Centre for Battery Engineering and Electric Vehicles – IIT Madras

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One-stop Integrated Solution for Smart Management of EV Infrastructure

Prabhjot Kaur
Co-Founder and CEO

CASE STUDY

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Digitalising EV Eco System

India has started its EV journey

Needs for Faster EV Adoption

- LOWER TOTAL COST OF OWNERSHIP
- BETTER VEHICLE UTILIZATION
- COMPARITIVE ANALYSIS
- EASE OF CHARGING
- BATTERY USAGE OPTIMIZATION
- INTEROPERABILITY

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CHALLENGES

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Stand-alone elements of EV landscape

Inefficient Operation

Lack of Technology Insight

Non-optimized Assets Utilization

No transparency on Battery Life/Performance

Misuse/Theft of EV Assets

Low EV Adoption

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OUR SOLUTION

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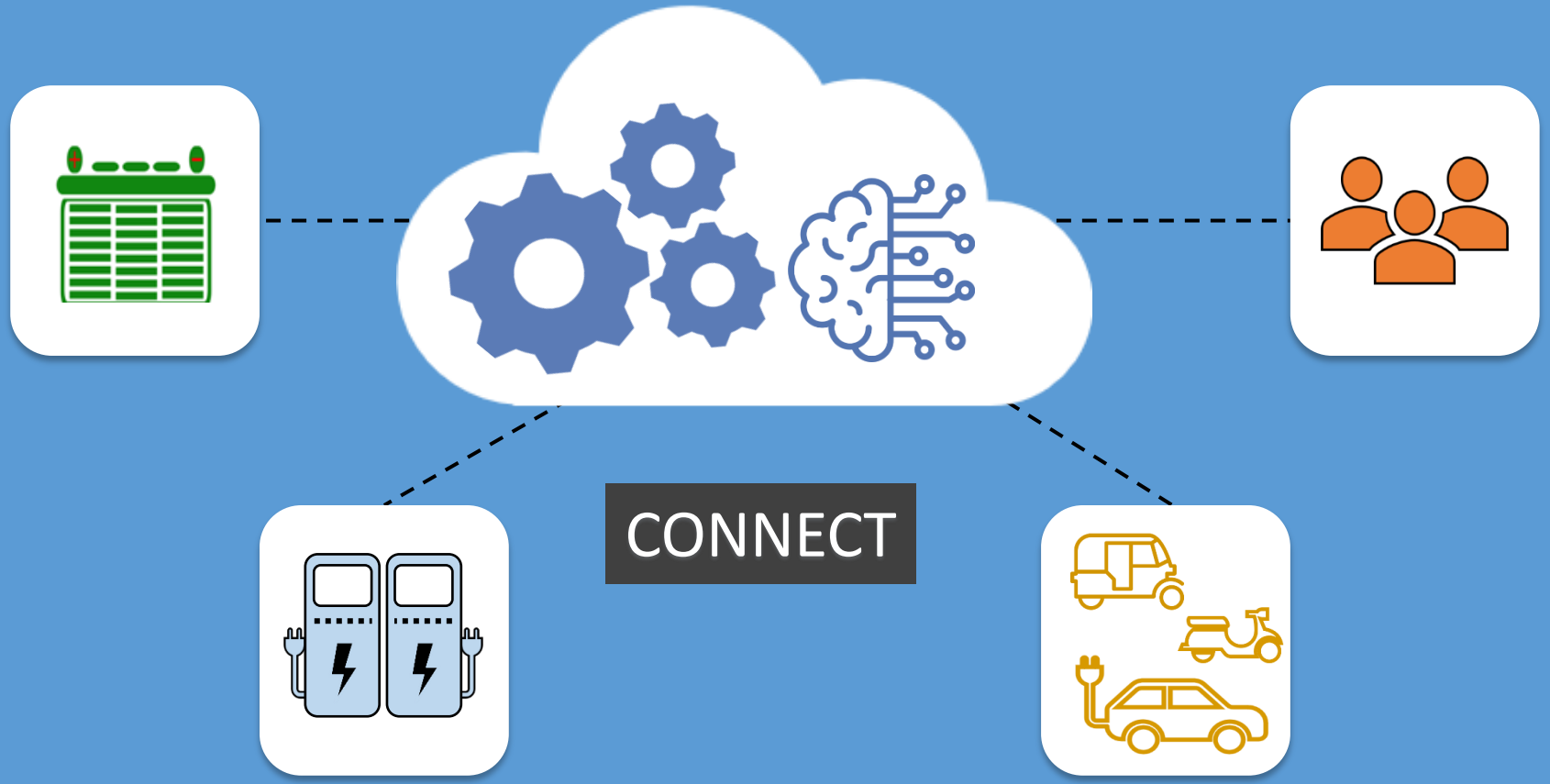

- SAAS based Platform
- Data Processing Engine
- ML based Data Analytics
- Insightful Reports
- Advisories

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Public Charging Infrastructure

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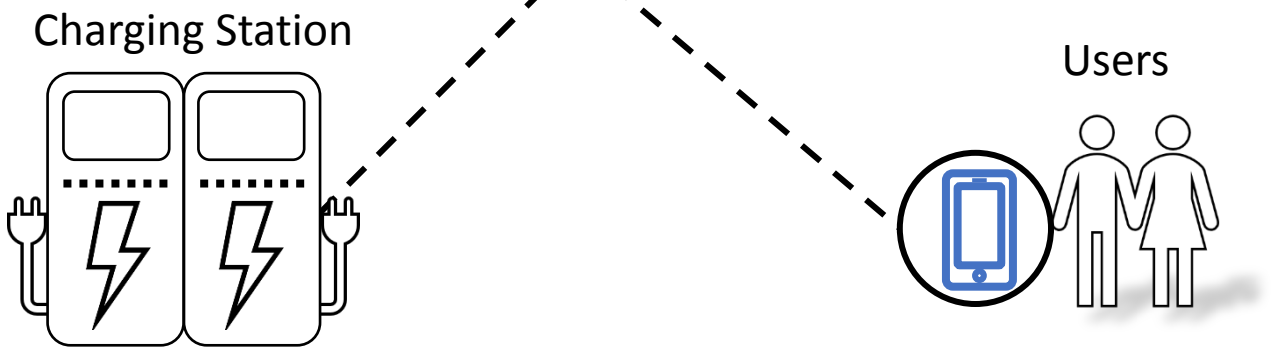

- Intelligent Charging Control
- Automatic Billing
- Time of Day Metering
- Search, Reserve & Cancel
- Directions & Navigation
- Battery Charge Status

Infrastructure Providers

- ✓ Pan-India Network Management
- ✓ Charger & User Management
- ✓ Authentication & Authorization
- ✓ Usage Profiling of Chargers
- ✓ Automated Reports & Analytics
- ✓ Preventive Maintenance

Swapping Infrastructure

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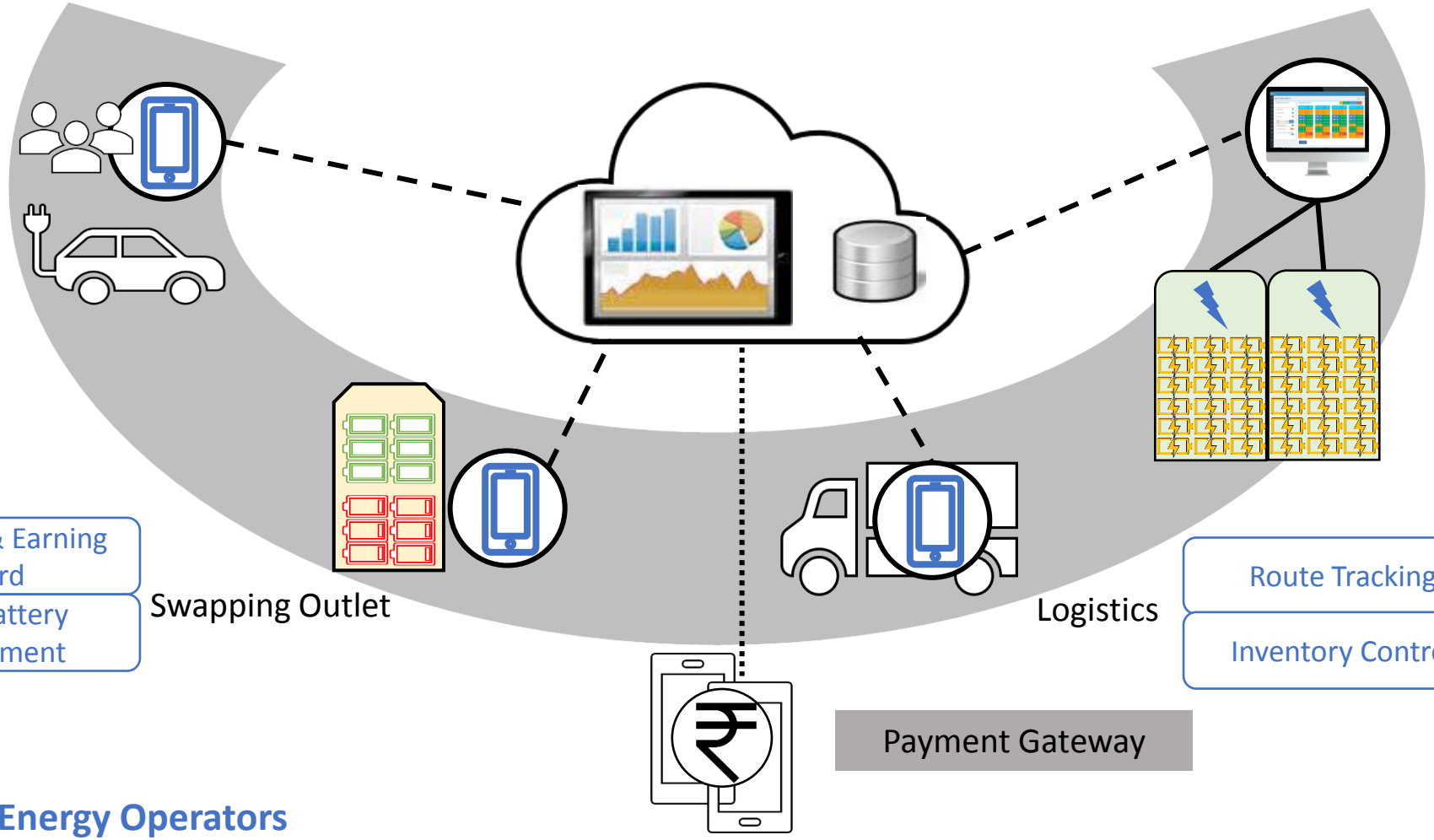
Drivers & Customers

- Ride / Hail EV
- Find, Reserve & Cancel S/O
- Directions & Navigation
- Battery Charge Status



Bulk Charging Station

- Intelligent Charging Control
- Automatic Billing
- Smart Battery Management
- Inventory & Logistics Management

Swapping Outlet

- Swapping & Earning Record
- Smart Battery Management

Logistics

- Route Tracking
- Inventory Control

Payment Gateway

Energy Operators

- ✓Pan-India Network Management
- ✓Authentication & Authorization
- ✓Automated Reports & Analytics
- ✓Asset & User Management
- ✓Smart Battery Management
- ✓Preventive Maintenance

PILOT PROJECTS

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Tamil Nadu

Punjab

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SAMPLE ANALYTICS: BATTERY

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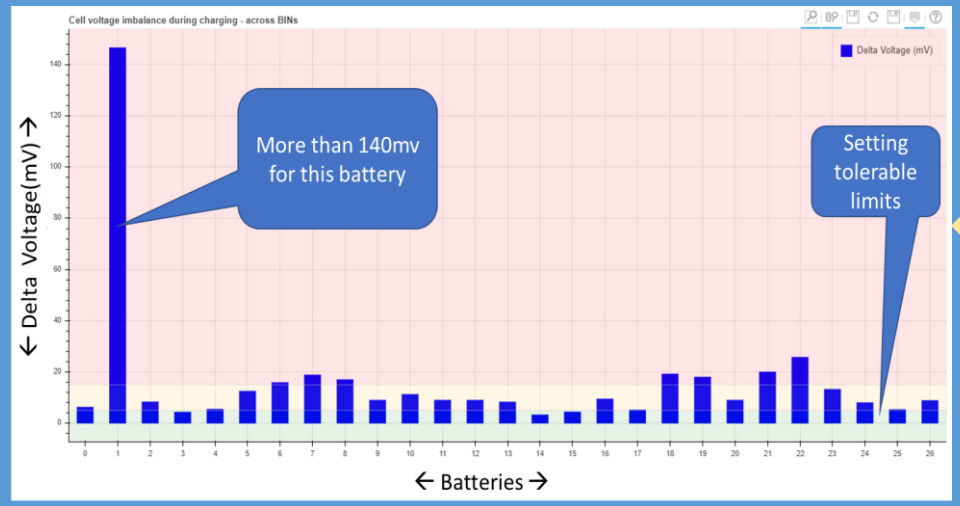
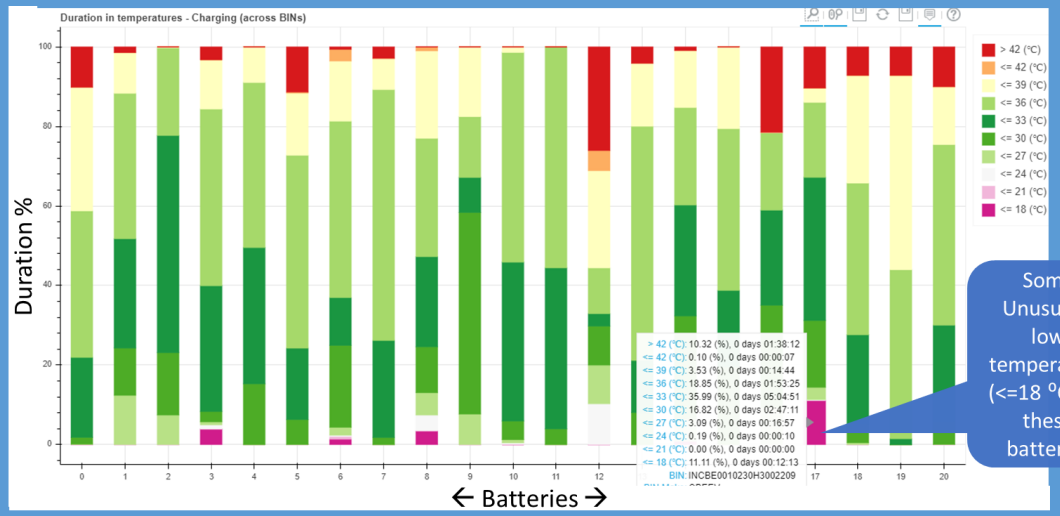
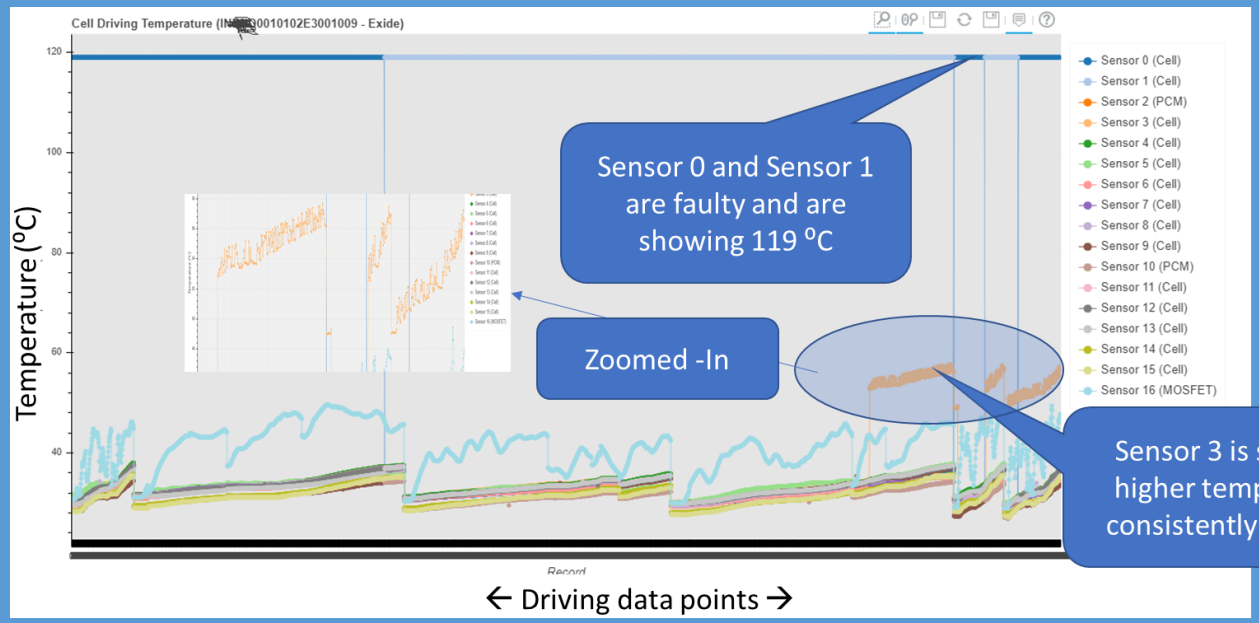


Cell Voltage Imbalance during Charging

Time Spent by batteries in different temperatures during charging





FAULT RECOGNITION

DATA ANALYTICS & REPORTS

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ANALYTICS

ASSET OPTIMIZATION

DEMAND FORECAST

INVENTORY CONTROL

DRIVING PATTERNS

REPORTS

Charger Usage & Performance	Battery & Cell Reports	Vehicle Performance	Driver Behaviour
Grievances	Maintenance	Billing & Transactions	Business Performance

ADVISORIES

EV Domain Expertise

Battery Selection

Vehicle Selection

Infrastructure Model

Business Operations

Growing Data Credentials

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Platform Tested With

12 OEMS

(BATTERIES, VEHICLES, CHARGERS)

5 OPERATORS

6 CITIES

DATA

420 Million
Data Points

235,000 Km
Monitored

7500
Swaps

520
Charging Ports

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Reach out to us

contact@esmito.com