5. Fleet Size Estimation (Based on Logistics)

	Size(m^2)	2023	2024	2025	2026	2027	2028	2029	2030
Bay Area	200	98	311	1018	2380	3131	3402	3394	
Houston	100	49	143	510	1190	1600	1701	1697	
Dallas	80	—	—	—	8	18	39	173	
Miami	60	—	—	—	3	13	29	129	
SanDiego	70	—	—	—	3	15	34	151	
Total			147	454	1628	3583	4777	5214	5544

According to reports in the past two years, Nuro's difficulty lies in whether R3 can be implemented. So we consider the following two situations.

- Pessimistic: R3 model cannot land.
- Optimistic: R3 model successfully landed, with an increase in one-way shipping orders.

If the R3 can be landed, the average single order will be changed as R3 has more capacity than R2.

Table 6. Calculation of Capacity

Average order changes per transaction after the introduction of R3							
R2 proportion	1	0.9	0.8	0.6	0.2	0	0
R3 proportion	0	0.1	0.2	0.4	0.8	1	1
Average single order(bags)	12	13.2	14.4	16.8	21.6	24	24

4.1.2 Software revenue

In 2024, Nuro announced a major strategic shift: licensing its AI-based autonomous driving platform, Nuro Driver, to automotive OEMs and mobility service providers – for use in advanced driver-assistance systems (ADAS) by automakers and in robotaxis

by ride-hailing operators. The Nuro Driver is an autonomous driving system covering SAE Levels 2 through 4, powered by Nvidia's Drive Thor chip and Arm's Neoverse CPU.

Nuro will tailor its Driver product to meet the specific use cases of its licensees, whether for fully autonomous taxis or partially autonomous ADAS features. The company will also sell a development kit for an AI platform to support the AI development and validation of the Nuro Driver.

Andrew Clare, Nuro's CTO, stated that Nuro's status as a "commercially independent" company, unaffiliated with any large tech conglomerate, gives it an edge in discussions with potential partners. Other major autonomous vehicle operators, such as Waymo, Cruise, and Zoox, cannot make a similar claim. "They are all owned by large parent companies. This makes us a strong partner for mobility companies and OEMs."

Nuro will collaborate with automakers and their component and service suppliers to develop autonomous driving products for consumer vehicles. The product lineup includes various autonomous driving systems ranging from Level 2 to Level 4. A key focus of Nuro's new business strategy is the company's vision for fully autonomous private vehicles.

Dave Ferguson, Nuro's co-founder and president, said: "Delivering Level 4 technology for private passenger vehicles is achievable, and we are very excited about the use cases that bring full L4 technology to consumers."

The software revenue = Total new car sales × penetration rate × Nuro market share × unit price.

We got the data as follows:

2023 data: L2+installation volume is 1810 thousand vehicles, L3 is 8000 vehicles

2024 forecast: Yano proposes an installation volume of approximately 30255 thousand L2 vehicles, and Canalys estimates an installation volume of approximately 4500 thousand L2+vehicles.

2025 forecast: 7459 thousand L2+vehicles and 325 thousand L3 vehicles.

By 2030, L2+: 22554 thousand vehicles, L3： 3, 369000 vehicles, total: 25923 thousand vehicles.

It is assumed Nuro product penetration rate is 1-3%.

It can be seen that linear annual compound growth estimation is based on CAGR=$[(25923/7784)^{1/5}$ -1 ≈ 25.3% between 2025 and 2030.

L4 market price is between $8000 and $15000. Multiple institutions (McKinsey, Statista, Guidehouse) predict that L4 vehicles will reach 2.5-3 million by 2030.

The L4 robotaxi market size has grown exponentially in recent years. It will grow from $1.19 billion in 2024 to $2.01 billion in 2025 at a compound annual growth rate (CAGR) of 69.1%. The growth in the historic period can E attributed to a rising inclination toward eco-friendliness, increasing emphasis on sustainability, the need for reducing carbon emissions, rapid urbanization, and increasing penetration of autonomous technology.

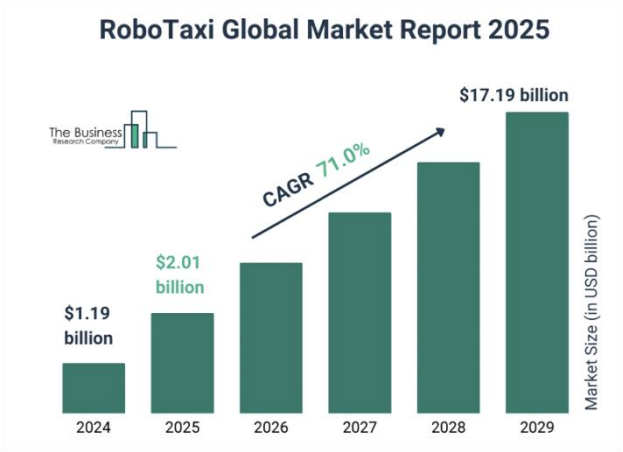

Figure 12. Growth Forecast for Global RoboTaxi Market

4.2 Cost Projection

4.2.1 COGS & Operating Rxpense

COGS comprises two main components: cloud server costs and vehicle energy consumption costs.

Cloud Server Costs: Based on reliable reports, Nuro's system upgrades have saved millions of dollars annually. It is estimated that these savings represent 30%-50% of the original costs. Therefore, cloud service costs for the recent two years are estimated at

$5 million. Looking forward, these costs are expected to increase with scale. We project a 10% annual increase.

Vehicle Energy Consumption Costs: Nuro delivery vehicles operate 10 hours per day. Based on the R2 vehicle's design speed of 40 km/h, U.S. charging station costs of $0.2 - $0.3 / kWh, and the logistics electric vehicle industry average of approximately 15-20 kWh per 100 km, the energy cost per vehicle can be calculated as: (40 km/h / 100 km) * 15 kWh/100km * $0.2 / kWh * 10 h/day * 300 days/year * Number of Vehicles. OPEX consists of Personnel Costs, Equipment & Testing Costs, Sales & Marketing Costs, and Administrative Costs.

Personnel Costs: Following layoffs in 2022, Nuro's headcount was approximately 800. It is estimated to reach 900 by 2024. Assuming 70% are research staff (reflecting the company's focus) and referencing the average Silicon Valley engineer salary range of $150k - $200k, personnel costs can be estimated as: 900 employees * 70% * $150,000. Considering company growth, personnel costs are also projected to increase. Equipment & Testing Costs: Referencing Cruise's annual testing expense of approximately $50 million, and scaling down for Nuro's size, we estimate $30 million. A 10% annual increase is projected.

Sales & Marketing Costs: Based on commission rates in the autonomous delivery service industry (typically 10%-20%), Sales & Marketing Costs are estimated as: Sales Revenue * 20%.

Administrative Costs: These primarily include office rent and expenses related to autonomous driving regulatory consulting & patent maintenance.

Office Rent: Silicon Valley office rent ranges from $50 - $100 per sq ft per year. Assuming an office footprint of 50,000 sq ft, annual rent is estimated between $2.5 million and $5 million.

Regulatory Consulting & Patent Maintenance: Estimated between $5 million and $10 million.

Total Administrative Costs: Estimated at $15 million.

4.2.2 Manufacturing cost & Depreciation

We have thoroughly deconstructed the Nuro R2 and R3 models and obtained their price analysis.

Figure 13,14. Nuro R2's Model

The early Nuro R2 was priced as high as $500000, and the components can be referenced from peer prices.

Table 7. Cost Estimation of R2 Model

	R2 model (early)	Quantity	Unit price ($)	Price($)
Two on each side, front, back, left, and right	360° overlapping cameras	8	$1,000	$8,000
1 each in the front, back, left, and right directions	Thermal image camera	4	$1,000	$4,000
car roof	Lidar	5	$80,000	$400,000
Short distance 8, long distance 4	short&long range radar	12	$1,000	$12,000
4 on each front and back, 2 on each side	Ultrasonics	12	$450	$5,400
both sides	Emergency vehicle audio detection	2	$500	$1,000
	Redundant braking and control systems	1	$2,000	$2,000
4 on each front and back, 2 on each side	Automotive lighting and signals	12	$480	$5,760

Car side	Touch screen for customer access or law enforcement interaction	1	$2,000	$2,000
Two in the front and two in the back of the car	Sound generator for pedestrian safety	4	$500	$2,000
kWh	Battery	31	$119	$3,689
	Motor	1	$3,000	$3,000
	Redundant braking and control system	1	$50,000	$50,000
	Chassis and body	1	$15,000	$15,000
	Summary			$513,849

The peer reference is as follows:

Table 8. Reference for Peer Companies

Peer reference		
Waymo Early (Before 2018)	400000 to 500000 US dollars per vehicle	Lidar (75000/piece x 5), customized computing platform
Waymo Fifth Generation (2024)	140000 USD per vehicle	5 laser radar+29 camera+6 millimeter wave radar
Cruise Origin(2020)	>$400000 per vehicle	Multi sensor redundancy+cockpit free design

Newest Nuro R2 cost is reduced by switching to solid-state Lidar and significantly reduces costs.

Table 9. Latest Cost Estimation for R2 Model

	R2 model (starting from 2024)	Quantity	Unit price ($)	Price($)
Switching to solid-state Lidar and significantly reduces costs.	360°overlapping cameras	8	$1,000	$8,000
	Thermal image camera	4	$1,000	$4,000
	Lidar	5	$15,000	$75,000
	short&long range radar	12	$1,000	$12,000
	Ultrasonics	12	$450	$5,400

Emergency vehicle audio detection	2	$500	$1,000
Redundant braking and control systems	1	$2,000	$2,000
Automotive lighting and signals	12	$480	$5,760
Touch screen for customer access or law enforcement interaction	1	$2,000	$2,000
Sound generator for pedestrian safety	4	$500	$2,000
Battery	31	$119	$3,689
Motor	1	$3,000	$3,000
Redundant braking and control system	1	$40,000	$40,000
Chassis and body	1	$12,000	$12,000
Summary			$175,849

We also considered Nuro R3's cost.

Figure 15,16. Nuro R3's Model

Table 10. Cost estimation of R3

R3 model (if applicable)	Quantity	Unit price ($)	Price($)
360° overlapping cameras	8	1000	8000
Thermal image camera	4	1000	4000
Lidar	5	5000	25000
short&long range radar	12	800	9600
Ultrasonics	12	400	4800
Emergency vehicle audio detection	2	500	1000
Redundant braking and control systems	1	1500	1500
Automotive lighting and signals	12	480	5760
Touch screen for customer access or law enforcement interaction	1	2000	2000
Sound generator for pedestrian safety	4	500	2000
Battery	31	80	2480
Motor	1	3000	3000

Redundant braking and control system	1	20000	20000
Chassis and body	1	10000	10000
Summary			99140

As for depreciation, the US IRS depreciation method typically requires the use of the Modified Accelerated Cost Recovery System (MACRS) for autonomous vehicles. Under this system, vehicles are typically depreciated over a period of 5 years, with accelerated depreciation at a certain rate.

Table 11. R2 Model (from 2024 onwards)

year	Depreciation ratio	Depreciation amount (per vehicle)
year 1	20.00%	$35,170
year 2	32.00%	$56,272
Year 3	19.20%	$33,763
Year 4	11.52%	$20,258
Year 5	11.52%	$20,258
Year 6	5.76%	$10,129
total	100%	$175,849

Table 12. R3 Model (Optimistically Estimated to Be Able to Land)

year	Depreciation ratio	Depreciation amount (per vehicle)
year 1	20.00%	$19,828
year 2	32.00%	$31,725
Year 3	19.20%	$19,035
Year 4	11.52%	$11,421
Year 5	11.52%	$11,421
Year 6	5.76%	$5,710
total	100%	$99,140

4.3 DCF model

The risk-free rate is based on the current yield of the 10-year U.S. Treasury bond. Given the rapid technological iteration and high regulatory risks inherent in the autonomous driving industry, the Beta coefficient typically exceeds the market average (>1.5).

Regarding the Equity Risk Premium (ERP), emerging technology sectors generally

command an ERP higher than the long-term historical average of the S&P 500 (5-6%). Aligning with Morgan Stanley's autonomous driving industry report, we adopt an ERP range of 7.8%-8.2%.

As an unprofitable startup, Nuro has virtually no capacity for debt financing. Consequently, we assign a debt weight of 0%. Please refer to the appendix table for specific valuation.

Table 13. DCF Assumptions

Parameter	Value
Risk-free rate	4.38%
Beta	1.8
equity risk premium	8%
Equity weight	100%
Debt weight	0%
Cost of equity	18.78%
WACC-Calculated	18.78%
Perpetual growth rate	2%

5. Investment

After conducting a thorough analysis and discussion on Nuro Company itself, the current situation of the industry it is in, the competition situation, and the valuation, we finally presented our views and investment plan regarding this investment project.

5.1 Investment Highlight

First, let’s talk about the investment highlights of the Nuro project. It is mainly divided into the following four parts.

Pioneer in Autonomous Last-Mile Delivery. Nuro is the first unicorn company dedicated to L4-level unmanned delivery vehicles. At the same time, through cooperation with giants like Walmart, its commercial value has been well confirmed.

Strategic Shift to Asset-Light Model. After several years of exploration, currently Nuro has shifted from manufacturing heavy asset vehicles to licensing autonomous driving technology, achieving significant cost reduction and efficiency improvement.

Strong Capital and Industry Backing. As of now, Nuro has raised a total of over

2.2 billion US dollars with investors including SoftBank, Toyota, Tiger Global Management, etc. Additionally, strategic partner Uber has provided 10 years of delivery scenario support.

Regulatory First-Mover Advantage. Nuro also received significant policy support. It was the first company permitted to test fully driverless vehicles on public roads in California.

Based on the above points, we believe that Nuro not only has a highly innovative business model that is constantly improving, but has also received widespread recognition from investment giants and the government. Overall, it has a high investment value.

5.2 Investment Plan

Next, we present our detailed investment plan. The entry and exit plans for the investment are shown in Table 1 and Table 2 respectively.

Table 1 presents our specific investment plan. We plan to invest in Nuro in 2025. Based on the detailed analysis of Nuro mentioned earlier, we estimate its pre-money valuation to be 8,623,814,275 US dollars. And we plan to invest 1,293,572,141 US dollars to acquire 13.04% of the ownership of Nuro.

Table 14. Investment Entry Plan

Entry (dollar)	
2025E net income	-18,219,276
Pre-money valuation	8,623,814,275
Investment Proportion	15%
Investment Amount	1,293,572,141
Post-money valuation	9,917,386,416
Ownership	13.04%

Finally, we plan to exit from Nuro by 2030. The specific details are shown in Table 2. Due to the particularity of the industry, we use PS instead of PE to estimate the enterprise value. Ultimately, based on the predicted net income and other data, we estimated that the total value of Nuro in 2030 would be 98,087,714,784 US dollars.

Taking into account factors such as dilution from subsequent financing, our final expectation is that we will achieve a return multiple of 8.90 from the Nuro investment project, with an internal rate of return of 54.84%.

Table 15. Investment Exit Plan

Exit (dollar)	
2030E net income	1,606,250,605
Sales	2,724,658,744
Exit PS	36x
Dilution Portion	10%
Exit valuation	98,087,714,784
Ownership after IPO	11.74%
Value of our investment	11,515,497,716
Return Multiple	8.90
IRR	54.84%

5.3 Investment Risks

Finally, we would like to discuss some investment risks associated with the Nuro project, which can be divided into the following four parts.

Uncertainty in Commercialization. Overall, the demand for unmanned delivery services has not yet seen a significant increase. Moreover, the technology licensing model is facing competition from major players such as Mobileye and Wayve.

High R&D and Operational Costs. Currently, Nuro is still in the research and development stage. The research and daily operation costs remain extremely high. Even though it has shifted to a light-asset operation strategy, Nuro is still in a loss-making state at present.

Regulatory and Safety Challenges. The regulations on autonomous driving vary from state to state in the United States. Moreover, there are no clear stipulations regarding the liability for accidents.

Market Acceptance and Competition. Currently, Nuro is still facing the lack of trust from consumers regarding unmanned delivery, as well as competition pressure from other tech giants.

Overall, Nuro is currently under the dual pressures of internal company development and external competition as well as policy changes. The immense potential is accompanied by considerable risks.

6. Appendix

Table 1. DCF evaluation (Optimistic)

	2024	2025	2026	2027	2028	2029	2030
Revenue	$88,414,920	$212,692,184	$588,706,472	$1,191,864,203	$1,709,294,525	$2,321,982,917	$2,724,658,744
YoY		140.56%	176.79%	102.45%	43.41%	35.84%	17.34%
COGS	$5,529,200	$6,634,400	$15,859,000	$23,899,880	$29,296,480	$32,081,480	$34,599,400
YoY		19.99%	139.04%	50.70%	22.58%	9.51%	7.85%
Gloss profit	$82,885,720	$206,057,784	$572,847,472	$1,167,964,323	$1,679,998,045	$2,289,901,437	$2,690,059,344
Total Operating Expense	$176,037,984	$217,815,437	$296,129,894	$432,359,641	$562,901,205	$671,928,453	$759,960,578
EBIT	$-93,152,264	$-11,757,653	$276,717,578	$735,604,682	$1,117,096,840	$1,617,972,983	$1,930,098,766
D&A	$36,369,961	$54,835,140	$73,288,306	$119,203,548	$143,441,392	$252,430,081	$228,888,978
EBITDA	$-56,782,303	$43,077,487	$350,005,884	$854,808,230	$1,260,538,232	$1,870,403,065	$2,158,987,744
Taxes	$-	$6,461,623	$52,500,883	$128,221,235	$189,080,735	$280,560,460	$323,848,162
Net Income	$-93,152,264	$-18,219,276	$224,216,695	$607,383,448	$928,016,105	$1,337,412,524	$1,606,250,605
Capital Expenditure	$161,000,000	$378,400,000	$389,752,000	$401,444,560	$413,487,897	$425,892,534	$438,669,310
NWC	$8,673,984	$29,760,437	$85,662,894	$212,238,041	$319,379,305	$392,042,983	$482,475,749
ΔNWC	$8,673,984	$21,086,453	$55,902,458	$126,575,146	$107,141,264	$72,663,678	$90,432,765
FCFF	$-226,456,287	$-362,870,589	$-148,149,456	$198,567,289	$550,828,336	$1,091,286,393	$1,306,037,507
DCF Valuation							
NPV	$684,849,691						
TV	$7,938,964,584						
EV	$8,623,814,275						

Table 2. DCF evaluation (Pessimistic)

	2024	2025	2026	2027	2028	2029	2030
Revenue	$88,414,920	$204,912,440	$538,506,560	$970,811,859	$1,185,420,958	$1,607,164,958	$1,964,642,872
YoY		131.76%	162.80%	80.28%	22.11%	35.58%	22.24%
COGS	$5,529,200	$6,634,400	$15,859,000	$23,899,880	$29,296,480	$32,081,480	$34,599,400
YoY		19.99%	139.04%	50.70%	22.58%	9.51%	7.85%
Gloss profit	$82,885,720	$198,278,040	$522,647,560	$946,911,979	$1,156,124,478	$1,575,083,478	$1,930,043,472
Total Operating Expense	$176,037,984	$217,815,437	$296,129,894	$432,359,641	$562,901,205	$671,928,453	$759,960,578
EBIT	$-93,152,264	$-19,537,397	$226,517,666	$514,552,339	$593,223,273	$903,155,025	$1,170,082,894
D&A	$34,369,961	$53,309,066	$103,798,328	$195,708,652	$257,103,961	$246,767,021	$222,259,612
EBITDA	$-58,782,303	$33,771,669	$330,315,994	$710,260,991	$850,327,235	$1,149,922,046	$1,392,342,506
Taxes	$-	$5,065,750	$49,547,399	$106,539,149	$127,549,085	$172,488,307	$208,851,376
Net Income	$-93,152,264	$-24,603,147	$176,970,267	$408,013,190	$465,674,188	$730,666,718	$961,231,518
Capital Expenditure	$161,000,000	$378,400,000	$389,752,000	$401,444,560	$413,487,897	$425,892,534	$438,669,310
NWC	$8,673,984	$29,760,437	$85,662,894	$212,238,041	$319,379,305	$392,042,983	$482,475,749
ΔNWC	$8,673,984	$21,086,453	$55,902,458	$126,575,146	$107,141,264	$72,663,678	$90,432,765
FCFF	$-228,456,287	$-370,780,534	$-164,885,863	$75,702,136	$202,148,988	$478,877,527	$654,389,055
DCF Valuation							
NPV	$-75,205,317						
TV	$4,271,360,750						
EV	$4,196,155,433						

Table 3. Revenue Projection (Optimistic)

	2024	2025	2026	2027	2028	2029	2030
Delivery							
Fleet size	147	454	1627.5	3583.3	4776.8	5214.3	5544
Daily average orders per vehicle	96	105.6	115.2	134.4	172.8	192	192
Annual operating days	300	300	300	300	300	300	300
Revenue per order	5.95	5.95	5.36	5.36	4.76	4.76	4.76
Sum of delivery revenue	$25,189,920	$85,577,184	$301,199,472	$773,683,203	$1,178,715,525	$1,429,635,917	$1,520,031,744
Software							
short(SaaS, to L2+)							
Unit price	1,000	1,000	900	900	800	800	800
The vehicle back then	4,500,000	7,784,000	9,874,000	12,567,000	16,044,000	20,603,000	25,923,000
Nuro proportion	0.01	0.01	0.02	0.02	0.02	0.03	0.03
Nuro service vehicles	45,000	77,840	197,480	251,340	320,880	618,090	777,690
Sum of Short	$45,000,000	$77,840,000	$177,732,000	$226,206,000	$256,704,000	$494,472,000	$622,152,000
long(to L4)							
Unit price (8000-15000)	10000	10000	9000	9000	8000	8000	8000
service charge	1250	1250	1250	1250	1250	1250	1250
Newly added vehicles in the past	1620	4200	10000	16800	25200	35200	50400
New Market Size (SAM)	54000	70000	100000	140000	180000	220000	280000
Nuro proportion	0.03	0.06	0.1	0.12	0.14	0.16	0.18
Total number of L4 service vehicles	1620	5820	15820	32620	57820	93020	143420
Sum of Long	$18,225,000	$49,275,000	$109,775,000	$191,975,000	$273,875,000	$397,875,000	$582,475,000
Sum of software revenue	$63,225,000	$127,115,000	$287,507,000	$418,181,000	$530,579,000	$892,347,000	$1,204,627,000
Total Revenue	$88,414,920	$212,692,184	$588,706,472	$1,191,864,203	$1,709,294,525	$2,321,982,917	$2,724,658,744

Table 4. Revenue Projection (Pessimistic)

	2024	2025	2026	2027	2028	2029	2030
Delivery							
Fleet size	147	454	1627.5	3583.3	4776.8	5214.3	5544
Daily average order volume per vehicle	96	96	96	96	96	96	96
Annual operating days	300	300	300	300	300	300	300
Revenue per order	5.95	5.95	5.95	5.95	5.95	5.95	5.95
Sum of delivery revenue	$25,189,920	$77,797,440	$278,888,400	$614,034,288	$818,552,448	$893,522,448	$950,019,840
Software							
short(SaaS, to L2+)							
Unit price	1,000	1,000	900	900	800	800	800
The vehicle back then	4,500,000	7,784,000	9,874,000	12,567,000	16,044,000	20,603,000	25,923,000
Nuro proportion	0.01	0.01	0.02	0.02	0.02	0.03	0.03
Nuro service vehicles	45,000	77,840	197,480	251,340	320,880	618,090	777,690
Sum of Short	$45,000,000	$77,840,000	$177,732,000	$226,206,000	$256,704,000	$494,472,000	$622,152,000
long(to L4)							
Unit price (8000-15000)	10000	10000	9000	9000	8000	8000	8000
service charge	1250	1250	1250	1250	1250	1250	1250
Newly added vehicles in the past	1620	4200	10000	16800	25200	35200	50400
New Market Size (SAM)	54000	70000	100000	140000	180000	220000	280000
Nuro proportion	0.03	0.06	0.1	0.12	0.14	0.16	0.18
Total number of L4 service vehicles	1620	5820	15820	32620	57820	93020	143420
Sum of Long	$18,225,000	$49,275,000	$109,775,000	$191,975,000	$273,875,000	$397,875,000	$582,475,000
Sum of software revenue	$63,225,000	$127,115,000	$287,507,000	$418,181,000	$530,579,000	$892,347,000	$1,204,627,000
Total Revenue	$88,414,920	$204,912,440	$538,506,560	$970,811,859	$1,185,420,958	$1,607,164,958	$1,964,642,872

Table 5. Cost Projection: COGS & Operating Rxpense

	2024	2025	2026	2027	2028	2029	2030
Cloud server cost	$5,000,000	$5,000,000	$10,000,000	$11,000,000	$12,100,000	$13,310,000	$14,641,000
Vehicle energy consumption cost	$529,200	$1,634,400	$5,859,000	$12,899,880	$17,196,480	$18,771,480	$19,958,400
COGS	$5,529,200	$6,634,400	$15,859,000	$23,899,880	$29,296,480	$32,081,480	$34,599,400
Labor cost	$126,000,000	$151,200,000	$181,440,000	$217,728,000	$261,273,600	$313,528,320	$376,233,984
Equipment and testing costs	$30,000,000	$33,000,000	$36,300,000	$39,930,000	$43,923,000	$48,315,300	$53,146,830
Sales and marketing expenses	$5,037,984	$17,115,437	$60,239,894	$154,736,641	$235,743,105	$285,927,183	$304,006,349
Administrative expenses (G&A)	$15,000,000	$16,500,000	$18,150,000	$19,965,000	$21,961,500	$24,157,650	$26,573,415
Operating Expense	$176,037,984	$217,815,437	$296,129,894	$432,359,641	$562,901,205	$671,928,453	$759,960,578

Table 6. Cost Projection: R2 Manufacturing cost (early)

	R2 model (early)	Quantity	Unit price ($)	Price($)
Two on each side, front, back, left, and right	360° overlapping cameras	8	$1,000	$8,000
1 each in the front, back, left, and right directions	Thermal image camera	4	$1,000	$4,000
car roof	Lidar	5	$80,000	$400,000
Short distance 8, long distance 4	short&long range radar	12	$1,000	$12,000
4 on each front and back, 2 on each side	Ultrasonics	12	$450	$5,400
both sides	Emergency vehicle audio detection	2	$500	$1,000
	Redundant braking and control systems	1	$2,000	$2,000
4 on each front and back, 2 on each side	Automotive lighting and signals	12	$480	$5,760
Car side	Touch screen for customer access or law enforcement interaction	1	$2,000	$2,000
Two in the front and two in the back of the car	Sound generator for pedestrian safety	4	$500	$2,000
kWh	Battery	31	$119	$3,689
	Motor	1	$3,000	$3,000
	Redundant braking and control system	1	$50,000	$50,000
	Chassis and body	1	$15,000	$15,000
	Summary			$513,849

Table 7. Cost Projection: R2 Manufacturing cost (starting form 2024)

	R2 model (starting from 2024)	Quantity	Unit price ($)	Price($)
Switching to solid-state Lidar significantly reduces costs.	360° overlapping cameras	8	$1,000	$8,000
	Thermal image camera	4	$1,000	$4,000
	Lidar	5	$15,000	$75,000
	short&long range radar	12	$1,000	$12,000
	Ultrasonics	12	$450	$5,400
	Emergency vehicle audio detection	2	$500	$1,000
	Redundant braking and control systems	1	$2,000	$2,000
	Automotive lighting and signals	12	$480	$5,760
	Touch screen for customer access or law enforcement interaction	1	$2,000	$2,000
	Sound generator for pedestrian safety	4	$500	$2,000
	Battery	31	$119	$3,689
	Motor	1	$3,000	$3,000
	Redundant braking and control system	1	$40,000	$40,000
	Chassis and body	1	$12,000	$12,000
	Summary			$175,849

Table 8. Cost Projection: R3 Manufacturing cost

R3 model (if applicable)	Quantity	Unit price ($)	Price($)
360° overlapping cameras	8	1000	8000
Thermal image camera	4	1000	4000
Lidar	5	5000	25000
short&long range radar	12	800	9600
Ultrasonics	12	400	4800
Emergency vehicle audio detection	2	500	1000
Redundant braking and control systems	1	1500	1500
Automotive lighting and signals	12	480	5760
Touch screen for customer access or law enforcement interaction	1	2000	2000
Sound generator for pedestrian safety	4	500	2000
Battery	31	80	2480
Motor	1	3000	3000
Redundant braking and control system	1	20000	20000
Chassis and body	1	10000	10000
Summary			99140