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AI-Powered EV Battery Fire Prevention System

Ensuring a Fire-Free, Secure & Sustainable EV Future

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The Problem

EV Battery Fires are a Major Concern

- Frequent thermal runaway incidents leading to fire hazards.
- Lack of real-time battery health monitoring & risk alerts.
- Fleet operators & EV owners suffer from unexpected breakdowns and expensive battery replacements.
- Regulatory pressure (AIS-156) for stricter safety measures.

Example : Bangalore has seen a 300% increase in EV fire incidents in 2023-24.

The Solution

AI - Powered Thermal Runaway Early Warning System (TREWS)

- Predicts & prevents battery overheating & fire risks using real-time analytics.
- AI-driven thermal modelling detects early failure patterns.
- Smart charging optimisation prevents excessive heat buildup.
- Instant alerts via SMS, WhatsApp, Fleet Dashboards for preemptive action.
- Cybersecurity integration to prevent data tampering & enhance safety.

Vision Statement

"To revolutionise EV Battery safety with AI-powered predictive technology, ensuring a fire-free, secure, and sustainable electric mobility future."

Mission Statement

"We are building AI-driven early warning systems that predict and prevent EV Battery Thermal runaway, ensuring a fire-free and secure electric mobility future.

Our solution reduces risks, enhances battery longevity, and provides real-time safety insights for fleet operators, service centers, and manufacturers—creating a scalable, high-impact business model in the growing EV industry."

Core Values

- **Innovation** – We push boundaries in AI and predictive analytics to enhance EV safety.
- **Quality** – Delivering accurate, reliable, and high-performance safety solutions.
- **Safety & Security** – Protecting lives and assets by preventing battery failures before they happen.
- **Customer-Centricity** – Focused on solving real-world EV battery safety challenges for fleet operators, service centers, and manufacturers.
- **Team Empowerment** – Fostering a culture of excellence, collaboration, and continuous learning.
- **Sustainability** – Promoting a cleaner, greener future by improving EV battery efficiency and longevity.

Market Opportunity

EV Market Growth in India (2024-2030):

- **4M+ EVs on Indian roads by 2025** → Rising demand for predictive safety solutions.
- **\$2B+ TAM in EV battery analytics & predictive safety by 2027**
- **EV Two-Wheeler Market CAGR 49%** → 90% of growth from fleet & delivery startups.
- **Battery Fire Incidents Increased by 300% (2023-24)** → Regulatory compliance & safety demands.
- **Total Addressable Market : \$2B+ EV Battery Analytics Industry by 2027.**

Primary Target

- **Bangalore's EV Battery Service Centers & Fleets** → Rapid Expansion to Other Cities.

Target Customers & Business Model

Target Customers

- **EV Battery Service Centres** – Main focus for early adoption & pilot testing.
- **Fleet Operators** – Require predictive battery health insights.
- **Battery Swapping Networks** – Need real-time monitoring for multiple batteries.
- **EV OEMs & Dealerships** – Long-term partnerships for factory-level integration.

Business Model

- **Service Center Subscription** : ₹2,999 - ₹9,999 per month (for battery analytics & fire prevention insights)
- **Add-on Services for EV Owners (via Service Centres)** : Freemium model (basic free, premium ₹499/year)
- **API Licensing for EV OEMs & Battery Swapping Companies**.

Goal

- **Secure 3-5 pilot customers in Bangalore → Scale Nationwide.**

Competitive Landscape

Competitor	Solution	Weakness
Ola Electric	Internal battery monitoring	No AI-based thermal runaway prediction
Ather Energy	BMS safety system	No external predictive analytics
ION Energy	AI analytics for OEMs	Not available for individual EV owners
Log9 Materials	Battery R&D & safety focus	No real-time user alerts
EV Doctor	AI-powered battery diagnostics & monitoring	Primarily targets service centres; limited end-user focus
Our Solution	AI-powered real-time battery fire prevention system	First with proactive early warning & smart alert system
	Key Differentiators : Predictive AI Smart Alerts Cybersecurity Scalable SaaS.	

Roadmap & Execution Plan

Short-Term (0-1 Year):

- Secure partnerships with 3+ major battery service centers in Bangalore for pilot testing.
- Deploy AI-based predictive analytics as a service for EV battery inspections.
- Collect real-world data & refine AI model accuracy.

Medium-Term (1-3 Years):

- Scale to 50+ service centers across major Indian cities.
- Expand to battery swapping companies & fleet operators.
- Integrate with OEMs for factory-level safety compliance.

Long-Term (3-5 Years):

- Become India's #1 AI-driven EV battery safety platform.
- Expand beyond 2-wheeler to 4-wheelers & public transport.
- Standardise AI-driven battery diagnostics across all EV service centers

Risk Management

- **Dependence on Data Availability** – AI accuracy depends on access to high-quality battery telemetry data from service centers & fleets.
- **Service Center Adoption Barrier** – Some traditional service centers may resist adopting AI-based predictive solutions due to a lack of familiarity.
- **Integration with Existing BMS Systems** – Many EVs have built-in BMS; we need to demonstrate the added value of our AI analytics.
- **Cybersecurity Risks** – Handling critical battery safety data makes the system a potential target for hacking or tampering.
- **Real-Time Processing Costs** – Running AI-driven analytics at scale requires cloud infrastructure, balancing costs while keeping subscriptions affordable.

Mitigation Strategies

- Partner with leading fleet operators & service centers to improve data collection.
- Provide training & easy-to-use interfaces for service centers.
- Highlight differentiation from BMS by offering early risk detection & alerts.
- Implement strong encryption & cybersecurity protocols to protect data.
- Optimise cloud-based architecture to balance cost efficiency & performance.

Investment & Funding Requirements

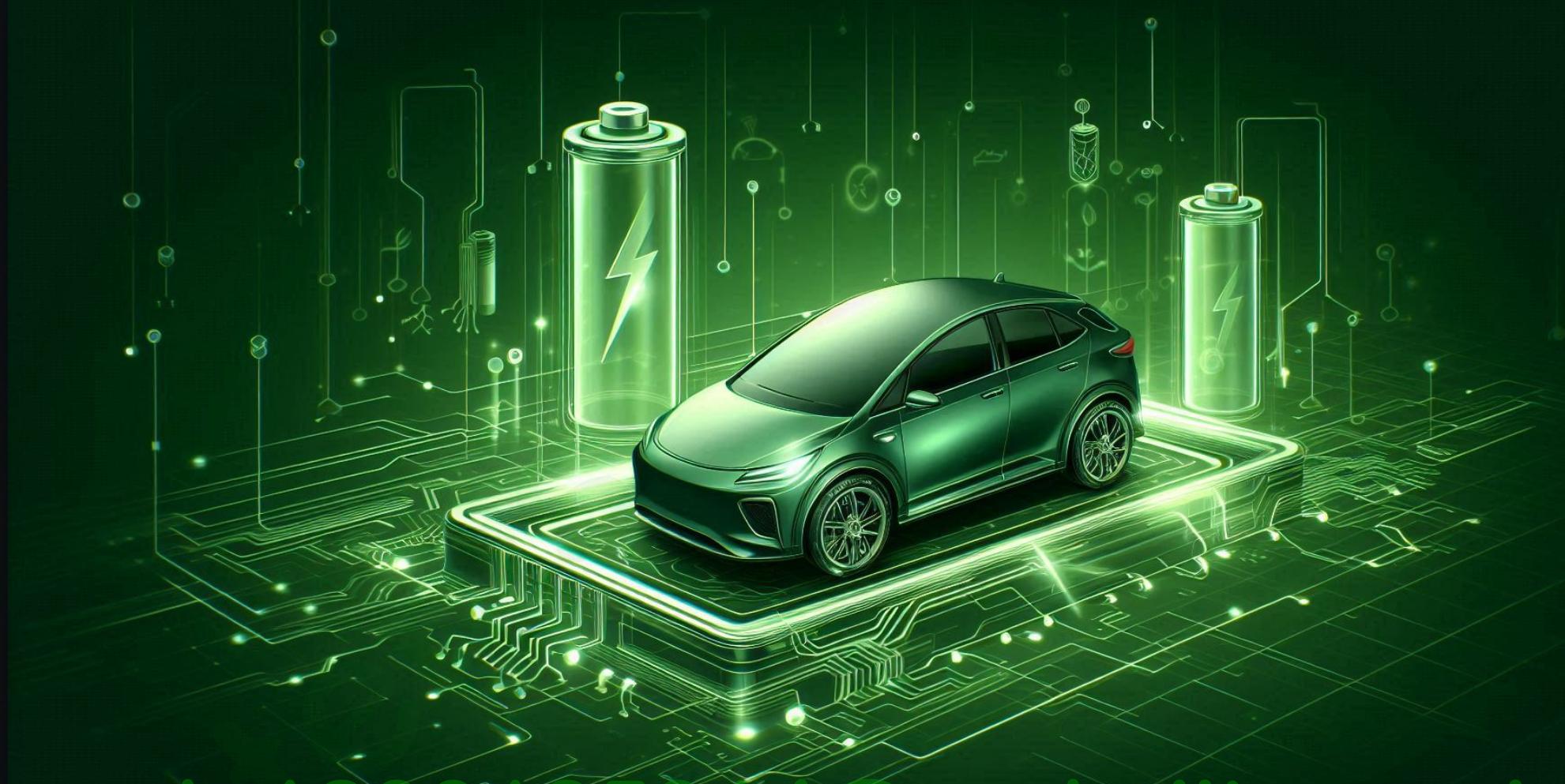
- Develop & test AI models with real-world data
- Build the web platform & API integrations.
- Launch pilot programs with fleet operators & service centers.
- Scale cybersecurity & cloud infrastructure.

Potential Investors & Grants

- Micelio Fund, Blume Ventures, Indian Angel Network.
- Government Grants: FAME India, Startup India, NITI Aayog.
- Corporate Collaborations: EV battery makers, fleet operators, OEMs.

Goal

- Secure first funding → Build MVP → Achieve Product-Market Fit → Scale Nationwide.



Join Us in Creating a Fire-Free EV Future!

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Looking for Strategic Partners, Pilot Customers & Investors.

Thank you

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