All India EV

EDUCATE | PROMOTE | AWARE

August 2024

Battery Swapping

EV Update Inside

- Top Electric 2W OEM Sales August 2024
- Top Electric E-Rickshaw Sales August 2024
- Top Electric 3W (Passenger) & Goods Sales: August 2024
- Ashwin Shankar, Founder BatteryPool : Tech Insights
- EV Milestones
- Indian Battery Swapping Ecosystem
- ShEV: Arunima Singh, Director 3D Magic Group
- EV Launch
- Axial Flux Motors: Market Demand and Growth (Part-2)
- Who Got Funded
- How Voltup is growing its market presence: Editorial by Harsh Raj, Head of Marketing and Product
- Join Ventures & Partnerships
- Other EV Updates
- All India EV

Unlock Exclusive Insights with All India EV Membership

Basic	Premium (POPULAR)	Exclusive
Rs 99 Monthly	Rs 499 6 Months Membership	Rs 899 12 Months Membership
Monthly EV Sales Data of all EV's including 2W, 3W-Rickshaw, 3W-Goods, 3W-Passenger, E-Bus, E-Cars	Monthly EV Sales Data of all EV's including 2W, 3W-Rickshaw, 3W-Goods, 3W-Passenger, E-Bus, E-Cars	Monthly EV Sales Data of all EV's including 2W, 3W-Rickshaw, 3W-Goods, 3W-Passenger, E-Bus, E-Cars
Exclusive Market Research reports by AIEV	Exclusive Market Research reports by AIEV	Exclusive Market Research reports by AIEV
	Members can share their thoughs and opinion on All India EV platform	Members can share their thoughs and opinion on All India EV platform
		Online and Offline Meetup Invitation to Exclusive Members

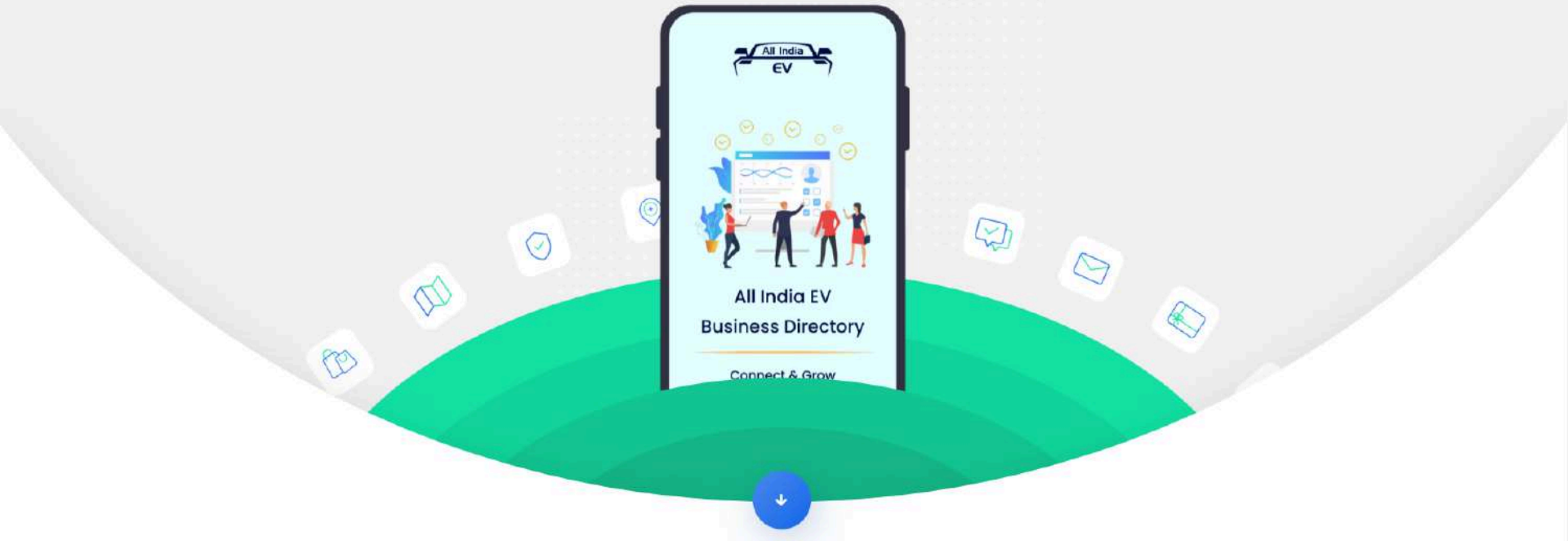
Join a members-only WhatsApp group where all monthly documents will be shared directly with you.

Click here and apply for membership...

List Your Business

All India EV

About Contact



Click here to register

REGISTER

Unmatched Visibility

Trusted Platform

Targeted Audience

Growth Opportunity

The 3-step process

Within 3 steps, you can list your business on our platform

Fill the form & Submit

Connect with our team

Get Listed

Top EV 2W Manufacturers in India

August 2024 Sales Data

1	OLA ELECTRIC	27,506
2	TVS iQUBE ELECTRIC	17,542
3	Chetak	16,699
4	ATHER	10,829
5	VIDA Powered by Hero	4,742
6	GREAVES ELECTRIC MOBILITY	2,816
7	BGAUSS	1,110
8	BOUNCE infinity	791
9	Joy e-bike	734
10	REVOLT	721
11	KOMAKI ELECTRIC VEHICLE DIVISION www.komaki.in	417
12	OKAYA ELECTRIC VEHICLES	410
13	KINETIC GREEN Think Electric... Think Kinetic...	386
14	Quantum	359
15	PURE	291
16	River	268
17	BattRE	263
18	LECTRIX	242
19	e-SPRINTO ETHICS & VALUES	235
20	OKINAWA Power the Change	203

Credit: Vahan Dashboard

Top Electric E-Rickshaw Manufacturers

August 2024 Sales Data

1	YC	3,847
2	MAYURI	2,563
3	CITY LIFE	2,184
4	Mini Metro™	1,408
5	उड़ान	1,339
6	BADSHAH	1,239
7	Panther	1,204
8	ALLFINE	1,123
9	JSA THREE WHEELERS	1,008
10	SKS Arzoo	986
11	SAARTHI	953
12	mahindra LAST MILE MOBILITY	942
13	KHALSA	907
14	VB VANDE BHARAT	889
15	THUKRAL Electric - Bikes	841
16	JEZZA	828
17	TERRA MOTORS	804
18	SARGAM E RIDE	764
19	INDO WAGEN	674
20	ZEOPLUS	607

Credit: Vahan Dashboard

Top Electric 3W Passenger & Goods

August 2024 Sales Data

3W Passenger	Sales
Mahindra Last Mile Mobility	3,710
Bajaj Auto	3,658
Piaggio Vehicle	1,425
TI Clean Mobility	579
Omega Seiki	158
Atul Auto	92
Dilli Electric	76
TVS Motor Company	69
Atul Greentech	49
Daksh Industries	37
MLR Auto	33
Mini Metro EV	29
Thukral Electric Bikes	22
Mahindra & Mahindra	19
Baxy	17
Godawari Electric Motor	14
Plaudit Techno India	14
OM Balajee Automobile	12
DSR EV Mobility	11
EVCO Automobiles	11

3W Goods	Sales
Mahindra Last Mile Mobility	453
Bajaj Auto	369
Omega Seiki	287
Euler Motors	245
Piaggio Vehicles	132
Ravi Metal	60
Atul Auto	56
Altigreen Propulsion	33
3EV Industries Pvt Ltd	19
KLB Komaki	17
Dilli Electric Auto	16
Godawari Electric	9
Exide Industries	7
GRD Motors	7
ECO Dynamics	6
Thukral Electric Bokes	6
Dashmesh Traders	5
Mahindra & Mahindra Ltd	5
YC Electric Vehicle	5
Atul Greentech	4

Credit: Vahan Dashboard

Battery Swapping Tech Insights by BatteryPool

Author: **Ashwin Shankar**

Founder. BatteryPool

What are the key technical challenges you face when setting up battery swapping stations across diverse locations in India?

Temperature Variations: India's climate ranges from extreme heat to freezing cold, impacting battery performance and longevity. At BatteryPool, we must ensure our swapping stations are equipped with advanced thermal management systems to protect batteries from degradation in high temperatures and reduced efficiency in colder regions.

Electricity Reliability: Inconsistent power supply is a common issue, especially in rural areas. To maintain seamless operations, BatteryPool's stations need reliable backup power and voltage regulation systems to handle frequent outages and fluctuations, ensuring uninterrupted battery charging.

Network Connectivity: Patchy network coverage can disrupt the communication between IoT devices in our batteries and stations, essential for real-time monitoring and management. BatteryPool addresses this by integrating edge computing and hybrid connectivity solutions, allowing our systems to function efficiently even in areas with poor network signals.

As per your experience, which is the best chemistry in battery for battery Swapping and which specification of battery (i.e 48V40Ah) is suitable for battery swapping?

At BatteryPool, Lithium Iron Phosphate (LFP) chemistry is the preferred choice for battery swapping due to its safety, durability, and suitability for ergonomic design.

Lightweight and Ergonomic: LFP batteries, while slightly heavier than some alternatives, can be designed to remain light enough for easy handling during swaps. Their stability allows for compact and manageable battery designs, which are crucial for efficient swapping processes.

Safety and Longevity: LFP batteries offer excellent thermal stability, reducing the risk of overheating or fire, even in demanding conditions. They also have a longer lifecycle, making them a cost-effective and reliable option for frequent swapping.

Specifications: A 48V 40Ah LFP battery is particularly well-suited for swapping applications. It offers the right balance of energy capacity and size, ensuring that the batteries are portable, ergonomic, and easy to swap out quickly.

What safety protocols you have in your battery swapping stations to make sure changing is done in balanced way and safely?

At BatteryPool, safety is a top priority in our battery swapping stations. To ensure that charging is done in a balanced and secure manner, we've developed a proprietary charging protocol that plays a critical role in maintaining the integrity and safety of our batteries.

Key Features of Our Charging Protocol:

Safe and Secure Charging: Our proprietary protocol is designed to regulate the charging process meticulously, ensuring that each battery is charged under optimal conditions. It continuously monitors the state of the battery, adjusting charging parameters like voltage and current to prevent overheating or overcharging, which can lead to safety hazards.

Cell Unbalance Monitoring: One of the key aspects of our protocol is its ability to detect and address cell unbalance within the battery packs. If any cells are found to be out of balance, the protocol adjusts the charging process to bring them back into equilibrium, thus prolonging battery life and ensuring consistent performance.

Fault Detection and Control: Our system is equipped to identify any faults in the battery packs during charging, such as temperature anomalies or electrical faults. Upon detection, the protocol can automatically control and limit charging parameters or even halt the charging process if necessary, preventing potential risks and ensuring the safety of the battery and the station.

By implementing this advanced charging protocol, BatteryPool ensures that every swap is not only efficient but also conducted under the safest possible conditions, protecting both the user and the battery assets.

What's you plans for your batteries once they reach their life-cycle?

At BatteryPool, we have a comprehensive plan for managing our batteries once they reach the end of their lifecycle, focusing on both upcycling and recycling to maximize their value and minimize environmental impact.

Second-Life Applications: When our batteries reach around 70% State of Health (SoH), they may no longer be suitable for high-demand applications like vehicle propulsion, but they still have significant potential for other uses. We upcycle these batteries for less demanding energy storage applications, such as backup power systems, renewable energy storage, or small-scale grid support. This approach extends the useful life of the batteries, providing value beyond their original purpose.

Sustainable Recycling Practices: Once the batteries can no longer be effectively upcycled, we ensure they are responsibly recycled. We partner with specialized recycling facilities that are equipped to safely extract valuable materials like lithium, cobalt, and nickel from the batteries. These materials can then be reintroduced into the production cycle, reducing the need for new raw materials and minimizing environmental impact.

What are the primary technical obstacles when integrating BatteryPool's system with existing EV fleets and ensuring seamless operations?

Battery Compatibility: Many existing EV fleets operate vehicles that are not compatible with BatteryPool's batteries. This incompatibility can stem from differences in form factors, electrical connections, or communication protocols. To address this, we work on retrofitting these vehicles or developing custom adapters to make them compatible with our battery swapping system.

Homologation Issues: Ensuring that our batteries meet regulatory standards across different vehicle models is a complex and critical task. Homologation requires comprehensive testing to comply with varying safety and performance regulations, which can differ significantly based on vehicle types, adding a layer of complexity to the integration process.

Seamless System Integration: To overcome integration challenges, BatteryPool offers universal APIs for our swapping and battery-as-a-service platforms. These APIs are designed to integrate smoothly with existing fleet management systems, enabling efficient data exchange, real-time monitoring, and seamless operations.

What is BatteryPool's long-term vision for the Indian EV market, and how do you see battery swapping evolving in the next five years?

Mainstream Adoption: Over the next five years, we anticipate that battery swapping will be widely adopted as the infrastructure grows. For the 2/3-wheeler EV market, battery swapping offers a quick and convenient alternative to traditional charging, eliminating the downtime associated with plug-in charging.

Energy and Financing Model: Battery swapping will revolutionize the way energy is managed and financed in the EV sector. Instead of owning batteries, users can pay for energy on a per-swap basis, reducing upfront costs and making EVs more accessible. This model is particularly well-suited for the Indian market, where affordability and convenience are key.

Eliminating the Need for Chargers at Parking Locations: One of the significant advantages of battery swapping is that it eliminates the need to install chargers at every parking location, which can be both costly and logistically challenging. By decoupling the battery from the vehicle, swapping stations can be set up in strategic locations, allowing for more efficient use of space and resources.

BatteryPool envisions a future where battery swapping is the backbone of the 2/3-wheeler EV ecosystem in India, driving widespread EV adoption and making clean transportation a reality for millions.

BatteryPool

Milestones

Veera Vahana Partners with Exponent Energy to Launch World's First Rapid-Charging Long-Haul Electric Bus

Veera Vahana, a leading player in the bus industry, has teamed up with energy-tech company Exponent Energy to introduce the Veera Mahasamrat EV, the world's first 13.5-meter electric bus on two axles. This groundbreaking vehicle is set to revolutionize long-haul intercity travel with its 15-minute rapid charging capability, supported by Exponent Energy's 1MW charging network.

Ikea Expands Sustainable Deliveries: 100% EV-Powered In Key Indian Cities

Swedish furniture giant Ikea announced has reached the milestone of 100% EV-powered deliveries in Bengaluru, Hyderabad, and Pune, aligning with its commitment to a sustainable value chain, according to a statement from Ikea India.

Greaves Eltra City Sets 225km Single-Charge Record, Enters India Book of Records as Top Range 3-Wheeler

Greaves Electric Mobility 3W (GEM 3W) has announced that its flagship electric three-wheeler passenger vehicle, the Greaves Eltra City, has set a new record for the longest journey on a single charge. The Eltra City successfully traveled 225 kilometers from Bangalore to Mysore, marking it as the highest-range three-wheeler in India.

Indian Battery Swapping Ecosystem

BatterySmart

BAAZ

RACE energy

SUN MOBILITY

BatteryPool

VOLT UP SMART SWAPPING

GRID ENERGY

GoEasy

EV Urjaa Your Drive Partner

MOOVING

yuma

exter

Enerjazz

ShEV

Arunima Singh

Director 3D Magic Group

3D Magic initially started as a company providing engineering services. Can you share the story behind the decision to venture into the EV industry? What factors led you and the management team to expand your services to include manufacturing as well, and how has this transition impacted the company's growth?

When we started in 2011, our focus was top-notch engineering services within the traditional automotive sector. However, by 2016, there was a shift in the market with the rise of Electric Vehicles (EVs). Our first significant EV project was with Bounce Infinity, where we developed a two-wheeler. The success of this project opened new doors for us.

We worked with BGauss and other EV manufacturers, establishing ourselves well within the industry. The big vehicle shift started with our engagement with Euler Motors in 2020, during the pandemic. We developed their vehicle in just 45 days using soft tooling, a major feat, proving that we could deliver quality output in a very short time frame and at an affordable price. This success started attracting more projects, especially from startups which lacked a stable partner capable of offering solutions in design and manufacturing without considerable investment.

This was transformative for 3D Magic, shifting us from being a design-centric firm to a full-service vehicle development company. This not only expanded our horizons but also accelerated our growth significantly, allowing us to provide end-to-end solutions to our clients.

What have been some of the most significant challenges you've encountered in your journey within the EV industry, both as an individual and as a company leader? How did you approach and overcome these obstacles, and what lessons have you learned along the way?

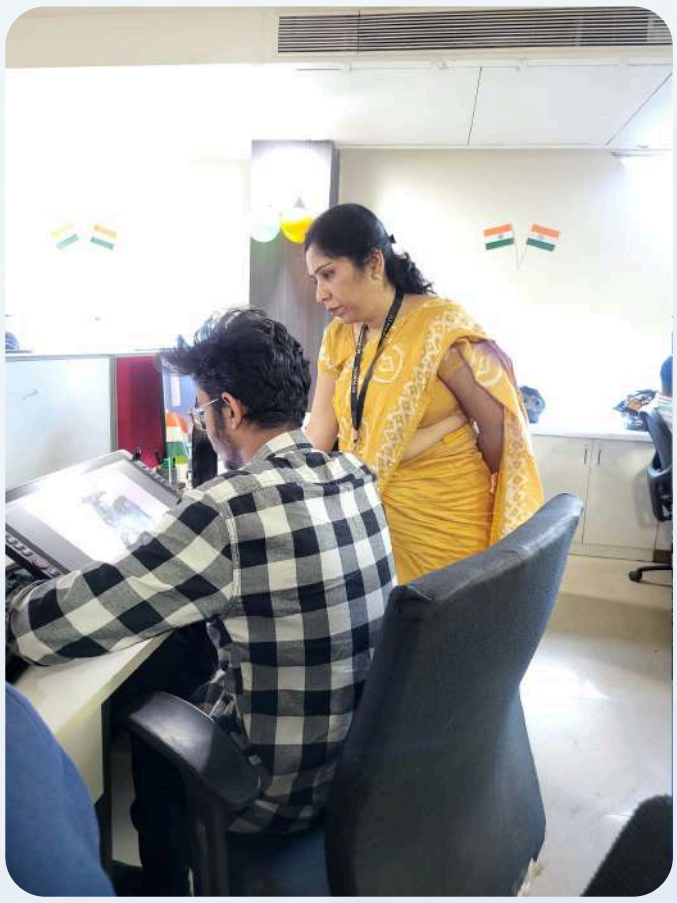
Two major challenges stood out: supply chain dependencies and the knowledge gap among startups. Our industry has significant reliance on Chinese components. We had worked hard to streamline our supply chain and created a local vendor base, completely made in India, making us more resilient.

The second challenge was the lack of knowledge about vehicle Design & Development from some startups. When startups lack experience, they might impose unrealistic expectations that can slow down the development process. To address this, we formed a team of highly experienced professionals who coach these startups, ensuring we can meet their quality product needs.

The biggest lesson learned is the importance of standardization on 2 Wheeler, 3 Wheeler & 4 Wheeler. Creating a common product platform enables us to minimize inventory risks and streamline production. This brings efficiency for us and cost-effectiveness for our clients.

Could you highlight some of the key projects that you and your team at 3D Magic have been involved in? How have these projects contributed to the growth of the EV industry?

There are Several. First EV 2 Wheeler was designed by us for 22 Motors known as “Flow”, Which is now “Bounce Infinity”. We had Designed & Developed BGauss D-15, C12, Godawari FEO, Kinetic, Euler etc from scratch. Also We had developed a very Frugal & Innovative way to develop low volume tooling which can be developed in 3-4 months time.
As we are working for several startups they don’t have that much funds to invest in the production tooling. With our Innovative tooling technology, we are supporting them by developing their tools at minimal cost and in very less time.
This method is a great contribution to EV Industry as by this way anyone can make their tools in very less budget and in very less time. Also, Best part is that these tools can produce up to 20,000 parts which is good enough for a startup company and if required after refurbishing tools which can be reused. We had also done several prototypes for Godrej, Tressa Motors, Hero, Simple, Adient, Minda, Ampere etc.



The EV industry is constantly evolving. What innovations or trends in design and engineering have you found most exciting, and how is 3D Magic contributing to these advancements? As a director at 3D Magic, how do you approach leadership and decision-making in such a fast-paced and technology-driven industry?

In EV cost of development & Manufacturing is comparatively less due to which there is less entry Barrier than Gasoline and because of this startups are able to enter in this segment. With our innovative ways of Design, Development and manufacturing we are able to support these startups. We are also into modular vehicle design, which allows us to create versatile platforms that are particularly valuable for startups and companies looking to enter the EV market with lower initial costs.

Decision-making in an industry like ours must be strategic and grounded. I believe in conducting a thorough analysis before making any decision, weighing all the pros and cons rather than being swayed by emotions or external pressures. It's crucial to think practically, especially when the stakes are high. My priority is the well-being of my team and the success of the company, so every decision is made with the collective good in mind. For me, leadership is about balancing vision with pragmatism. I take time to understand the challenges we face and ensure that the solutions we implement are sustainable and beneficial for everyone involved

Balancing a demanding career and personal life can be challenging. How do you manage this balance, and what tips can you offer to other women striving for success in their professional and personal lives?

Balancing work and personal life is all about effective time management. I separate work from home life, when I'm in the office, I focus entirely on work, and once I'm home, I dedicate that time to my family. It's important to draw clear boundaries to avoid burnout.
For other women, I recommend prioritizing tasks and seeking help where needed. Don't shy away from delegating household chores. Women Should acknowledge their capabilities and focus on doing what they are good at and offload the other work to help.
Don't try to be the best in everything . This leads to frustration. Do what makes you happy and prioritize your health & Happiness along with your Family. Also, remember that work isn't just about earning a living; it's about gaining respect and maintaining your sense of self-worth. Keeping yourself engaged in meaningful work is vital for personal growth and setting an example for others.

3D MAGIC

New EV Launch

PMI Electro Mobility Unveils Electric Buses In Delhi, Pushing Towards A Greener Future

PMI Electro Mobility Solutions Private Limited has made a significant stride towards sustainable urban transport by launching its state-of-the-art electric Mohalla Buses in Delhi. This new initiative aligns with the Delhi Government's vision of creating a cleaner and greener public transport system, enhancing both accessibility and convenience for all residents.

Tata Motors Unveils Cutting-Edge Mass Mobility Solutions at Prawaas 4.0

Tata Motors, made a strong impact at Prawaas 4.0, the three-day biennial event dedicated to safe, smart, and sustainable mass mobility solutions. The company unveiled its all-new Tata Ultra EV 7M, an intra-city electric bus designed to meet the growing demand for zero-emission urban transport.

ZELIO Ebikes Launches New Eeva Series

ZELIO Ebikes, a key player in India's electric two-wheeler market, has unveiled its latest electric scooter range, the Eeva series. The new lineup, priced between INR 56,051 and INR 90,500 (ex-showroom), includes three distinct models: Eeva, Eeva Eco, and Eeva ZX+

Euler Motors To Launch First Electric Four-Wheeler For Commercial Use During Festive Season

The commercial electric vehicle manufacturer Euler Motors announced its entry into the small commercial vehicle (SCV) market. The company plans to launch its first four-wheeler, capable of carrying over 1,000 kg of payload, during the upcoming festive season. This new SCV aims to address the increasing need for economical and high-performance transportation solutions for both inter- and intra-city routes.

DION Electric Vehicles Expands Portfolio With New Scooter Models

DION Electric Vehicles, a subsidiary of Powertrans Mobility Ltd, has introduced two new electric scooter models, Augusta SP and Asta FH. They have also opened a new showroom in Chennai. DION now has a total of seven electric vehicle models, three showrooms, and five service centers. Customers can access vehicle servicing at 256 stations across Tamil Nadu through a partnership with a service provider.

Zypp Electric Launches ZyppX: A Franchise Solution for EV Fleet Management

Zypp Electric, a prominent tech-driven platform in India's electric vehicle (EV) sector, has unveiled ZyppX, a pioneering franchise plan designed to digitize and streamline operations in the EV market. This new initiative aims to integrate EV assets, processes, and personnel across various regions in India and internationally.

Lohia Introduces Narain iCE Passenger

Lohia, a prominent electric vehicle manufacturer, has introduced its latest offering, the Narain iCE Passenger. Designed and manufactured entirely in India, this electric vehicle aims to promote sustainable mobility and boost the country's manufacturing sector. The Narain iCE Passenger is specifically designed for urban commuting, featuring a top speed of under 25 km/hr, making it ideal for city driving.

BattRE Electric Mobility Unveils Storie EPIC Series

BattRE Electric Mobility has announced the launch of its highly anticipated Storie EPIC series, set to transform the electric scooter market. Designed with the urban rider in mind, the Storie EPIC combines style, performance, and affordability.

Olectra Unveils 9-Meter Electric Bus Prototype For Vasai Virar City Municipal Corporation

Olectra has unveiled the prototype of a 9-meter electric bus designed for the Vasai Virar City Municipal Corporation. The bus, which can seat up to 31 passengers, was showcased at Olectra's new Seetharampur facility.

EMotorad Unveils Advanced T-rex+ E-Cycle

EMotorad, a leader in the e-cycle category, has announced the launch of the T-rex+, an upgraded version of its popular T-rex model. The T-rex+ is now available for pre-booking at ₹1,999, with an exclusive offer of free accessories valued at ₹2,000, valid until August 15, 2024.

Godawari Electric Motors Expands EV Two-Wheeler Lineup with Launch of New Eblu Feo X

Godawari Electric Motors, known for its range of electric two- and three-wheelers, has introduced a new variant of India's pioneering family e-scooter, the Eblu Feo X. This marks the company's second product into the EV two-wheeler market in India. The Eblu Feo X was officially launched at the Bharat Global Mobility Expo 2024.

Axial Flux Motors: Market Demand and Growth (Part-2)

Author: Ojashwin R
Senior Business Development
Torus Robotics Pvt Ltd

*The Axial Flux Motor market size is forecast to reach **USD 1387.7 million by 2030**, after growing at a **CAGR of 11.90%** during the forecast period 2024-2030.*
Axial flux motors are being used more frequently in a variety of new industries, including electric bikes, delivery vehicles, airport pods, electric cars, HVAC, Industrial applications and even E-airplanes owing to the recent technology breakthroughs and a push towards electrification.

Axial flux motors are more efficient than radial motors, the market for them is expected to create considerable profits over the course of period. Compared to a radial motor, this motor's compactness offers great torque over speed. Furthermore, because of its compact size and light weight, it helps the automotive sector lower the weight of vehicles.

North America is a hub for electric vehicle (EV) manufacturing and innovation, with automakers increasingly adopting axial flux motors for their EVs. Additionally, the growing renewable energy sector, including wind power projects, contributes to the demand for these motors. Asia Pacific, led by China, is a rapidly growing market for axial flux motors, driven by its extensive manufacturing capabilities and increasing adoption of electric vehicles.

With the ever-expanding adoption of electric vehicles (EVs) in the region, China has emerged as a global leader in the EV market, which in turns fuels the demand for axial flux motors to new heights. Now India is also emerging with key players entering the Axial flux market and few companies are already manufacturing axial flux motor.

Key Takeaways

- The Electric Passenger Vehicles segment is expected to grow at a CAGR of 12.6% during the forecast period 2024-2030 owing to the increase in government initiatives and key players strategic approaches to maintain the dominance.

- Automotive dominated the Axial Flux Motor Market with a revenue of $238.06m in 2023 and is projected to reach $477.11m by 2030 and is also set to be the fastest-growing segment with a CAGR of 10.6% during the forecast period 2024-2030.

Axial flux electric motors are in high demand across a variety of vehicle industries and across numerous geographical locations, thanks to the continuously developing automotive sector.

- Europe region is dominating the Axial Flux Motor Market with revenue of $186.68 m in 2023 and is estimated to grow at a CAGR of 11.9% during the forecast period of 2024-2030 to generate a revenue of $405.55m in 2030. The government's aggressive measures for the adoption of electric vehicles have aided the sector's massive growth throughout Europe.

By Application - Segment Analysis

By Application, Electric Passenger Vehicles dominated the Axial Flux Motor Market with a revenue of $164.38m in 2023 and is projected to reach $425.36 million by 2030 growing at a CAGR of 12% during the forecast period 2024-2030 owing to the increase in government initiatives and key players strategic approaches to maintain the dominance.

The various government's drive to promote the use of environmentally friendly e-vehicles to enhance the environment by reducing vehicle pollution is gaining traction as investments in environmentally friendly e-vehicles rise, driving the segment growth. According to the International Energy Agency, global sales of electric vehicles car sales in 2023 is 14 million, representing a 35% year on year increase.

By End Use Industry - Segment Analysis

By End-User Industry, Automotive dominated the Axial Flux Motor Market with a **revenue of $238.06m in 2023** and is projected to reach **$477.11m by 2030** and is also set to be the fastest-growing segment with a **CAGR of 10.6%** during the forecast period 2024-2030. Axial flux electric motors are in high demand across a variety of vehicle industries and across numerous geographical locations, thanks to the continuously developing automotive sector.

Axial flux motors are being adopted in the automotive segment by major players all over the world through acquisitions, launches and partnerships.

By Geography - Segment Analysis

Europe region is dominating the Axial Flux Motor Market with **revenue of $186.68 m in 2023** and is estimated to grow at a **CAGR of 11.9%** during the forecast period of **2024-2030** to generate a **revenue of $405.55 m in 2030**.

The government's aggressive measures for the adoption of electric vehicles have aided the sector's massive growth throughout Europe. The market expansion in this region is being driven by increasing corporate acquisitions.

According to Green Car Congress, Renault Group purchased a 21% minority investment in Whylot, a firm situated in France's Lot region that has developed a unique axial flux automobile e-motor, in November 2022. Countries throughout the area are recognizing the energy-saving potential of energy-efficient electric motors and are enforcing stringent rules and policies to encourage the use of energy-efficient Axial Flux motors.

Increasing funding & investment is poised to boost the market growth of the Axial Flux Motor market over the forecast period

Axial Flux Motor and Axial Flux Motor seed development is being funded and invested in by a number of firms. Increasing funding and investment represent pivotal drivers set to propel the expansion of the Axial Flux Motor market. With mounting interest from transportation companies and substantial investments in the electric vehicle sector, significant growth opportunities emerge.

Great Wall Motor stated in January 2022 that it will invest $1.9 billion in Brazil over the next decade to develop electric vehicles at a factory it acquired from Daimler AG. Great Wall announced intentions to debut ten new electrified goods in Brazil over the next three years, four of which would be totally electric.

This influx of financial resources ignites innovation, research, and development, fostering technological advancements in the axial flux motor segment. The heightened financial backing augments production capabilities, promotes scalability, and encourages the adoption of axial flux motors across various industries.

Moreover, it facilitates market penetration into new geographies, amplifying market reach and customer accessibility. As companies and investors recognize the potential and sustainability of axial flux motors, the increased capital infusion lays the groundwork for robust market growth, solidifying its position as a cornerstone technology in the evolving landscape of electric propulsion system.

The growing demand for high power density axial flux motors is enhancing the industry expansion and is set to positively impact the market growth

Axial Flux permanent magnet synchronous motors have a compact structure and a high-power density, making them perfect for industrial equipment such as industrial robots, blowers, pumps, compressors, and other similar machinery; electrical vehicles, drones, and so on. They feature a compact footprint, which minimizes production costs and material utilization.

Despite using the same amount of current as traditional motors, it produces higher torque and power density. Because of this attribute, an axial flux motor has a longer battery life, making these motors more cost-effective. For instance, a prototype motor has been built to satisfy the US Department of Energy's 2025 power density goals, which call for an 89 % reduction in motor volume compared to 2020 expectations.

Axial flux motors are primarily used in electric vehicles, and demand for electric vehicles is rapidly increasing owing to rising gasoline prices around the world (according to OECD data, in the United States, import crude oil prices increased from $59.2 to $64.4 per barrel from 2018 to 2021), as well as the negative environmental impact of driving oil-based vehicles, which drives demand for axial flux motors in automotive and other industries.

TORUS

Who Got Funded?

- **Kinetic Green Secures $25 Million Investment from Greater Pacific Capital to Boost EV Production and Global Expansion**

Kinetic Green announced a significant investment of $25 million from Greater Pacific Capital (GPC), a leading global private equity firm. This funding is part of Kinetic Green's Series A fundraising initiative, which aims to raise a total of $40 million.

- **Kazam Closes $8 Million Series A3 Round, Aims To Drive EV Market Expansion**

Kazam, a tech firm specializing in e-Mobility solutions, has raised $8 million in a Series A3 funding round. The round was spearheaded by Vertex Ventures Southeast Asia and India, with contributions from Avaana Capital, Alteria Capital, and other investors.

- **Fresh Bus Attracts Rs 87.5 Crore In Funding To Boost Green Transportation**

Fresh Bus has secured a Rs 87.5 crore investment in its Series A funding round, led by Maniv with participation from Shell Ventures, Alteria Capital, and Riverwalk Holdings.

- **Neuron Energy Secures ₹20 Crores in Series A Funding to Advance EV Battery Technology**

Neuron Energy, a prominent player in the electric vehicle (EV) battery manufacturing sector, has successfully concluded its Series A funding round, raising ₹20 crores from prominent investors, including the Chona Family and Capri Global Family Office.

How VoltUP is growing its market presence?

Author: **Harsh Raj**

Head of Marketing & Product

How does VoltUp perceive the current demand for battery swapping solutions in India, especially in comparison to traditional EV charging infrastructure? Do you see a growing market trend for battery swapping?

While battery-swapping is still at a nascent stage, we are witnessing a steady growth curve for the industry.. We estimate that industry has the potential of touching nearly $30 billion mark by 2030.

The market is conducive but what is required now is steady investments in regard to R&D, products and strong policy.

Battery swapping and traditional charging will co-exist for different use cases over a period of time with swapping being the torch bearer for convenience and lower Total Cost of Ownership (TCO) as the industry grows. Battery swapping has many advantages over traditional charging methods.

From an experience better than that in ICE vehicles to cost reduction to safety to curbing range anxiety, the list goes on and on. However, battery swapping will only come of age when industry players and the government work together to set up the infrastructure. The growth of battery swapping will come from the top 50-55 cities/towns of the country where there is a high density of e-2&3 wheelers and which contributes to 30-35% of the 2-wheeler base in the country.

What are the primary technical challenges that VoltUp faces in establishing a robust battery swapping infrastructure in India? How do you plan to overcome these challenges, especially in diverse geographic and climatic conditions?

VoltUp distinguishes itself in the electric vehicle (EV) space with its cutting-edge battery-swapping technology, delivering unmatched convenience, safety, and efficiency over traditional fixed or removable battery systems. As EV adoption rises in India, largely with benefits like lower running cost , VoltUp remains focused on enhancing user experience and increasing convenience. Our proprietary technology powers a customer-centric ecosystem for e-2 and 3-wheelers, ensuring smooth journeys with quick turnarounds giving a similar experience to traditional refuelling, all at minimal cost.

Unlike other EV platforms that still face challenges like, security, and long charging times, VoltUp offers a robust solution through its battery-swapping technology.

By allowing battery swaps at designated stations, VoltUp provides a secure charging environment while mitigating risks and ensuring optimal battery performance, ultimately extending battery life. This innovation enhances convenience by decoupling the charging process from the vehicle itself, optimizing asset utilization. Additionally, VoltUp's approach leverages advancements in battery technology, enabling batteries to outlast vehicles by 2-3 times. This allows consumers to maximize battery usage without the financial strain of owning a component they may not fully utilize, offering a practical, cost-effective solution for EV drivers.

What is VoltUp's long-term vision for battery swapping in India? How do you plan to expand your network, and what innovations can we expect from VoltUp in the next 5-10 years?

VoltUp sees tremendous potential in India's EV ecosystem, particularly for e-2 and 3-wheeler users. As we expand, our priority is improving accessibility across all our operational cities. We will strategically place swapping stations near customer hotspots, ensuring energy availability every 2 kilometers, bringing us closer to our users and enhancing the appeal of electric mobility. Currently active in 12 major cities, we plan to expand to over 50 by 2027. This year, we aim to deploy 1,000 stations, reinforcing our commitment to revolutionizing electric mobility in India.
Additionally, VoltUp will address the issue of underutilized fixed batteries, which raise the Total Cost of Ownership (TCO) for drivers. By offering pricing models based on pay per usage, we will simplify the driving experience and make electric mobility more accessible and affordable for all.

Battery swapping can potentially reduce the environmental impact by optimizing battery life and reducing the need for frequent charging infrastructure. How does VoltUp incorporate sustainability into its operations, and what are the environmental benefits of battery swapping?

Battery swapping ensures that each battery is optimally used, extending its overall life. Our system allows for the continuous reuse of batteries, reducing the need for frequent replacements and minimizing e-waste. Additionally, battery swapping eliminates the need for extensive charging infrastructure, thereby reducing energy consumption during idle charging times.

By offering swappable batteries that are charged using renewable energy sources wherever possible, we help reduce carbon emissions. Moreover, by decoupling the battery from the e-2&3 wheelers, we enable more efficient recycling processes, ensuring that end-of-life batteries are handled in an environmentally responsible manner.

Battery swapping not only provides a convenient and fast solution for consumers but also contributes to a circular economy, reducing resource extraction and waste, and helping mitigate the overall environmental impact of electric vehicles.

How do you view the impact of battery swapping on the overall growth of the EV market in India? Do you believe it could complement or even accelerate the adoption of EVs, or are there risks that it might hinder progress in certain areas?

Oh absolutely! Battery swapping will be the dominant factor for the growth of e2-3 wheelers and even for medium speed e-4 wheelers which are used by delivery partners. There is a captive market, what requires to be done are investment in infrastructure and espousing the benefits of battery swapping. India is a cost-conscious market and we have to provide the consumer value for money.

VOLT UP SMART SWAPPING

Joint Ventures and Partnerships

- **Ather Energy Enhances EV Charging Network With Google Maps Integration**

Ather Energy has partnered with Google to provide real-time information on the availability of two-wheeler fast-charging stations. This collaboration will enable electric vehicle (EV) users to locate Ather Grid fast chargers on Google Maps, complete with live status updates, thereby making it easier for EV owners to find public charging stations.

- **Allianz Partners India and Pulse Energy Forge Strategic Partnership to Enhance EV Ownership Experience**

Allianz Partners India has announced a strategic partnership with Pulse Energy to enhance the electric vehicle (EV) ownership experience in India. This collaboration aims to address key challenges faced by EV owners, including range anxiety, limited accessibility to charging infrastructure, and the need for reliable technical support.

- **JBM Electric Vehicles Signs Agreement with LeafyBus to Supply 200 Electric Intercity Luxury Buses**

JBM Electric Vehicles (P) Ltd. signed a strategic agreement with LeafyBus for supplying 200 ultra-modern Electric Luxury Buses. This collaboration marks yet another step by the company towards fostering innovation in green public mobility and decarbonisation aligned with the company's ESG and SDG goals.

- **Veera Vahana Partners with Exponent Energy to Launch World's First Rapid-Charging Long-Haul Electric Bus**

JSW MG Motor India has forged a strategic alliance with Shell India Markets Private Limited (SIMPL) to enhance the public charging infrastructure for electric vehicles (EVs) across India. According to the Memorandum of Understanding (MoU), Shell India will set up CCS 50kW and 60kW DC fast chargers at numerous locations across the country.

- **SUN Mobility And Bluwheelz Unveil New Retrofit Kits To Transform Tata ACE Into Electric Vehicles**

SUN Mobility announced the introduction of retrofit kits for Tata ACE vehicles in partnership with Bluwheelz. This initiative provides fleet operators with the opportunity to transform their current Tata ACE vehicles, whether equipped with internal combustion engines (ICE) or fixed batteries, into swappable electric vehicles (EVs) using SUN Mobility's battery-swapping technology.

- **Amara Raja Energy & Mobility Marks Major Milestone with New Battery Facilities in Telangana**

Amara Raja Energy & Mobility has celebrated a major achievement with the grand inauguration of its first Li-ion Battery Pack Assembly Plant. The company also marked a significant step forward in the energy sector by laying the foundation stone for a new Li-ion Cell Manufacturing Customer Qualification Plant at the Gigacorridor in Divitipalli, Telangana.

- **Revfin and Bajaj Auto Partner to Boost Electric Three-Wheeler Adoption**

Revfin, a leading digital lending platform specializing in sustainable mobility, has announced a strategic partnership with Bajaj Auto, a prominent manufacturer of three-wheelers in India and 70 other countries. This collaboration is set to significantly advance the electric three-wheeler (e3W) sector and promote a greener future for first and last-mile transportation.

- **Greaves Finance's EV Lending Platform evfin Partners with River Mobility to Expand Electric Scooter Accessibility**

In a strategic move to boost electric vehicle (EV) ownership, Greaves Finance Limited, a non-banking financial company (NBFC) and a wholly owned subsidiary of Greaves Cotton Ltd., has announced a partnership with Bengaluru-based startup River Mobility Private Ltd. This collaboration, centered around evfin, Greaves Finance's 100% EV-focused lending platform, aims to provide customers with more accessible financing options for River's stylish and multi-utility electric scooters.

- **BLive and Awign Partner to Revolutionize Last-Mile Delivery with 10,000 EVs**

BLive, the country's fastest-growing e-mobility platform, announces a strategic partnership with Awign, India's largest work-as-a-service platform. The collaboration aims to onboard 10,000 riders for BLive's EV Rental Programme over the next 12 months, marking a substantial shift towards sustainable last-mile delivery solutions.

- **Amara Raja Advanced Cell Technologies Partners with Piaggio Vehicles for EV Battery Development**

Amara Raja Advanced Cell Technologies Private Limited (ARACT), a subsidiary of Amara Raja Energy & Mobility Limited (ARE&M), has announced a new partnership with Piaggio Vehicles Private Limited, a wholly-owned Indian subsidiary of the Italian automotive giant Piaggio Group. The two companies have signed a Memorandum of Understanding (MoU) to advance the development and supply of Lithium Iron Phosphate (LFP) Lithium-Ion (Li-ion) cells and chargers for Piaggio's electric vehicles (EVs).

- **HPCL And Mooving Partner To Enhance EV Infrastructure With Automated Battery Swapping Stations**

Mooving, a smart swapping network powered by Livguard and part of the SAR Group, is partnering with Hindustan Petroleum Corporation Limited (HPCL) to install automated swapping stations at HPCL's 22,000+ retail outlets across India.

- **Exicom Tele-systems Limited Acquires Tritium Group to Enhance Global EV Charging Capabilities**

Exicom Tele-systems Limited, India's largest Electric Vehicle (EV) charger manufacturer, has announced a major strategic move with its subsidiary Exicom Power Solutions B.V. Netherlands entering into a definitive agreement to acquire the Tritium group of companies. Tritium, headquartered in Australia, is renowned as a global leader in DC Fast Chargers.

- **iVOOMi Partners with Octarange to Advance Electric Two-Wheeler Technology**

In a major move to enhance the performance and reliability of its electric two-wheelers, iVOOMi has announced a strategic partnership with technology innovator Octarange. The collaboration aims to significantly boost the brand's Research & Development (R&D) efforts, focusing on cutting-edge advancements in battery technology and charger systems.

- **CESL And Kerala Energy Management Centre Collaborate To Deploy 800 Electric Cycles**

Convergence Energy Services Limited (CESL) has signed an agreement with the Energy Management Centre Kerala to deploy 800 cargo electric cycles in the Palakkad and Kannur districts.

- **Odysse Electric Partners with SUN Mobility for Global Expansion of Vader SM Electric Motorcycle**

Odysse Electric Vehicles has announced a strategic partnership with SUN Mobility to deploy its flagship electric motorcycle, the Vader SM, in international markets. This collaboration aims to enhance the global reach of Odysse Electric and boost the adoption of electric mobility through SUN Mobility's advanced battery-swapping technology.

- **Strategic Alliance: Statiq And Bluwheelz To Transform EV Ecosystem With Advanced Charging Solutions**

Statiq, a prominent EV charging network, has joined forces with Bluwheelz, a significant player in last-mile delivery, to offer mid-mile and first-mile delivery solutions.
This partnership aims to improve network visibility and establish a comprehensive charging infrastructure at key customer locations, utilizing innovative models such as solar-powered EVs.

Other EV Updates

- Kia India Launches New ‘Kia Subscribe’ Flexible Ownership Plan
- Jitendra EV Adopts LECCS Standard for Enhanced Electric Scooter Charging
- LeafyBus Announces Major Expansion with 50 New Electric Buses
- India Launches Vehicle Scrapping Policy To Modernize Fleet And Reduce Pollution
- EKA Mobility To Supply Electric Vans To IKEA For Green Last-Mile Delivery
- Union Minister Pralhad Joshi Lays Foundation For Innovative EV Battery Testing Facility In Bengaluru
- Yuma Energy Surges Forward With Over One Million Monthly Battery Swaps And New City Expansions
- MeitY Secretary Inaugurates Indigenous EV Charging Station And Hardware Emulation Facility At C-DAC Thiruvananthapuram
- Hero Motors Files IPO Documents With Sebi To Raise Rs 900 Crore, Plans Major Expansion
- Servotech Power Systems Secures Major Contract to Boost Kerala’s EV Charging Infrastructure
- Ola Electric Secures PLI Certification For S1 X Scooters, Enhancing Market Dominance
- India Launches Bharat Zero Emission Trucking Policy Advisory To Accelerate Decarbonization Efforts
- IIT Madras Startup Plugzmart Gains ARAI Certification, Strengthens EV Market Leadership
- UPSRTC Invites Bids For 30 Electric AC Buses To Modernize Fleet
- E-Fill Electric Secures ARAI Approval For Advanced AC And DC Chargers
- Revolt Motors Gets Green Light For EV Subsidies

Our Previous Editions

- 28,000+ & Growing LinkedIn Community
- 30,000+ & Growing Magazine Subscribers
- 100K+ & Growing Google Impressions

All India EV

EDUCATE | AWARE | PROMOTE

All India EV is India’s fastest growing
EV Industry based media and market research platform.

Our objective is to give our readers a 360° view of the Indian EV industry through our content so that they can understand about the industry in a better way.

8588906961

ankit.sharna@allindiaev.com
allindiaev@gmail.com