3rd SAFE CITY & Intelligent Mobility India 2025

इलेक्ट्रॉनिकी एवं सूचना प्रौद्योगिकी मंत्रालय
MINISTRY OF ELECTRONICS AND INFORMATION TECHNOLOGY
सत्यमेव जयते

Safe City 2.0: Integrating Intelligent Sensors and AI for Predictive Traffic and Transit Management

28th August 2025

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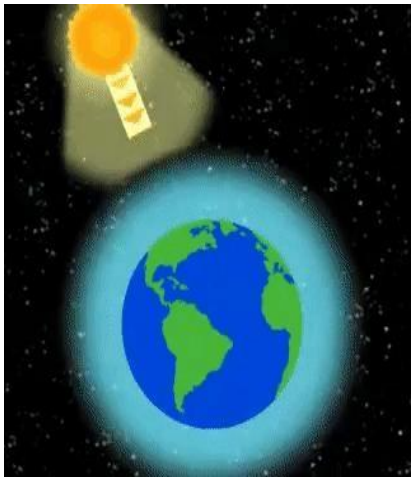
Outline of Presentation

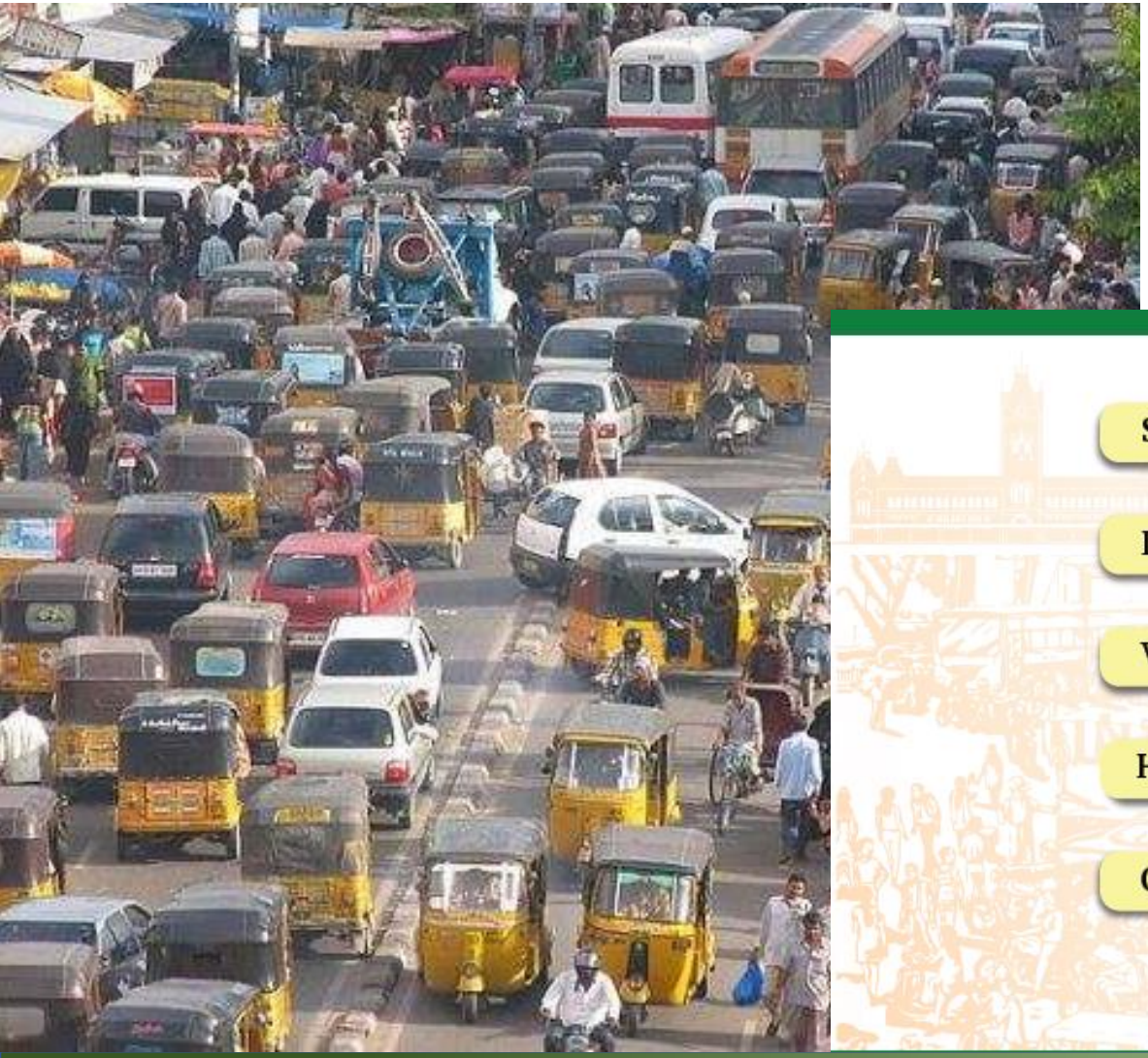
- Introduction – E-Mobility, Preferences & Statistics
- MeitY- EV initiatives & its Schemes
- Development of Indigenous EV Technology – The Journey so far
- MeitY-MHI Electric Vehicle Sub System Programme
- NaMPET Programme
- Safe City 2.0 – Integrating Intelligent Sensors and AI for Predictive Traffic and Transit Management

Introduction

Need	• Rising air pollution • Reliability • Efficiency
Fuel dependency	• Fast depletion of fossil fuel • Economic & Environmental Impact
Air quality in India	• 14 % of top 20 most polluted cities in the world • 20% of PM 2.5 emissions in Delhi • 26% Of NOx emissions in Delhi



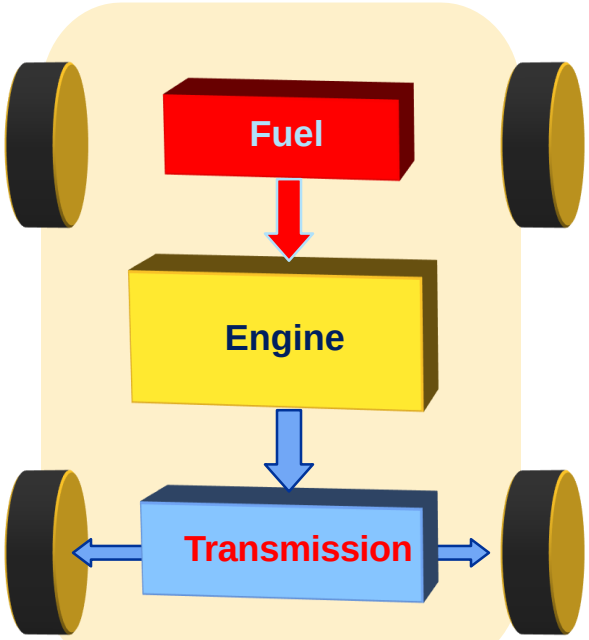
Introduction



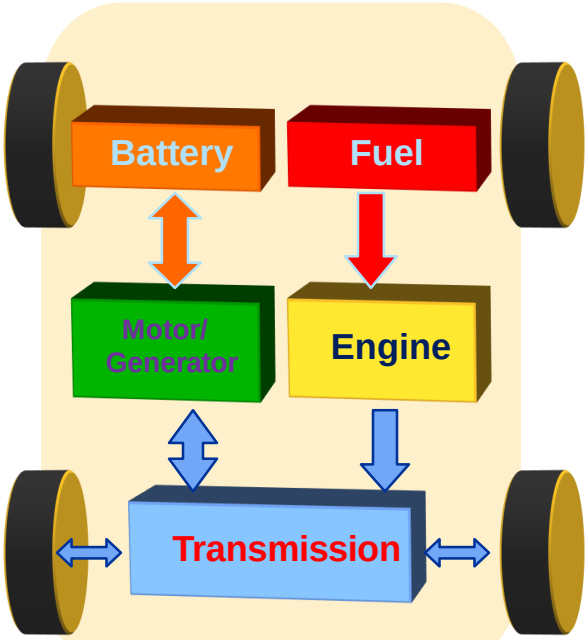
- Slower traffic
- Low affordability
- Vehicle mix mostly 2w/ 3w
- Harsh climatic conditions: 48°c
- Commute short distances per day

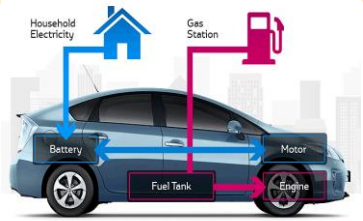
Electrification

Conventional

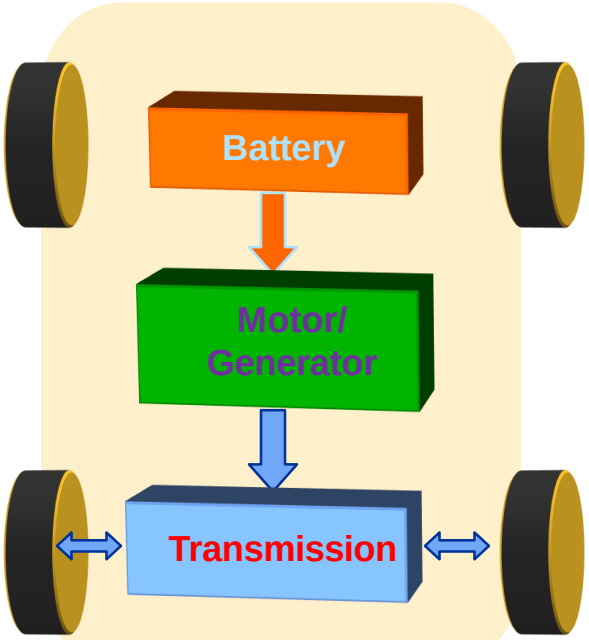


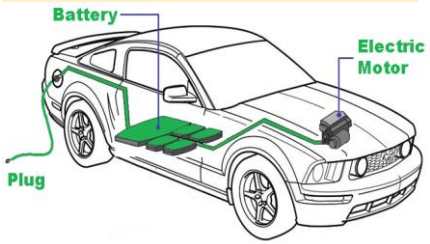
Hybrid



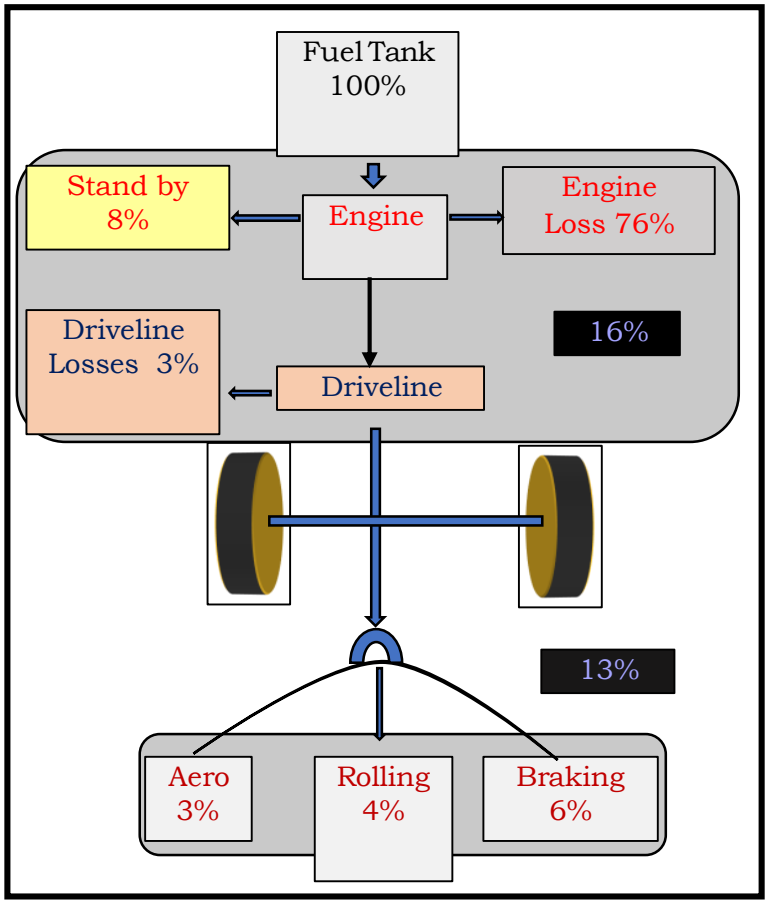


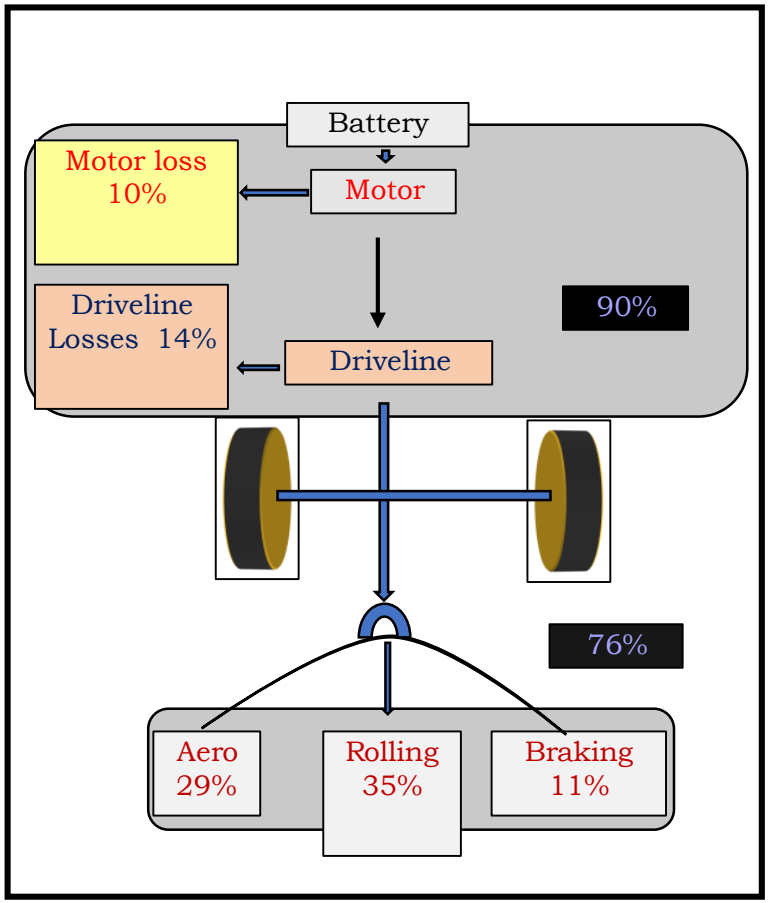
Battery Electric





Energy Loss: City Driving- IC Vehicle





Urban Drive Cycle Energy Balance 2005 3 L Toyota Camry

Why EVs for INDIA

GoI Target by 2030

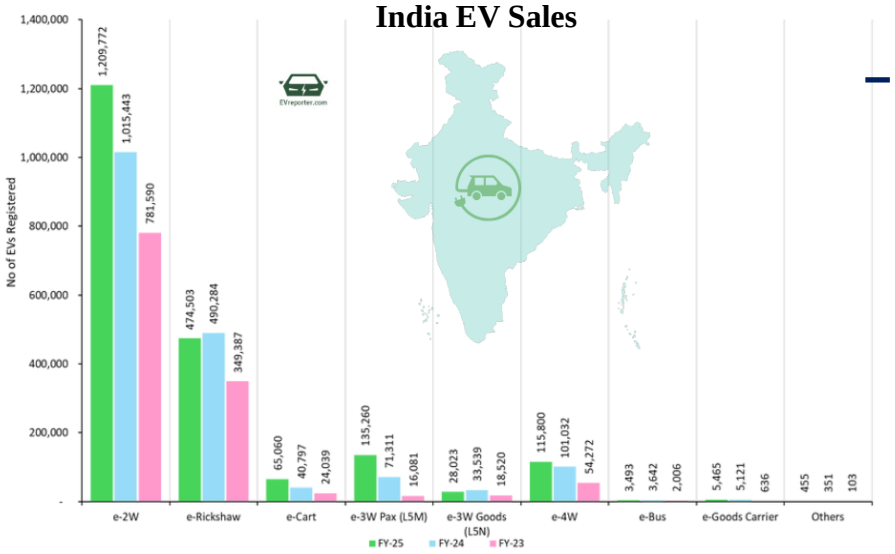
To electrify 70% of all CV, 30% of private cars, 40% of buses, and 80% of 2W &3W sales.

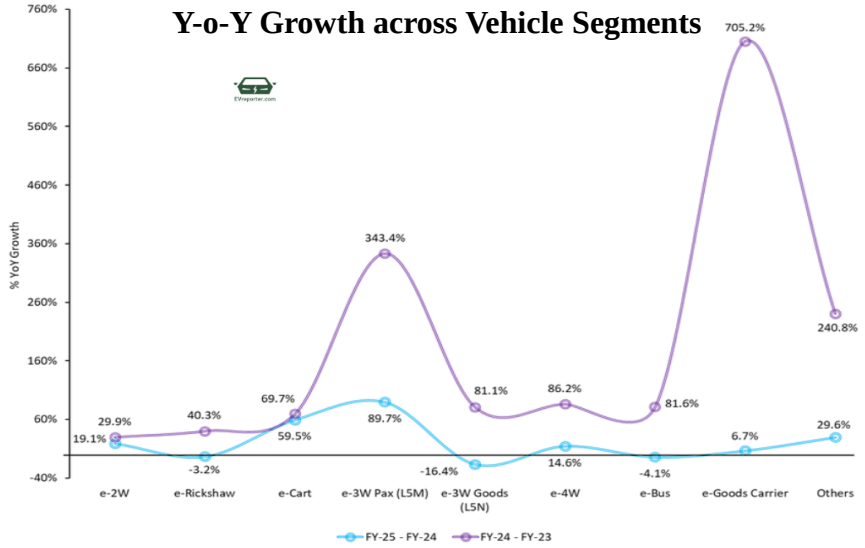
EV Market

~ $206 billion opportunities by 2030 if India maintains steady progress to meet its ambitious 2030 target.

Demand of EV

Rapid increase in registaion of EV





Vahan Dashboard Data (Apr 2024-Mar 2025) as per 1378 out of 1479 RTOs across 35 out of 36 state/Uts and Telangana Regional Transport portal (Apr 2024-Mar 2025)

**India EV Report: Sales Trends & Investments 2025*

Programme on Electric Vehicle Sub-system

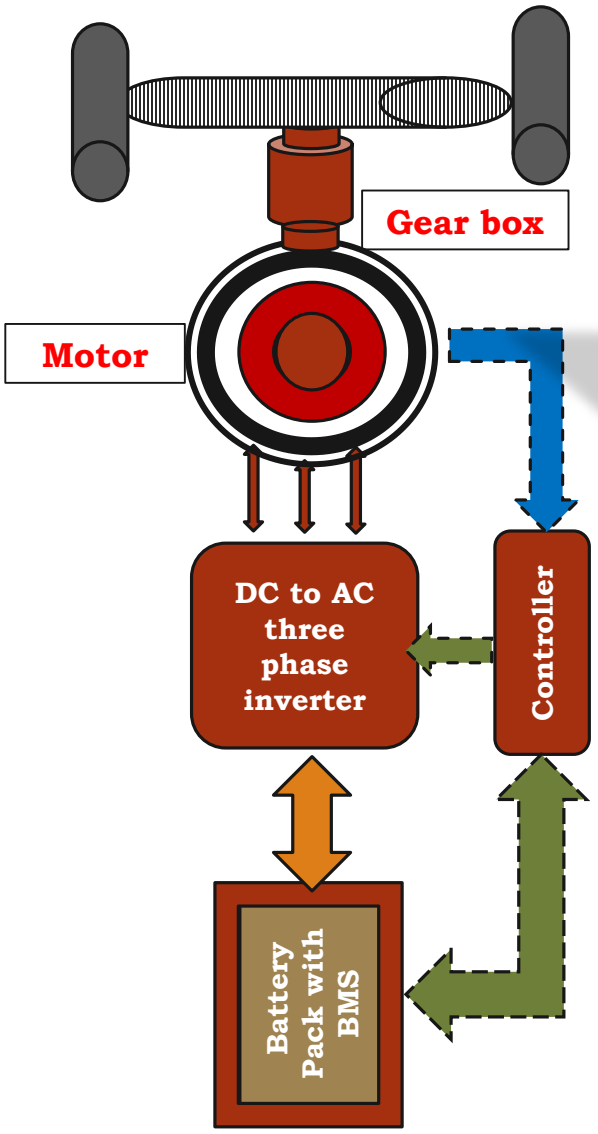
Deliverable

Technology/ product has to be cost-effective, quality competitive, suitable to our environment, and ready for commercialization.

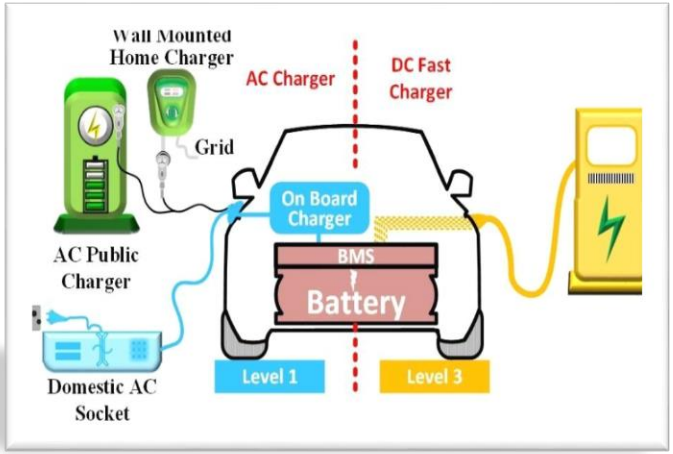
Objective

To develop high-performance, reliable & cost-effective electric vehicle subsystems in different areas (Motor/controller/converter/Charger/BMS).

Electric Vehicle Components



EV Charger



BMS for EV's Battery

Battery	Advantages	Disadvantages
NMC	lowest cost, highest specific energy	Slow charging, Temperature sensitive
LTO	Fast Charging), Temperature insensitive,	Highest cost
LFP	Temperature tolerant between NMC and LTO	Energy-density and costs between NMC and LTO

Motors for EV

Traditionally used Motor: Induction Motor

- Does not perform efficiently across all speeds; lower efficiency at lower speeds
- Limited Torque delivery

Intermediate Solution : BLDC

- Good for lower power rating
- Uncomfortable drive, and Torque ripple

PMSM Motor

- High efficiency in the entire operating speed range
- High power density, high torque to weight ratio
- Improved driving comfort
- Low cogging torque improves ride experience
- Low torque pulsation

DC-DC Converter

Li-ion Battery → DC- DC Converter → Auxiliaries

Execution of the Programme

Identification of Thrust Area

Methodology for development (Academia-start-ups-Industry)

User Manufacturer Developer

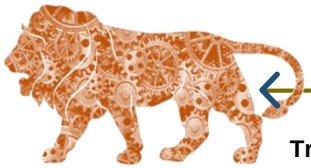
Call for Proposal (CFP)

Examination towards commercialization aspect

Field Trial Plan

Awareness creation

Transfer of Technology and Commercialization



Road Map





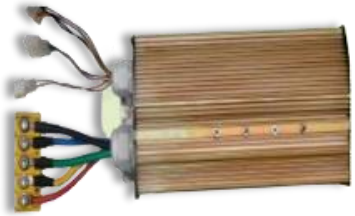


2020	2021	2022	2023	2024	2025-2026	2027
Initiation of EV Programme	Prototype development & Field trial at TRL 6	Commercialization of 2/3W component at TRL 6 & above	The prototype Development at TRL 5 (SiC & GaN based drive)	The prototype development and field trial at TRL 7& Initiation of 4W/heavy vehicle component development	Commercialization & Production of Motor/controller/ converter/Charger s/BMS at TRL 7	The prototype development and field trial above TRL 7 for 4W/heavy vehicles

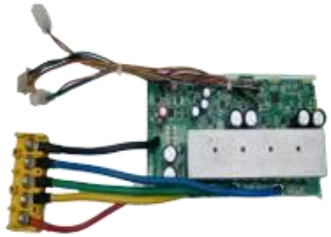
Development

PMSM Motor

PMSM Controller



BLDC Motor



BLDC Controller

Out of the 14 technologies on development of motor/controller/converter/ Chargers/ BMS etc, 03 technologies has been launched and 10 are under Expression of Interest (EoI) stages

2020 ⟷ 2021 2022 ⟷ 2024 2027

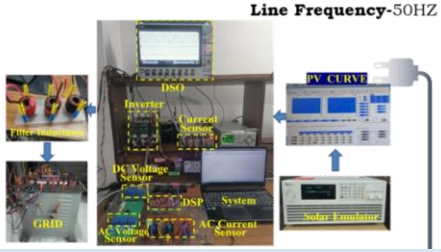
Outcome of EVSS Programme

A **5kW** Sigle Phase AC Charger powered by solar energy

Specification:
DC Voltage- 70V-350V
AC Voltage- 230V RMS
Switching frequency- 20kHZ
Power-5kW
Line Frequency-50HZ

A **10kW** Three Phase AC Charger powered by solar energy

Specification:
DC Voltage- 650V-1000V
AC Voltage- 230V RMS
Switching frequency- 20kHZ
Power-10kW
Line Frequency-50HZ



The AI-Enabled Solar-based Multi-port High Gain Electric Vehicle AC Charging Station for domestic and commercial use

Parameter	Description	Min	Nominal	Max
Input Specifications				
Input Voltage		450 V	650 V	800 V
Input Current				<7.3 A
Input Capacitance			20 uF	
Efficiency		92%		
Power Consumption @24Vdc				8 W
Output Specifications				
Output Current	(@ 28Vdc)			110 A
Output Power	Continuous 3kW; Peak 3.5kW (for 10 Seconds)			3 kW
Output Voltage Set Point		27.8V	28V	28.06V
Turn-On Delay	From start to Nominal Voltage			60 Sec
Turn-Off Timing	PS WAKEUP delay; (monotonic Vo fall)			100 ms
Output Volt Ripple				2% of Vout
Output Volt Noise				2% of Vout
Environmental Specifications				
	Operating: 62 kPa absolute pressure		3,600	
Operating Temp (Deg C)	Coolant temp with no derating	-40°C	65°C	
	Ambient temp @ full load, with no power derating	-40°C	80°C	

3 kW DC-DC converters for medium and small size electric trucks

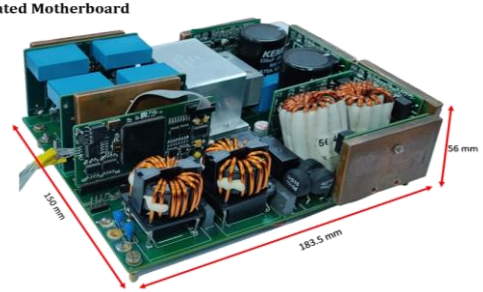
BATTERY SPECIFICATIONS	
Battery Capacity	20 kWh
Cell Chemistry	LTO
No. of Cycles	15000 Nos
Charging Method	GB/T or 3kw

SYSTEM SPECIFICATIONS	
No. of AC Outlets	3 Nos
No. of Vehicles Charged Simultaneously	3 Nos @ 3.3 kW
No. of Fast Charging Ports	1 Nos
Maximum Output Power	12.5 kW
Output Type	1-phase AC
Output Voltage	230 V
Max Output Current	200 A
System Weight	~560 Kgs
Dimensions	215 x 158 x 183 cm

Development and Deployment of EV DC Fast Charger

Enclosure size: 200 mm x 160 mm x 75 mm (L x B x H)

Integrated Motherboard

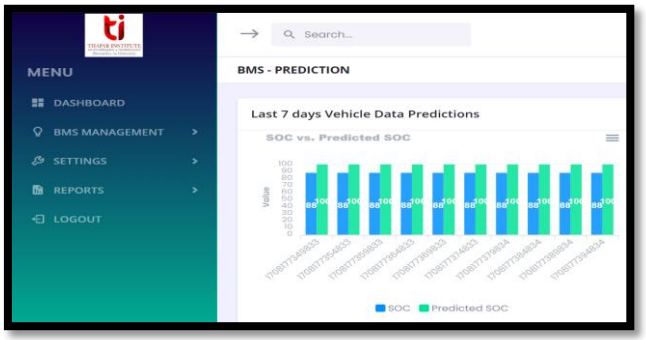


OBC Enclosure (Bottom side)

Development of On-board (In-Vehicle) Fast DC Chargers using High -Speed GaN HeMTs for Two-Wheelers(2W) Electric Vehicles

Outcome of EVSS Programme

Parameters	
Operating Conditions	
Voltage	0-96 V
Operating Temperature Range	-15 to 65 C
BMS Type	Smart Cloud Storage
Monitoring	Cloud based real-time monitoring
User Interface	
Interface	1. Cloud 2. API Integration 3. MQTT based Protocol 4. Bi-directional Communication
Communication Protocol	1. CAN Bus 2. Wi-Fi
Security	1. GPRS with live monitoring and tracking 2. AWS KMS (Key Management Service) 3. AWS IAM (Identity and Access Management) 4. Authorization and authentication (SQL Database)

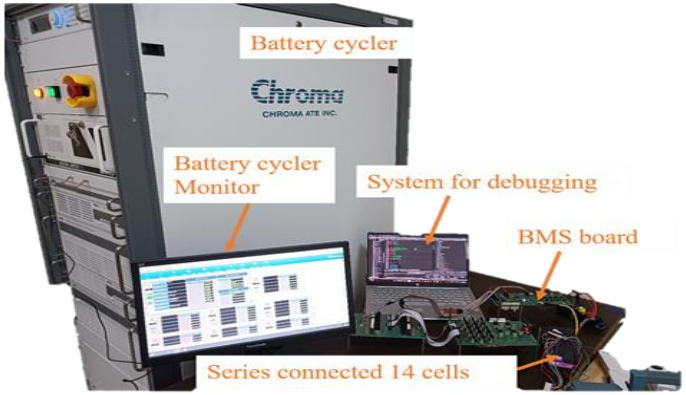


A Smart Battery Management System with Real-Time Estimation for State of Charge (SoC) and State of Health (SoH) of Electric Vehicles Batteries using Hybrid Models

Design and Development of Next Generation cost-effective Reconfigurable On-Board Battery Charger with Health and Fault Monitoring

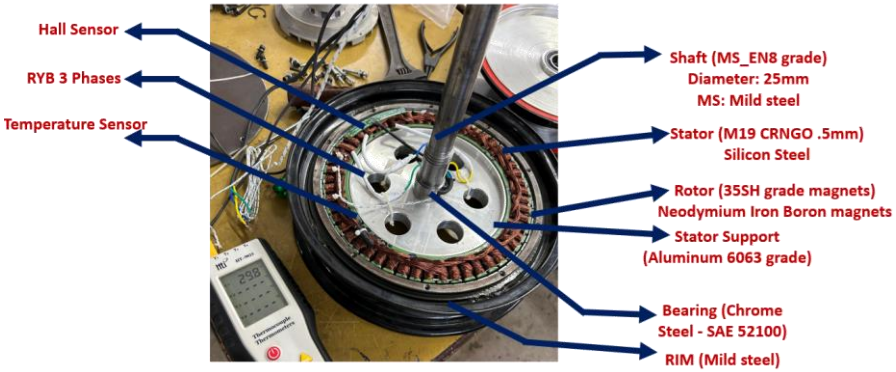
Development of High-Efficiency Motors and Controllers for EVs for Indian Driving Conditions

Outcome of EVSS Programme



Development of an efficient module-integrated battery management system

Development of high-efficiency portable chargers for electric 2W/3W



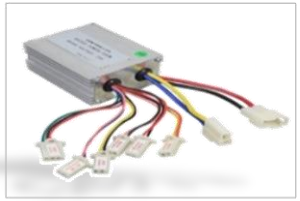
Final specifications considered for fabricating first prototype: Stator Slot Gap = 2.5mm + Winding 18 strains X 8 Turns X 26 (SWG) + Rotor magnets width = 13.05mm + N38H grade type rotor magnets:

Performance Parameters:	Final Specifications
Rated Power	500 watt
Peak Power	750 watt
Rated Speed	264 RPM
Peak Speed	350 RPM
Rated Torque	18.1 Nm
Cogging Torque	0.859 Nm
Stator Teeth Flux Density	1.61 T (No Load) 2.07T (Peak)
Current Density	3.442 (A/mm^2)
HV testing winding Resistance	75 mOhm (Match with Simulation Results)
HV testing winding Inductance	0.44 mH (Match with Simulation Results)
Efficiency	87.4 %
IP Protection	IP68 (water + Dust)

Indigenous development and Commercial Possibilities of electronic differential system along with two in-wheel motors for electric 3-wheelers

Achievements of EVSS

Electric Motor Controller



KALYANI BHARAT FORGE

amber
Amber Enterprises India Limited

GEM

RAPTEE

Lucas-TVS Ltd

ALPHASINE TECHNOLOGIES

BRUSHLESS MOTORS INDIA PRIVATE LIMITED

PIGL LOG9
Power. Performance. Peace of Mind.

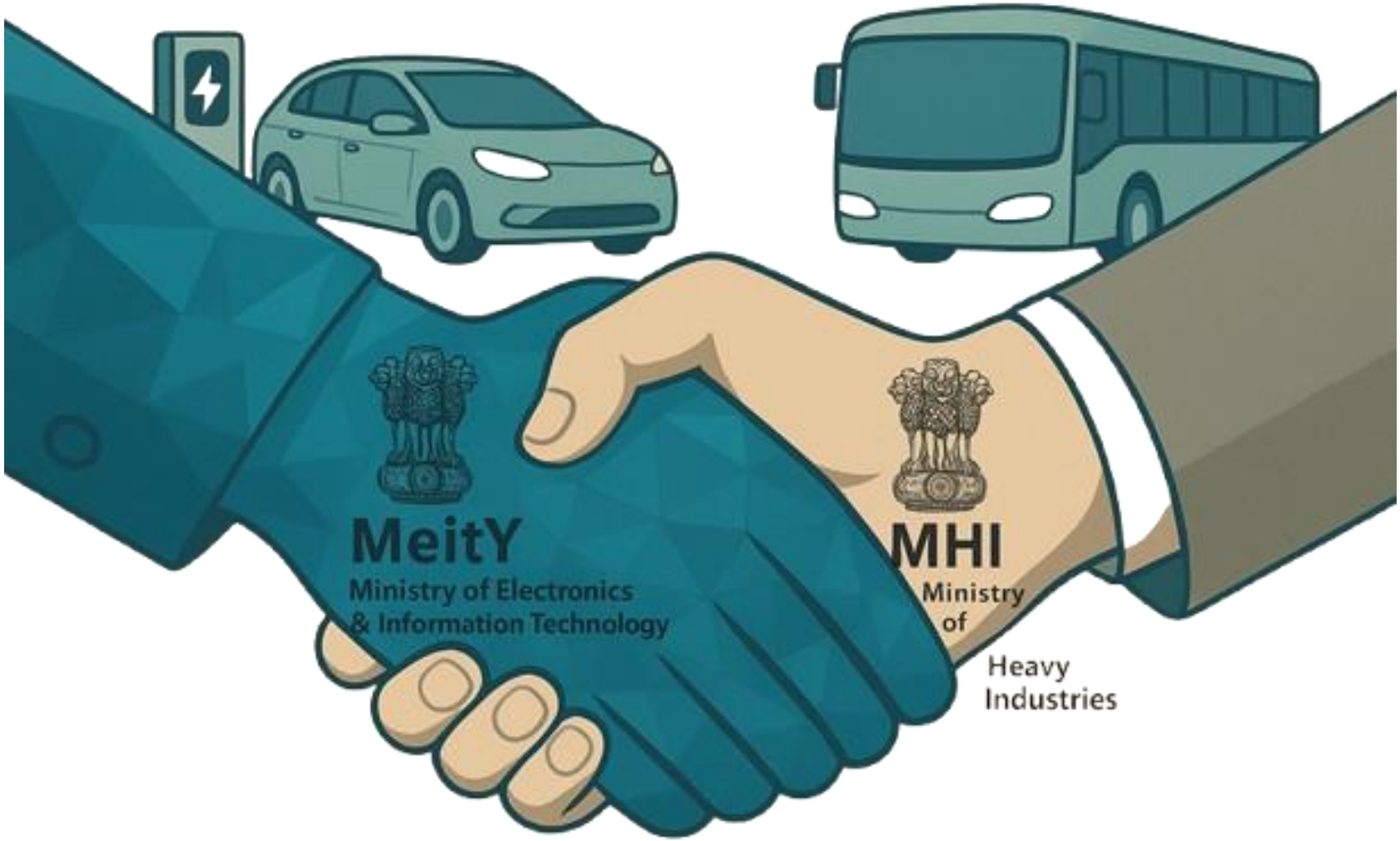
INVERTED

AGNIT

LITHION

Achievements of EVSS

MeitY-MHI Joint CFP For EVSS

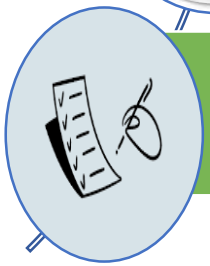


EV Stakeholders Meeting

Based on the identified gap areas in EV and 2 brainstorming sessions with ARAI, ICAT,ACMA,T-works, iCreate, Motion,Makers Village,etc, a draft Call for Proposal (CFP) along with the specifications was prepared and presented to the National Steering Committee .

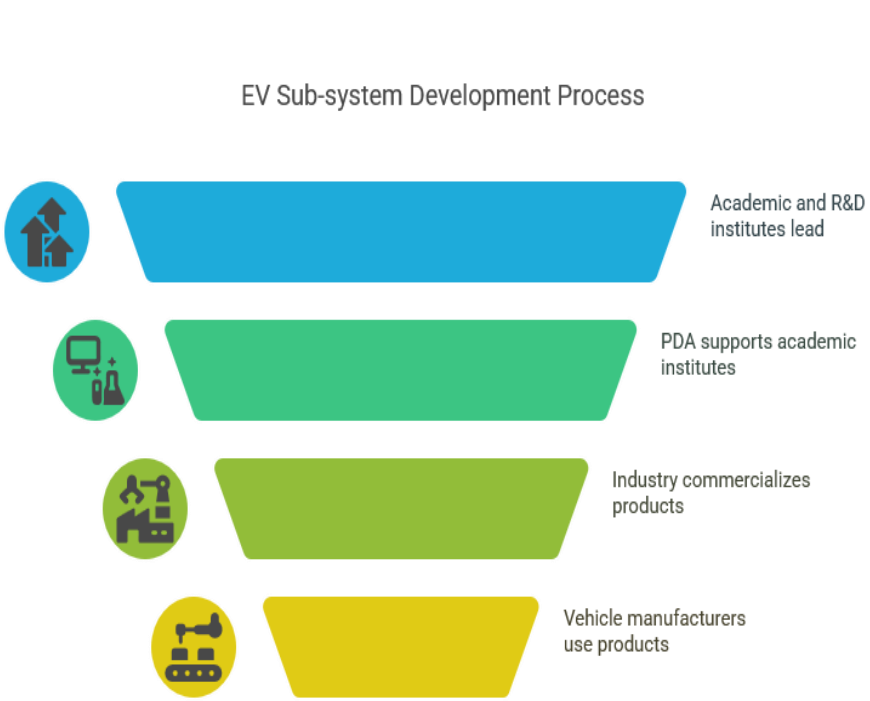
MHI had conducted a stakeholders meeting with the organizations such as ARAI, ICAT, ACMA, SIAM, Natrax, GARC, etc ,to finalize the broad specifications for MeitY-MHI Joint Call For Proposal

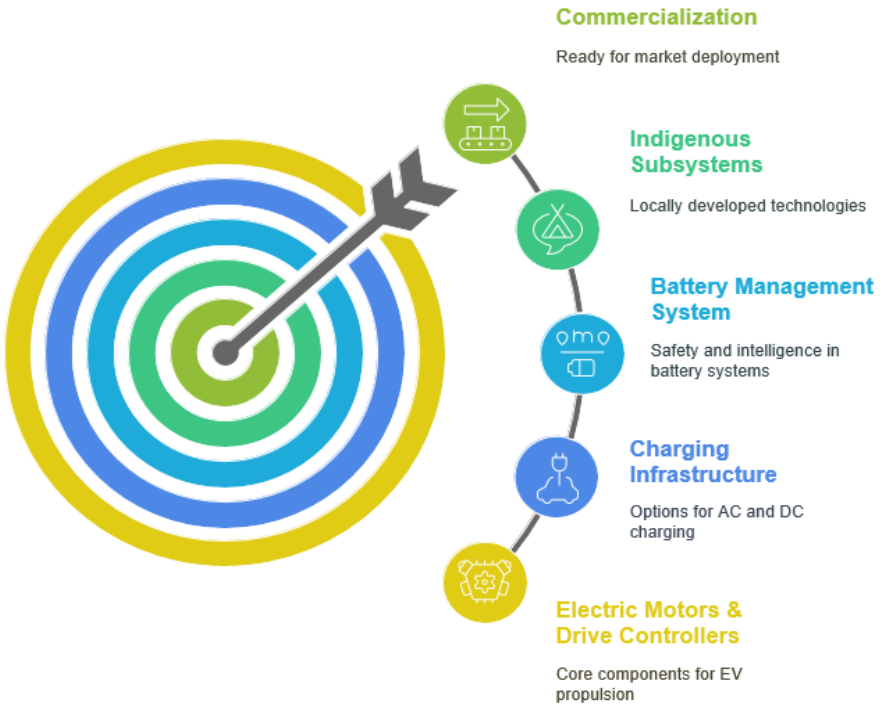
Comments received from different stakeholders were incorporated in the draft CFP



After finalizing, joint call for proposal has been approved by the competent authority at MeitY and MHI

Call For Proposal For EVSS





Call For Proposal For EVSS

Roles and Responsibilities of MeitY and MHI

MeitY as Nodal Ministry

MeitY takes the lead in program execution

MeitY Provides Financial Support

MeitY allocates funds for the program

MHI Propagates Technologies

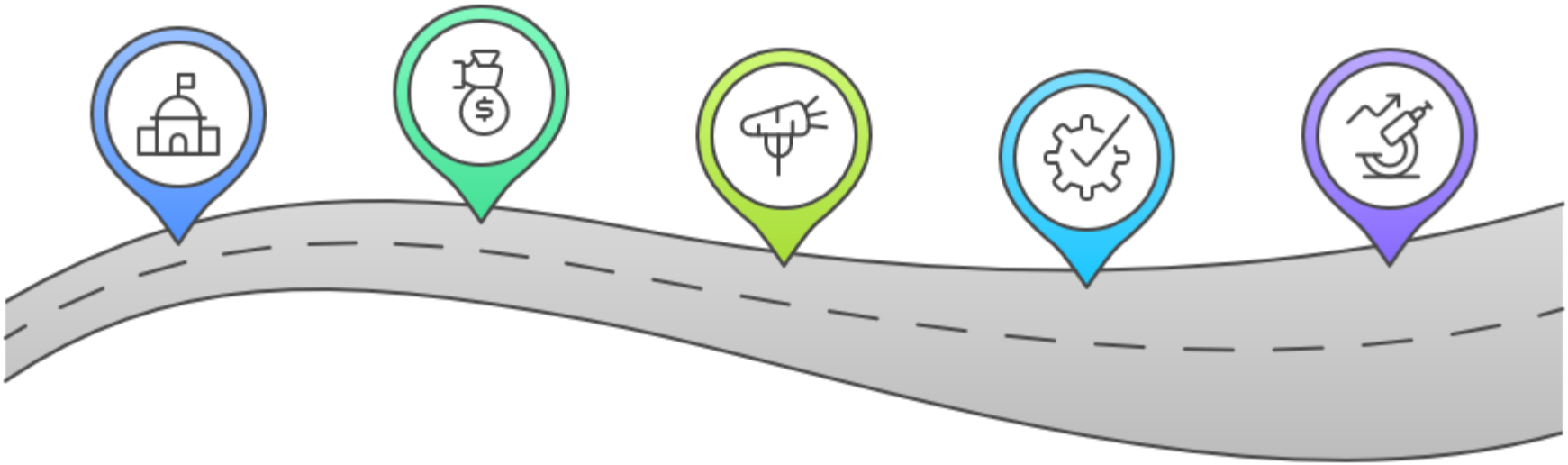
MHI promotes technologies through associations

MHI Provides Standardization Support

MHI ensures technologies meet standards

MHI Offers Testing Support

MHI facilitates testing of technologies



Proposal Evaluation Process

Expert Committees Meeting

Three committees meet to evaluate proposals

Proposal Presentations

Chief Investigators present proposals

Evaluation of Proposals

Committees evaluate proposals based on criteria

Recommendation of Proposals

Committees recommend proposals for further review

Core Committee Review

Core Committee reviews recommended proposals

Final Recommendation

Core Committee makes final recommendations

Financial Support

MeitY provides financial support to selected proposals

NaMPET - Program

National Mission on Power Electronics Technology is a mission programme launched by the Ministry of Electronics and Information Technology (MeitY)

Mission: To facilitate Research, Development, Deployment and Commercialization of Power Electronics Technology by enhancing indigenous R&D expertise and infrastructure in the country with active participation from Academic Institutions and Industries

www.nampet.in

NaMPET - Program

Industry Partners

- Ashok Leyland
- BARC
- CPRI
- Indian Railways
- Indian Air force
- Megatech Power Equipments
- Numeric Power Systems
- Hycon Power Electronics
- Power one Micro systems Pvt. Ltd
- HBL Power Systems Ltd.
- Keltron
- Emerson
- Veeral Controls
- Amararaja
- Electrohms
- Kerala Automobiles Ltd.
- Techser Power Solutions
- NMRL
- ICD-Industrial Controls & Drives
- Hind Rectifiers
- Electrotherm Ltd.
- Tata Power
- Renault Nissan
- NPOL
- IPR
- ELGi Ltd.
- Anert
- Consul neowatt
- RRB Energy Ltd.
- Crompton Greaves
- BHEL
- ABB
- AAL Noida
- Mosar Technologies
- ITI Ltd. Palakkad
- Powertec Energy Ltd
- United Electrical Industries Ltd.
- Zreyah Semiconductors

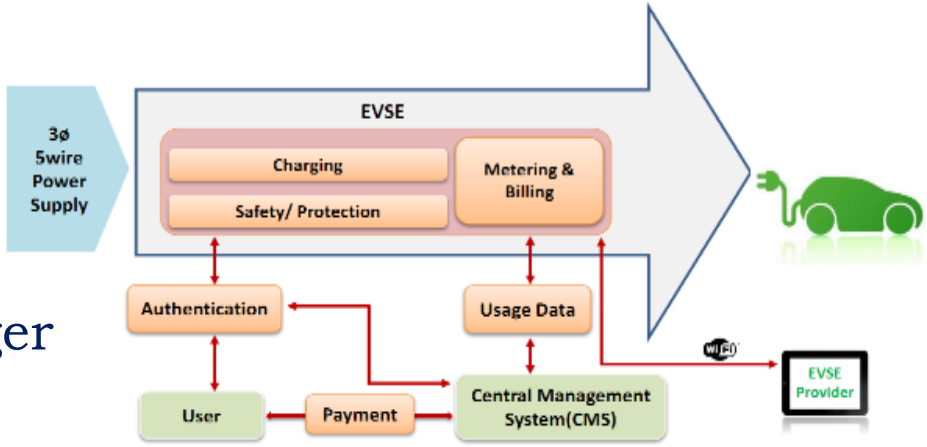
Academic Partners

- IIT Roorkee
- CET, Trivandrum
- BIT Ranchi
- NITK Surathkal
- IIT Madras
- NIT Rourkela(NITR)
- IIEST shibpur
- NEHU, Shillong
- NIT Trichy
- NIT Calicut
- NIT Warangal
- IIT(BHU) Varanasi
- IIT Patna
- VNIT Nagpur
- NIT Goa
- MNIT Jaipur
- NIT Jamshedpur
- NIT Mizoram
- SVNIT Surat
- NIT Allahabad
- NIT Agartala
- IISc Bangalore
- IIT Bombay
- IIT Kanpur
- IIT Kharagpur
- IIT Delhi
- RIT Kottayam
- Anna University
- Amal Jyothi College

Development of WBG based EV Supply Equipment for Charging (WBG-EVSE)

Objective and Targets - WBG EVSE

- 3.3kW Single Phase AC Charger
- 7kW & 22kW AC Fast Chargers
- SiC based15kW DC Dual Point Charger
- GaN based 3.3kW SPV DC Charger
- SiC based 50kW DC fast charger



EV CHARGING PROCESS					
Authentication	Charging	Metering	Safety/Protection	Billing	Payment
Switch RFID card OTP(Mobile Phone)*	AC Charging DC Charging	Smart Meter	Microprocessor based protection (Relays, Temperature & current sensors, RCCB)	RTC GRID interactive*	Cash RFID (monthly billing) Mobile Wallet*

*Future Enhancements

Specification of EV Chargers

Parameter	Values
AC Supply System	Three-Phase (22kW) Single -Phase (7kW) AC system
Input voltage & frequency	230V - 415V (+10% and -10%) , 50Hz, ±3Hz
Number of outputs	1
Output Current	32A
Output Connector Compatibility	IEC 62196 Type II
EV- EVSE communication	Control pilot and proximity pilot function

7kW & 22kW AC Fast Chargers

Parameter	Values	
Nominal Input	3-phase 415VAC	
Rated Output Power	15 kW/ 30kW (Plug1) , 3.3kW(Plug 2)	50 kW
Switching Frequency	50 kHz	50 kHz
Intermediate DC Bus	700 VDC	750 VDC
Output Voltage	48VDC/72VDC	250 – 420 VDC
Output Current	200 A	125 A
Output Connectors	GB/T	CCS, CHAdeMO

SiC based 15kW & 50kW DC Charger

Parameter	Values
AC Supply System	Three-Phase
Input voltage & frequency	415V (+10% and -10%) , 50Hz, ±3Hz
Number of outputs	3
Output Current	16 A
Output Connector Compatibility	IEC 60309
CMS- EVSE communication	OCPP

3.3kW Single Phase AC Charger

Parameter	Values
Nominal Input	230V Single Phase AC 50Hz
Power	3300W
SPV Nominal Voltage	225V DC
Switching Frequency	100kHz
Output Voltage	48V DC
Intermediate DC Bus Voltage	400V DC
Solar Panel Technology	Mono crystalline
Output current	68A max.

GaN based 3.3kW SPV DC Charger

Chargers developed under WBG-EVSE

3 Port AC Charger

Single Port AC Charger

22kW AC Fast Charger

7kW AC Fast Charger

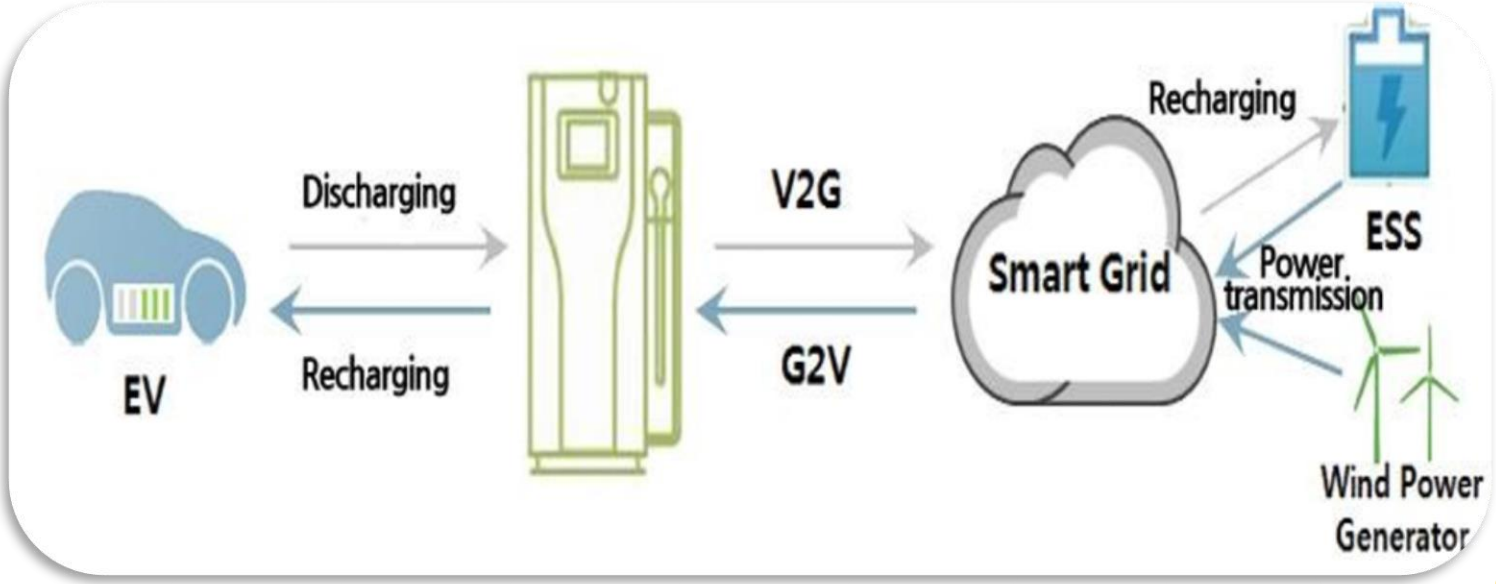
15kW DC Charger

3.3kW SPV DC Charger

50kW Mechanical Model

V2G (Vehicle to Grid) Technology

- Allows communication between utility and vehicle
- Allow integration of more renewable like wind/solar
- Used EV batteries could be used as stationary batteries for utilities
- Batteries could provide ancillary services

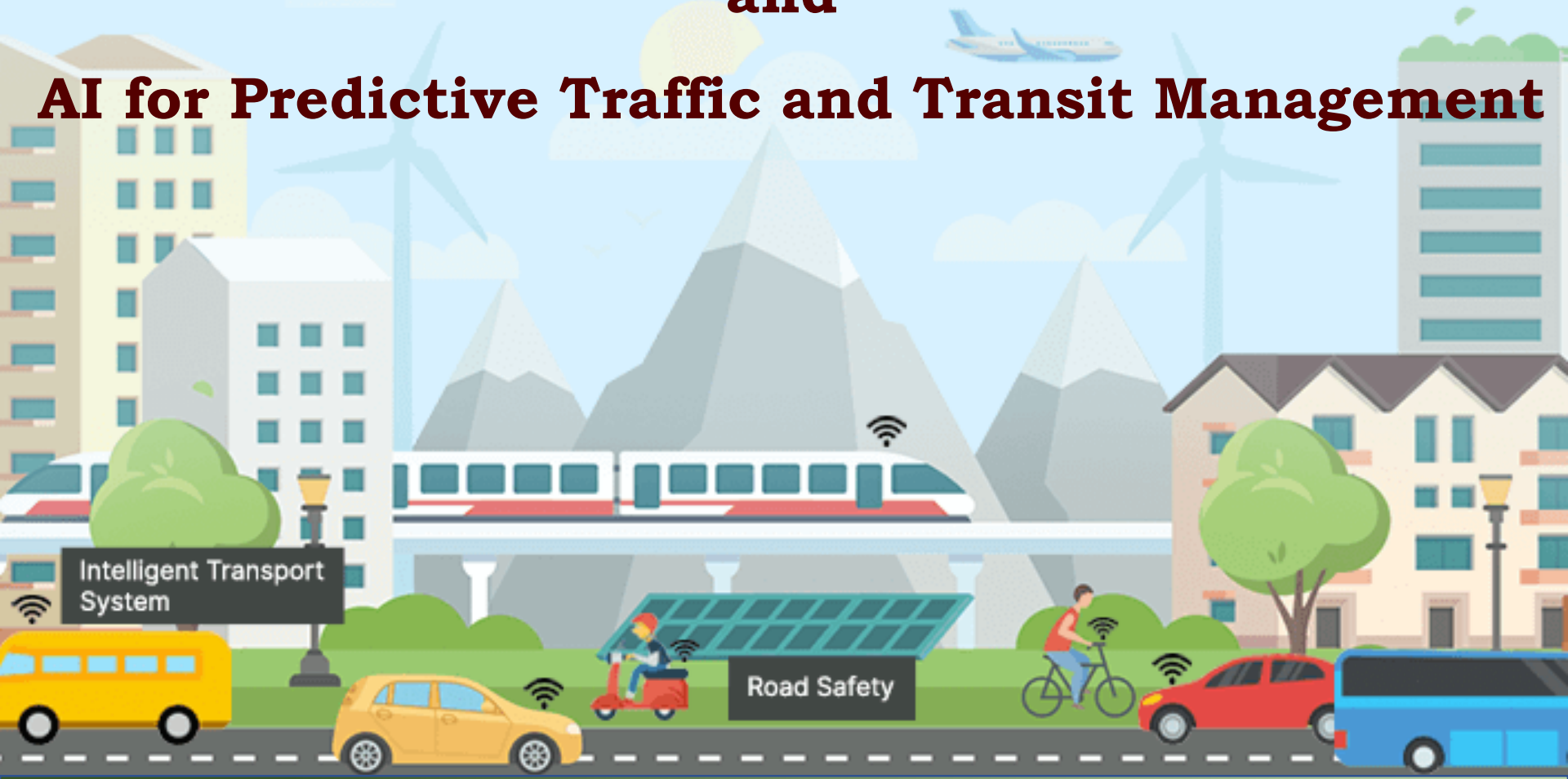


Source: McKinsey

3rd SAFE CITY & Intelligent Mobility India 2025

इलेक्ट्रॉनिकी एवं सूचना प्रौद्योगिकी मंत्रालय
MINISTRY OF ELECTRONICS AND INFORMATION TECHNOLOGY
सत्यमेव जयते

Safe City 2.0: Integrating Intelligent Sensors and AI for Predictive Traffic and Transit Management



www.meity.gov.in

28th August 2025, Delhi

Intelligent Sensors for Predictive Traffic and Transit Management

- AI-Enabled Solar-based Multi-port High Gain Electric Vehicle AC Charging Station for domestic and commercial use
- ATCS Compatible Vehicle Actuated Traffic Signal Controller Adaptive Traffic Control System (ATCS) software capable of handling non-lane based, mixed traffic flow conditions (TraMM-EnV /CoSiCoSt-EnV)
- Pedestrian Safety Enhancement Controller(PeSCo)
- Emergency Service Vehicle Priority System (EmSerV)
- Bus Priority System
- Fleet Management system & Passenger Information System (FMS &PIS)
- Personalized Transit Route Guidance System (PTRGS) for bus passengers

AI-Enabled Solar-based Multi-port High Gain Electric Vehicle AC Charging Station

Salient Features

- Unity power factor in grid drawing and grid injection mode
- Guarantees the 3% THD with Distorted Grid
- Solar extraction efficiency of 99%
- Operating efficiency (Ero efficiency) of 96%
- IP65 Protection
- Single stage power conversion, harmonic elimination feature, and Islanding detection
- Dual stage MPPT algorithm, Voltage boosting
- Technology readiness –TRL7

Expression of Interest:

https://www.cdac.in/index.aspx?id=lu_EVSS01_EOI_5ProjectsV1

Traffic Signal Controller (Model: CUTE)

Salient Features

- Universal Interface for Vehicle Detector
- Compatible to switch 24V DC lamps
- Green-Green Conflict Monitoring
- Malfunction Management
- Input Voltage Monitoring
- Lamp Intensity control using PWM
- Police Panel Operation (Auto/Manual/Forced flash/ Hurry call)
- Transit Signal Priority for BRTS Bus in dedicated lane
- GPS Based Distributed Time Synchronization
- Remote monitoring of signals through 4G/MLLN link
- Pedestal mount
- Technology readiness –TRL9

Industry Connect

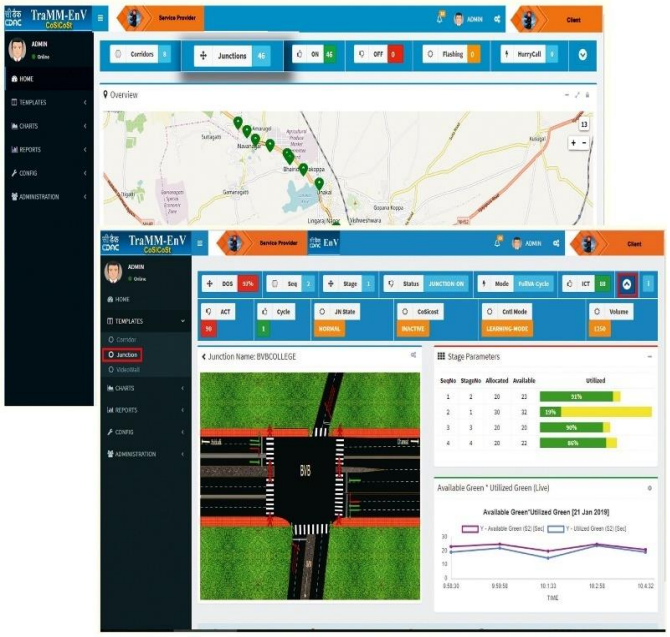
- TOT partners – 9 nos.

Traffic Signal Monitoring and Management software (TraMM)

TraMM-EnV is a software tool used to remotely monitor and manage a network of Traffic Signal Controllers installed at different traffic junctions in a city from the Traffic Command and Control Centre.

Salient Features

- GIS based user interface with dashboard
- User Management and Alarm Management with SMS, MAIL and Dashboard alerts
- Junction configuration, live animation of traffic signal status and Video Wall display
- Corridor configuration for ATCS
- Time Space Diagram for monitoring signal coordination
- Grouping of junctions for Green corridor
- User defined permanent and temporary scheduler
- Standard and custom reports and charts for data analysis
- Web Service for sharing traffic signal data in Smart City dashboards and other third-party products.
- Technology readiness –TRL9



Industry Connect

TOT Partners – 9 nos.

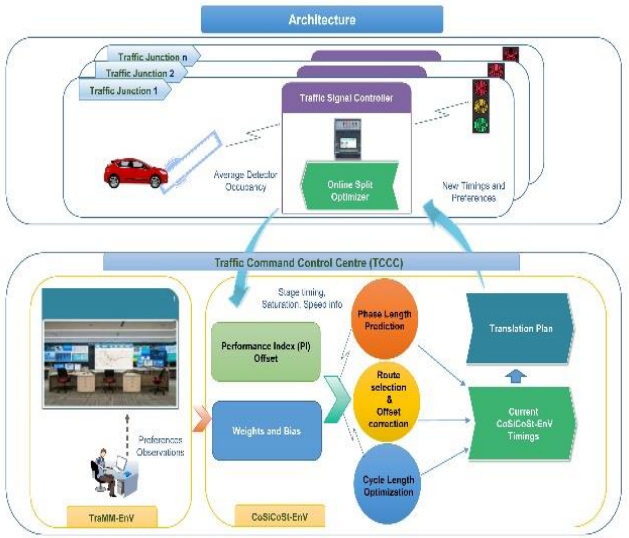
Composite signal control strategy (CoSiCoSt) – ATCS

CoSiCoSt-EnV is an Adaptive Traffic Control System (ATCS) software algorithm for optimizing signal timings for the typical Indian driving and traffic conditions such as poor lane discipline and high heterogeneity.

Indian Patent (No: 239258) Title: "A Method for Synchronizing Heterogeneous Road Traffic and System thereof"

Salient Features

- Distributed and highly scalable system
- Use Stop-line detection with special filters to address poor lane discipline and high heterogeneity
- Real-time signal coordination in vehicle actuated mode of signal operation.
- Quick offset correction and cycle optimisation
- Plan transition based on Degree of Saturation (DoS)
- Self calibrating
- Green-wave invocation and emergency vehicle prioritising on selected routes
- Prioritising major arterials in a corridor for signal coordination
- Logical isolation and re-join of traffic junctions automatically to manage synchronization in real time
- Technology readiness –TRL9



Industry Connect

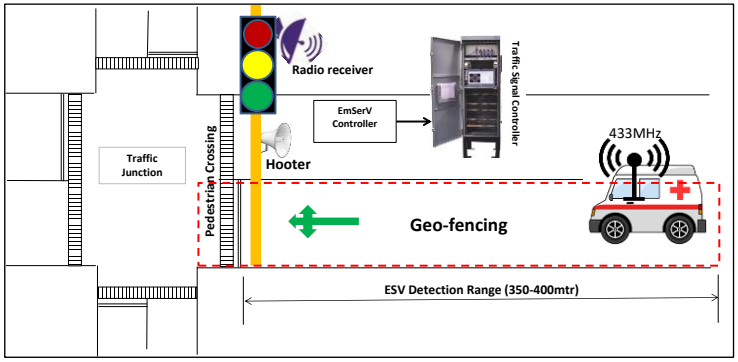
- TOT partners – 8 nos.

Emergency Service Vehicle Priority System-EmSerV

EmSerV allows the smooth passage of priority enabled Emergency Service Vehicles (ESV) such as ambulances and fire engines through the signalised traffic junctions safely and quickly in emergency situations

Salient Features

- De-centralised solution with GNSS based geo-fencing and RF communication (433MHz & 400m range)
- Central server connectivity with Ethernet
- Include Controller Unit(CU) and Vehicle Mount Unit(VMU)
- Compatible with all traffic signal controller having Hurry Call feature
- Remotely configurable junction parameters
- Vehicle authorization using vehicle IDs
- Gives alert at the junction using hooter on arrival of ESV
- Technology readiness –TRL9



EmSerV Architecture

Controller Unit

Vehicle Mount Unit

Industry Connect

Technology is ready for TOT, EOI floated

Deploy scenario

- Controller unit in all traffic junctions in a corridor leading to hospital
- VMU in all emergency service vehicles

Implementation

- POC implementation in Trivandrum

Pedestrian Safety Enhancement Controller (PeSCo)

PeSCo is a Pelican Signal Controller which provides extended walk time for differently abled, visually challenged and elderly people by identifying pedestrian demands detected through various input devices detected like push button switch, RFID and ultrasonic sensor devices.

Salient Features

- Provide appropriate Pedestrian Crossing Time based on configuration & category of pedestrian identified
- Programmable Walk time and pedestrian categories
- Provide audio/visual indications for pedestrians - wait, stop, and walk
- Instructions in Braille Labels for visually challenged pedestrians
- Pedestrian Detection using Ultrasonic sensors, RFID Card and Push Button
- Audio Instructions for safe crossing
- Technology readiness –TRL9

19.5 inch x 11.6 inch PeSCo Controller

Web Interface for PeSCo

Industry Connect

- Technology is ready for TOT, EOI floated

Deployment scenario

- Schools, Hospitals and Midblock pedestrian locations

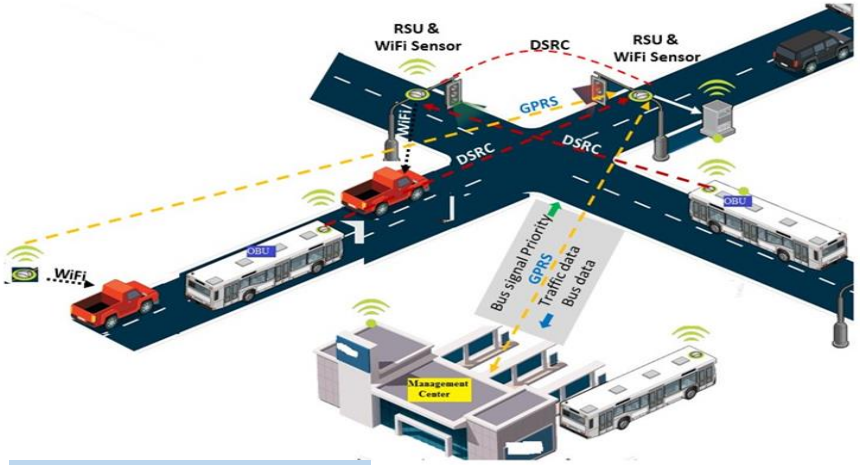
Implementation

- POC implementation in Trivandrum

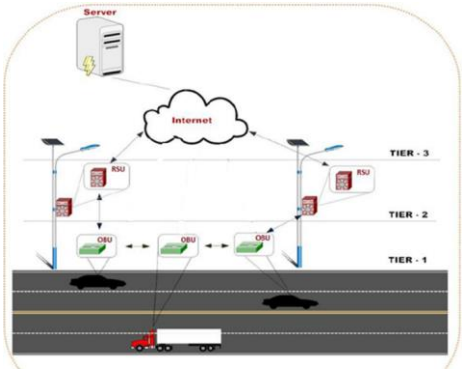
Bus Priority System at signalized intersections using V2I communication

- Use of DSRC and Wi-Fi devices for TSP application
  - Bus data collection using DSRC
  - Traffic data collection using Wi-Fi sensors

- Intersection traffic state estimation and prediction based on traffic flow theory
- An optimal bus priority system based on predicted traffic state
- Integration and evaluation of the solution with a simulated network
- A scalable and transferable bus priority system for isolated signals



- Wi-Fi sensors
  - all approaches
  - roadside
- OBU
  - on the buses
- RSU
  - at intersection
- Analysis at the control center
- Signal Control



Vehicle Tracking based Fleet Management System (FMS) & Passenger Information System (PIS)

Salient Features

- Intelligent & Automated tracking based fleet management
- Route Management and optimization
- Alerts, Trip Scheduling and Dispatch
- Fleet Utilization and Driver Score Analysis
- Reports & Analytics
- Logistics Tracking
- Vehicle Expense Management
- Decision Support Dashboards
- All in one mobile app based solution
- PIS Mobile App in Android & iOS
- Complaint with AIS-140 standard VLT devices
- Available in cloud and on-premise deployment
- CERT-In certified for security audit
- Technology Readiness -TRL 9

Industry Connect

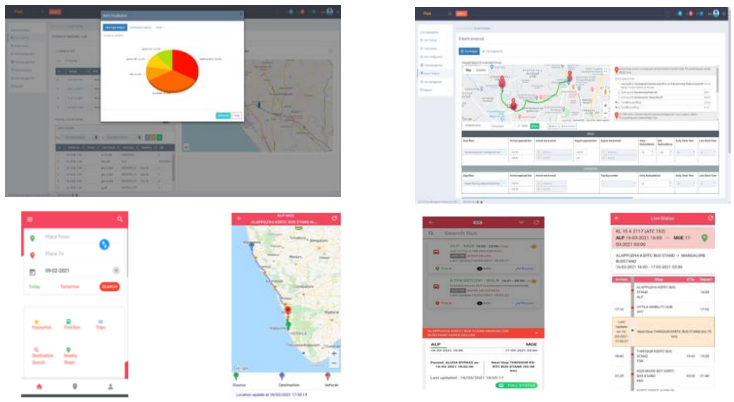
- TOT – 4nos.

Deployment use case

- Vehicle & Goods Tracking
- Bus Arrival & Personalized Transit Route Guidance Information (Mob App)

Implementation

- Kerala MVD , Civil Supplies Dept, Demo to STA



Mobile App for PIS

Personalized Transit Route Guidance System (PTRGS) for bus passengers

A mobile application for passengers with optimal or customized routes based on real-time information about location of buses and passenger demand. Passengers can find bus stop, bus arrival time, and bus route information and routes can be selected based on minimum **travel time, cost, crowding, or maximum reliability.**

Salient Features

- Real-time transit data using multiple sensors
  - ❖ Large amount of data collected through VTU,ETM and Waybill
  - ❖ Integrated sensing of transit demand, reliability, traffic and supply characteristics
  - ❖ Easy integration with fleet management systems
- Dynamic transit state estimation
  - ❖ Data driven and analytical estimation techniques
  - ❖ Estimation of travel time, reliability & crowding
- Real-time routing on bus transit network
  - ❖ Combines network topology with schedule-based routing
  - ❖ Multi-objective and custom routing preferences

Industry Connect

- Software and Hardware are ready for TOT

TOT Partners– Traffic Signal systems & ATCS

Sl. No.	TOT Partners
1	M/s. Keltron, Trivandrum
2	M/s. Envoys Electronics Pvt Ltd, Gurgoan
3	M/s. DIMTS Limited, New Delhi
4	M/s. Onnyx Electronysis Pvt Ltd, New Delhi
5	M/s. Shakti Enterprises, Jaipur
6	M/s. Metro Infrasys Pvt Ltd, New Delhi
7	M/s.Electroads, Indore
8	M/S.BEL, Bengaluru
9	M/s. Microtrans Infratech Limited, Noida
10	M/s ARS Traffic and Transport Technology (India) Pvt Ltd
11	M/s ITS Planners & Engineers Pvt Ltd, Hyderabad
12	M/s IBI Group
13	M/s L&T

Technology Partners

Thermal Camera

1. M/s. Prama India Pvt. Ltd., Mumbai
2. M/s. Samriddhi Automations Pvt. Ltd., Noida
3. M/s. RRP S4E Innovation Ltd. (Prop.), Mumbai
4. M/s. Scita Solutions, Bangalore
5. M/s. Tak Technologies Pvt. Ltd., Noida
6. M/s. Vehant Technologies Pvt. Ltd., Noida
7. M/s. Norden Research & Innovation Centre Pvt. Ltd., Kochi
8. M/s. Aabmatica Technologies Pvt. Ltd., New Delhi
9. M/s. Aditya Infotech Limited, New Delhi

Industrial Vision Sensor - iViS 10GigE

1. M/s. Spookfish Innovations Pvt. Ltd., Bangalore

Reseller Partners

Decision Support Tools for Public Transit Agencies FlexiFleet, PTRGS and OSHR

1. M/s. IBI Group India Pvt. Ltd., Gurgaon
2. M/s. Unidad Techno Labs Pvt. Ltd., Kerala
3. M/s. UL Technology Solutions Pvt. Ltd., Kerala
4. M/s. Atulya Abhinav Tech Pvt. Ltd., Odisha

Thank You

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