SUWON AP FORUM

2025 수원 ITS 아태총회

ITS가 제시하는 초연결 도시

ITS DEVELOPMENT IN MALAYSIA

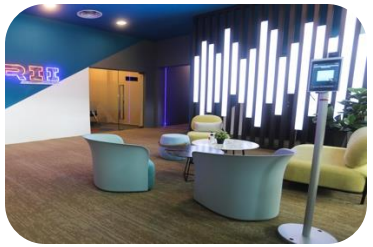
MOHD SHARULNIZAM BIN SARIP
DEPUTY PRESIDENT
ITS MALAYSIA

BACKGROUND

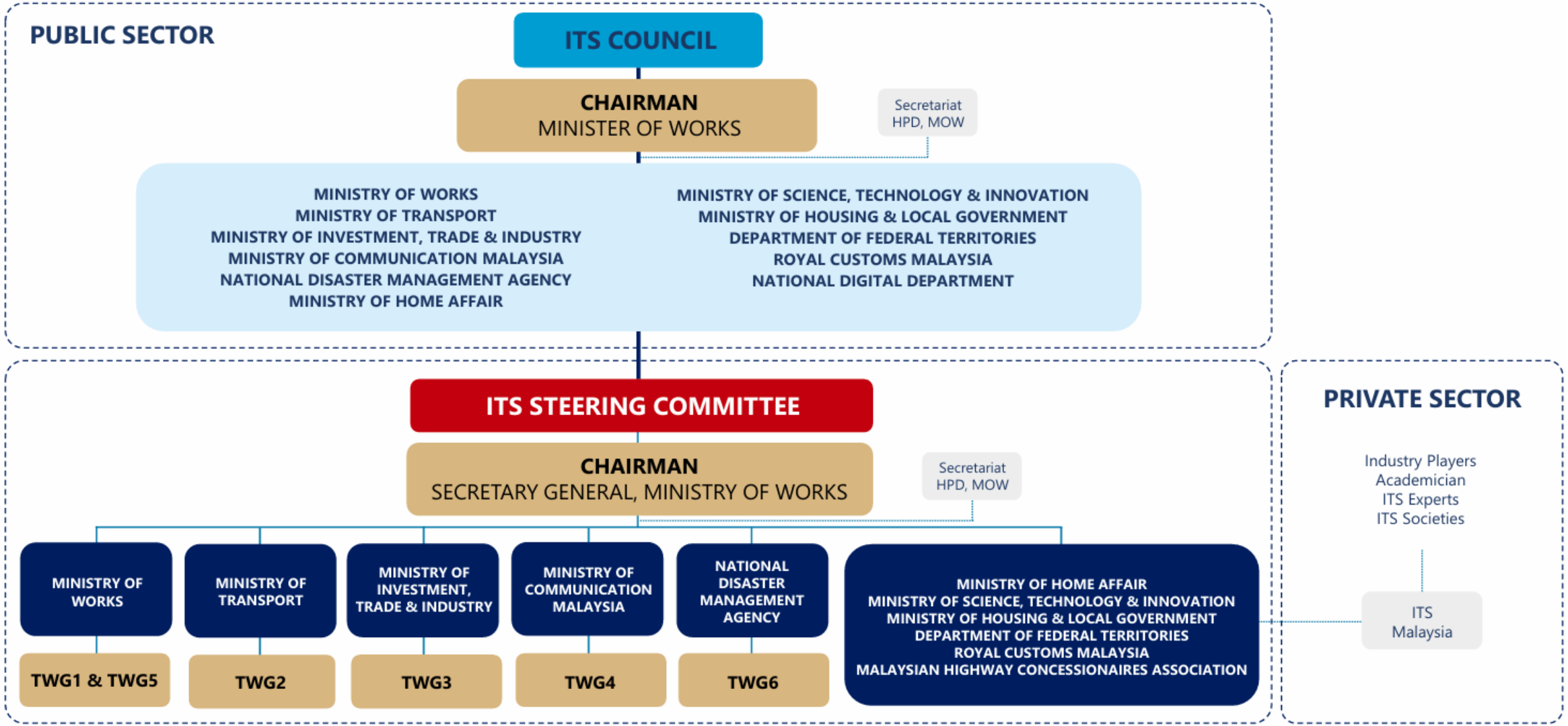
An agency under the Ministry of International Trade and Industry, Malaysia (MITI) to lead the development of the Malaysian automotive sector and the overall mobility ecosystem through the adoption of Robotics and IoT

As a non-government organization established since 2005, ITS Malaysia aims to provide the platform for information exchange among ITS members and fraternity, assist and provide inputs to the public sector, development of standards, related to ITS industries. Also, ITSM aims to facilitate Malaysian ITS industry through liaisons, collaborations, and cooperation with foreign government agency on ITS related associations. ITSM also focuses on fostering multi-disciplinary partnerships among public and private sectors for the research, development, demonstration, deployment and integration of ITS technologies.

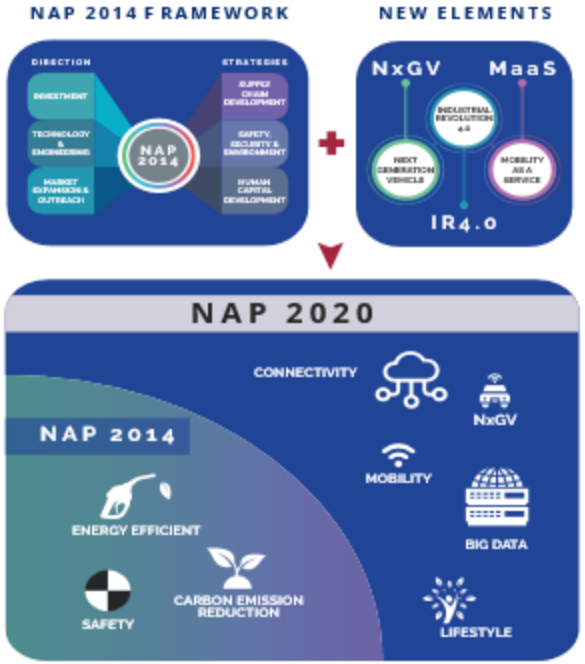




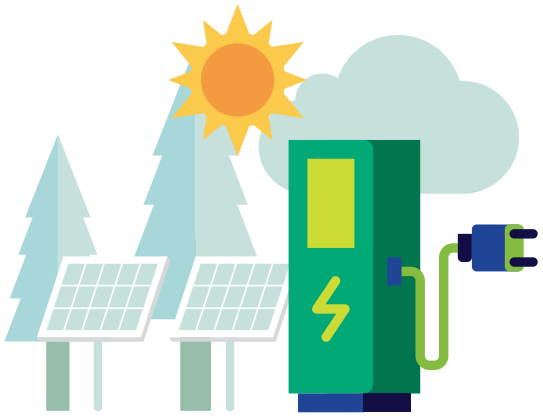

ITS GOVERNANCE STRUCTURE IN MALAYSIA

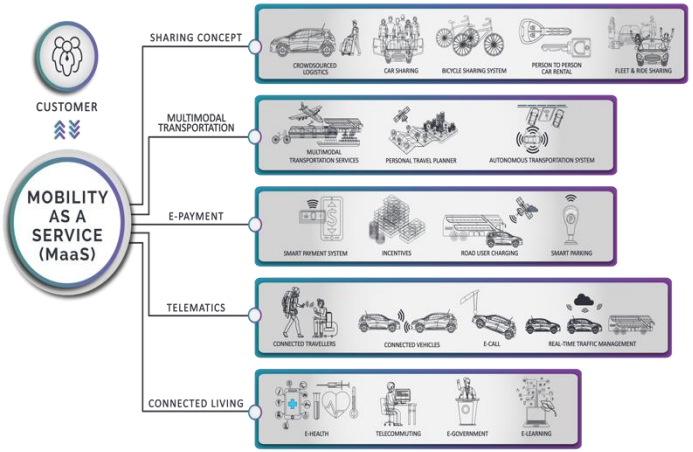


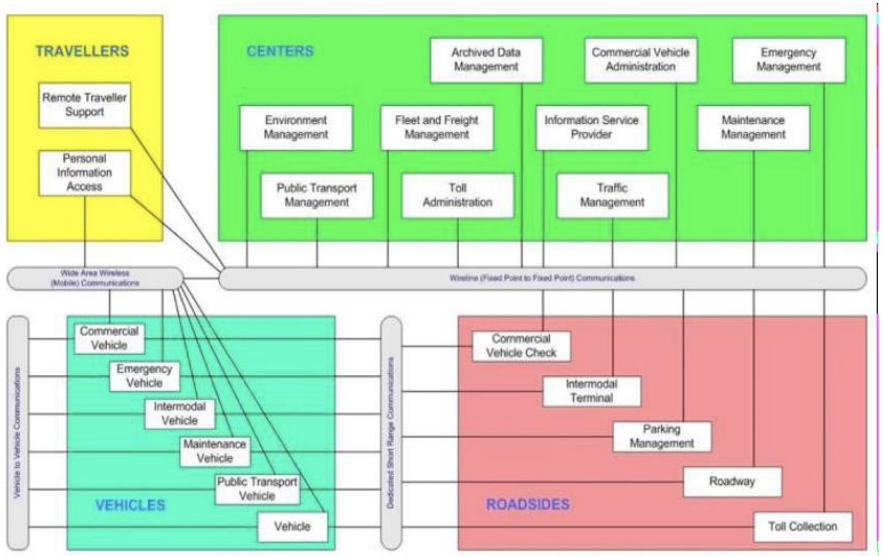
POLICY IN MALAYSIA

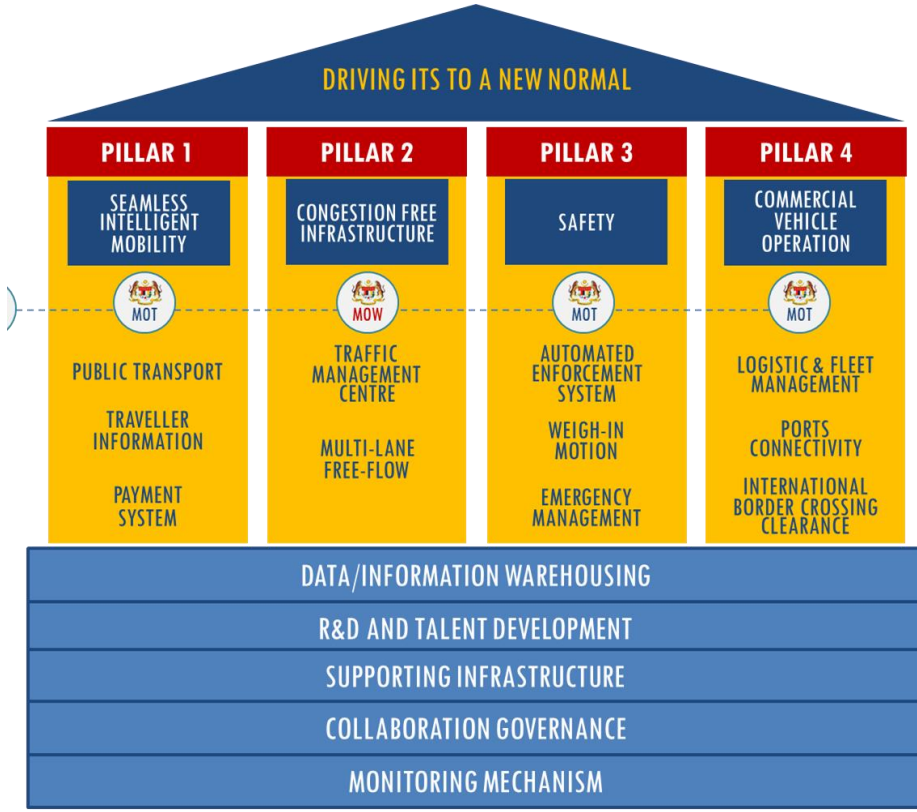


NAP 2020 & ITS BLUEPRINT MALAYSIA

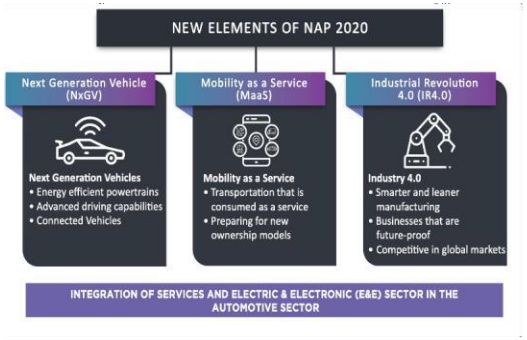


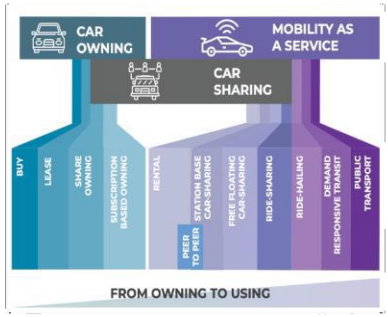


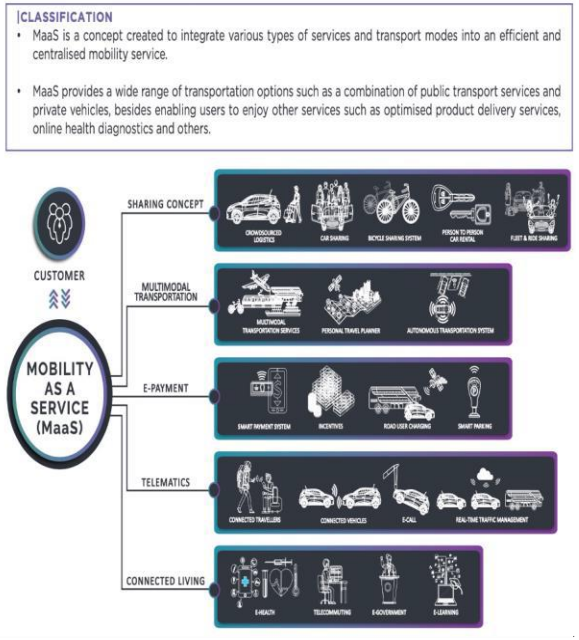


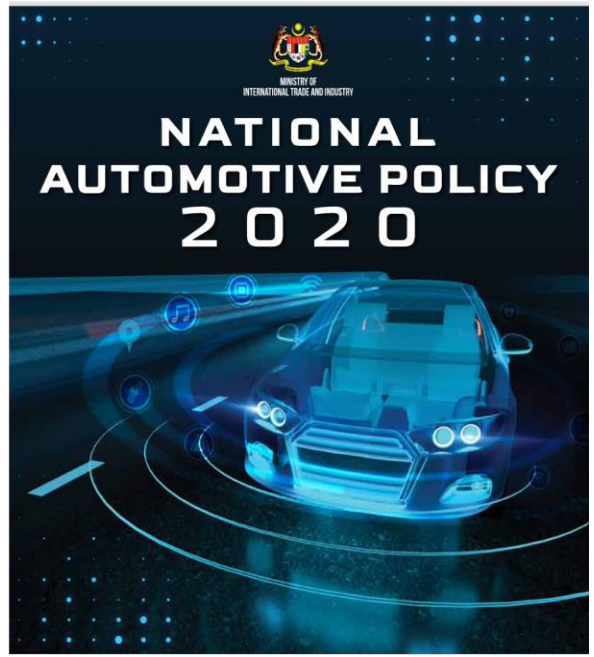


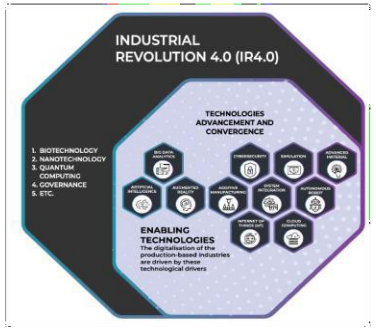
MALAYSIA VISION

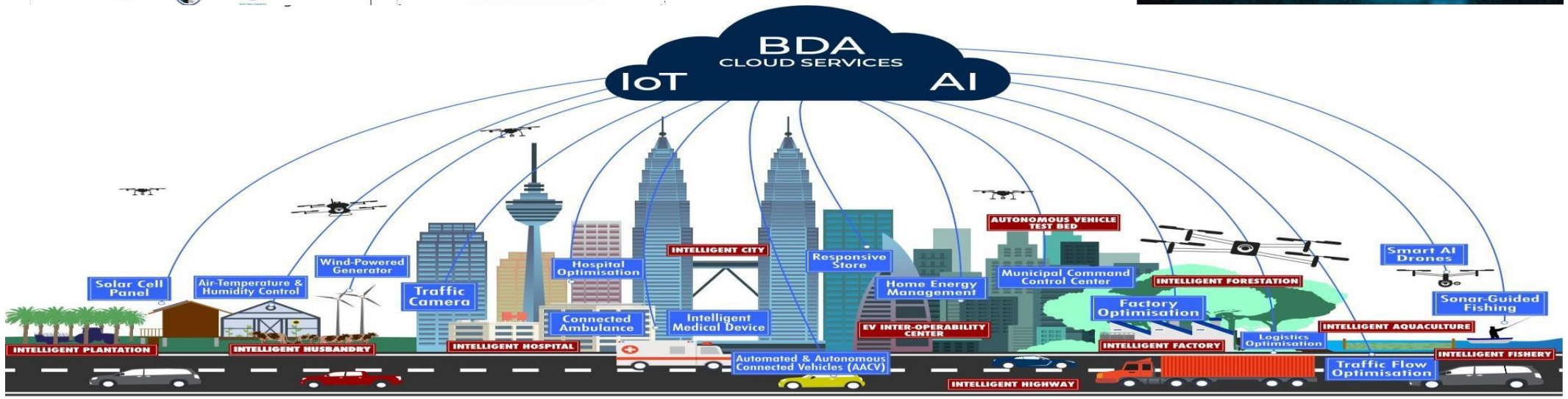












ITS CURRENT PROGRESS (COMPLETED INITIATIVES)

The use of electronic collection systems involves payment-based services such as tolls, parking, etc.

Driverless vehicle technology that reduces human intervention in driving.

Developing national standards to ensure safety and efficiency on its roads. These standards will be based on international standards (especially those from ISO) but will also be adapted to fit Malaysia's specific needs.

Guidelines/ modules for the implementation of Disaster Risk Management Initiatives for Intelligent Transport Systems (ITS)

Policy review to:

- Enable data sharing.
- Support the ITS Connectivity Masterplan.
- Implement appropriate standards.

2024 ACTIVITIES

November

12th Malaysian Road Conference & Exhibition 2024.
5th International Road Federation Global ASIA-PACIFIC Regional Congress.

October

Workshop on development of the Action Framework Smart Transport System 2023.

SUWON ITS Workshop 2024.

September

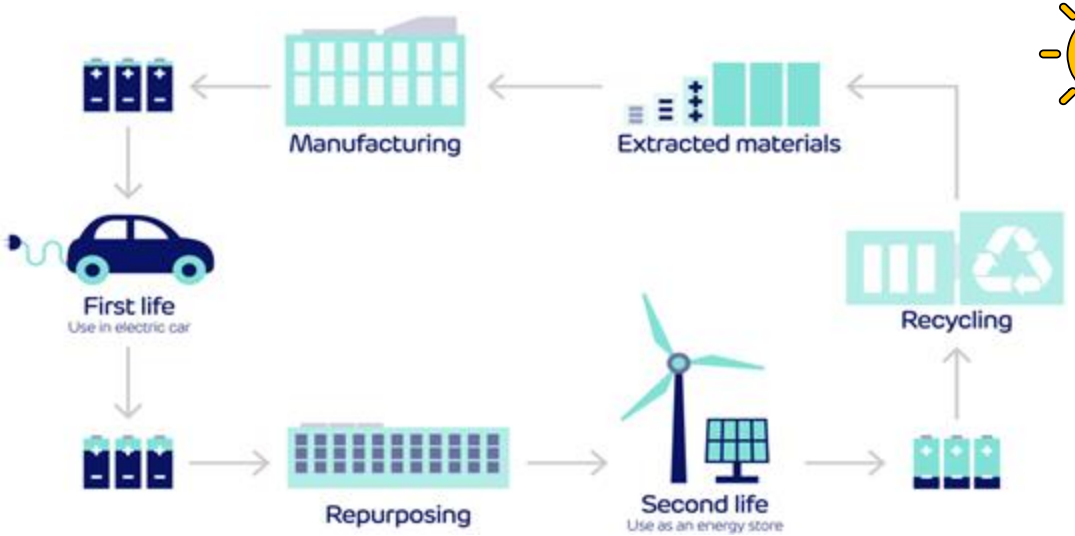
30th ITS World Congress in Dubai, UAE.

March

Development of the Malaysian ITS Roadmap 2030 document.

23rd Meeting of the Standing Comm. For Economic and Commercial Cooperation Transport & Communications Working Group

CURRENT DEVELOPMENT



Source: https://energy.drax.com/insights/lifecycle-of-electric-vehicle-battery/

The Battery Passport is like a **digital birth certificate** for an EV battery, providing a comprehensive record of its entire lifecycle. It's a centralized, secure database containing essential information about the battery, from its origins and composition to its performance history and its recycling or second-life use.

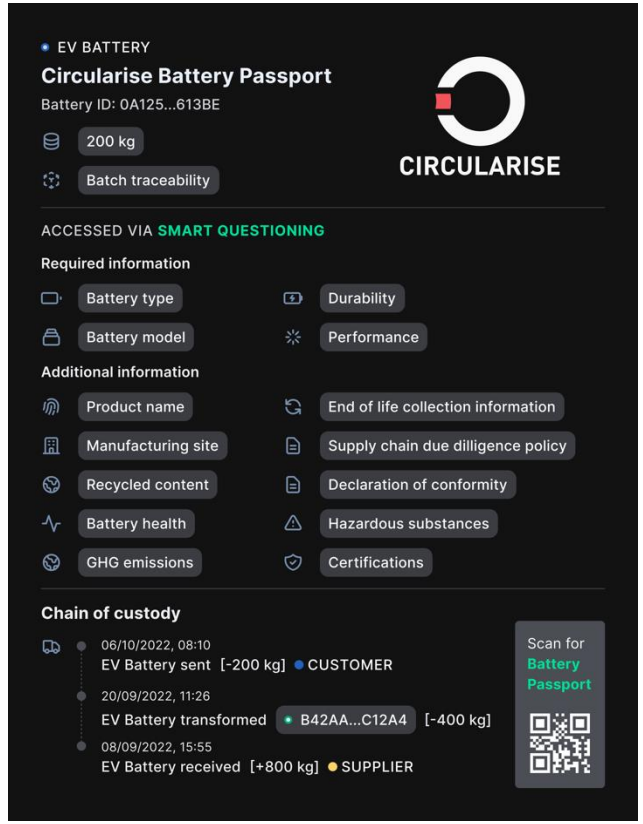
Exploring the Potential of Battery Passports:

Increased Transparency: Creates a **trusted and verifiable record** of the battery's history, promoting responsible sourcing and ethical practices.

Improved Sustainability: **Facilitates reuse, recycling, and responsible end-of-life management**, contributing to a circular economy.

Greater Trust and Confidence: **Empowers consumers** with knowledge about battery health and history, fostering confidence in the EV market.

Streamlined Processes: **Simplifies** information sharing and collaboration across the battery lifecycle, improving efficiency for all stakeholders.



Example of a battery passport powered by Circularise

CURRENT DEVELOPMENT

4 Government institutions

Data Input
Data Output

1 LCA Platform

- Prescribing rules/framing rules
- Auditing Data
- Ensuring data integrity
- Benchmarking (transparency level)

Data Input
Data Output

5 NGOs

Battery identification: Unique identifier, model, type, chemistry, capacity, voltage.

Performance and safety: State of health, safety data sheet, compliance with standards.

Manufacturer information: Name, contact details, country of origin.

Supply chain information: Origin of raw materials, manufacturing processes, due diligence information.

Environmental footprint: Carbon footprint, recycled content, recyclability.

End-of-life information: Instructions for collection and recycling.

End of Life

2 Data transfer value chain

Data Input
Data Output

Data Transfer

Data Output

3 Auditors

Training of Auditors

6 General public

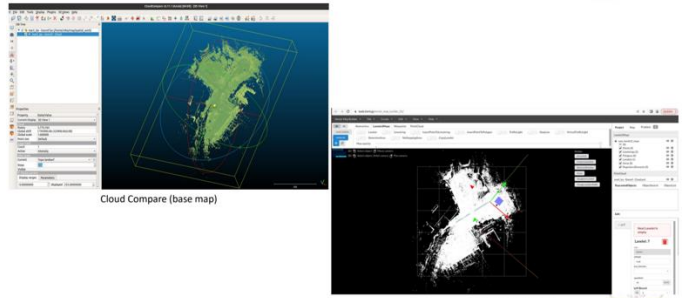
Consumer battery app

Miners | Refiners | Active material producers | Cell producers | Module producers | Battery producers | Automotive OEMs | Collection / Remanufacturers | Recover / Recyclers

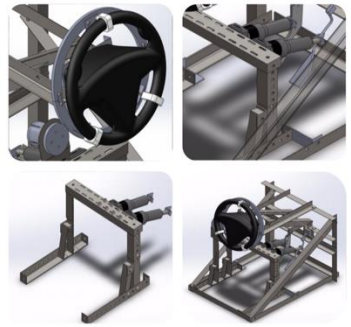
9

CURRENT DEVELOPMENT

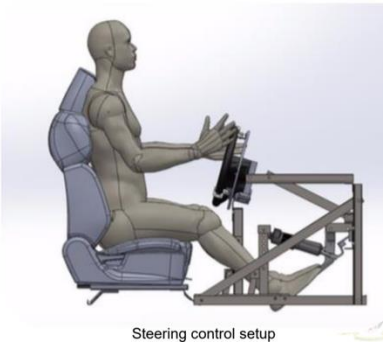
Hardware and System Setup



Software Development (Mapping)

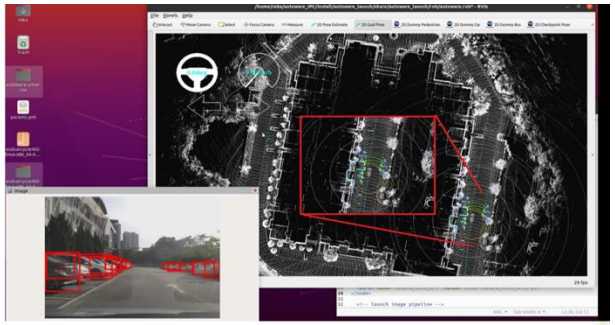


Steering control mechanism assembly (simulation)



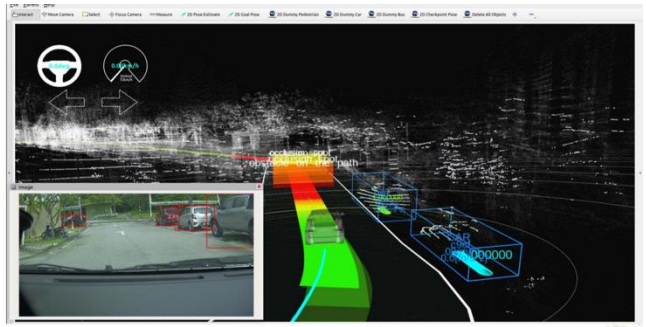
Steering control setup

Steering Control Development



Vehicle localization

Software Development (Vehicle Localisation)

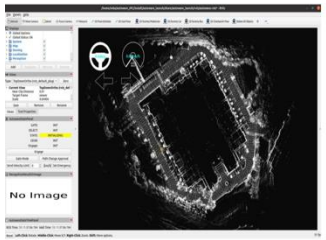


Software Development (Sensor Fusion)

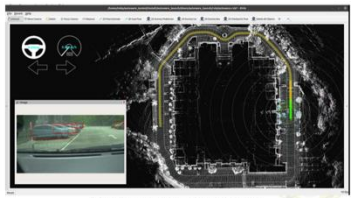
Developed by:

PERODUA

MARii
INSTITUT AUTOMOTIF ROBOTIK DAN IoT MALAYSIA
MALAYSIA AUTOMOTIVE ROBOTICS AND IoT INSTITUTE

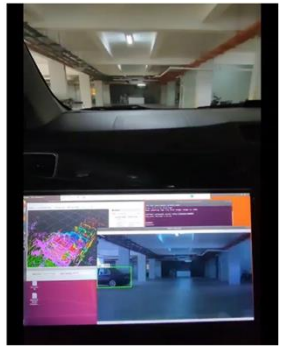


Visualisation: Initial point path planning



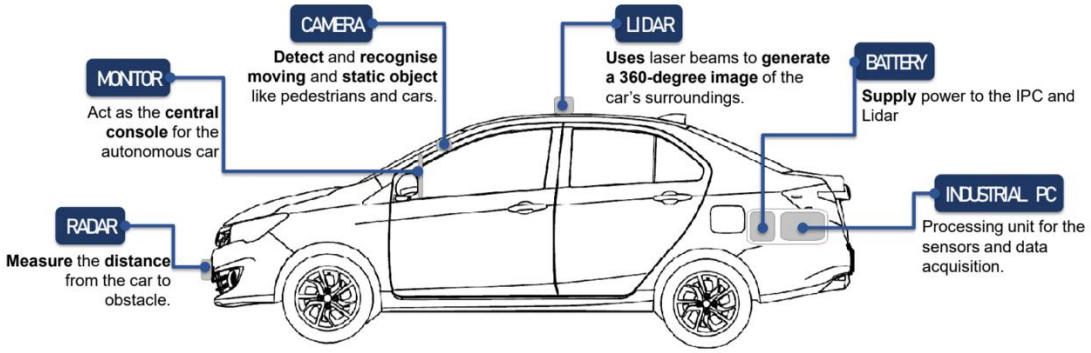
Visualisation: On-the-Go path planning

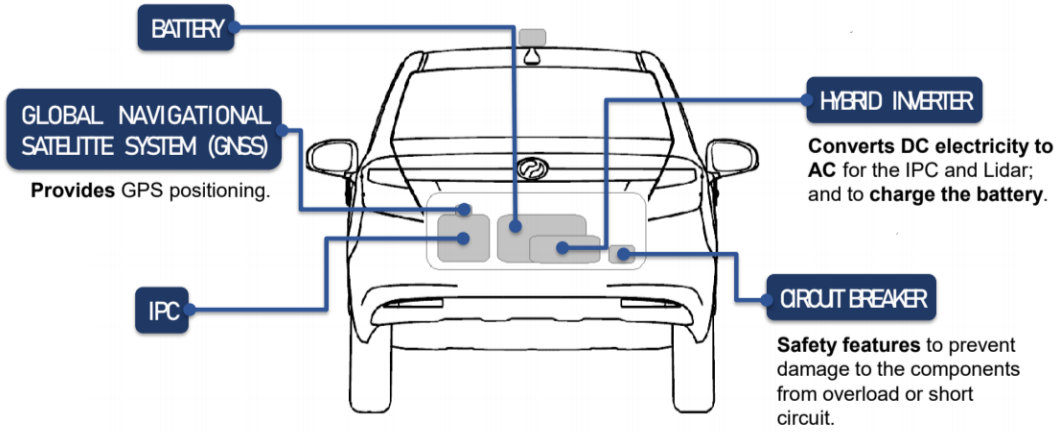
Software Development (Path Planning)



Testing & Data Collection

CURRENT DEVELOPMENT

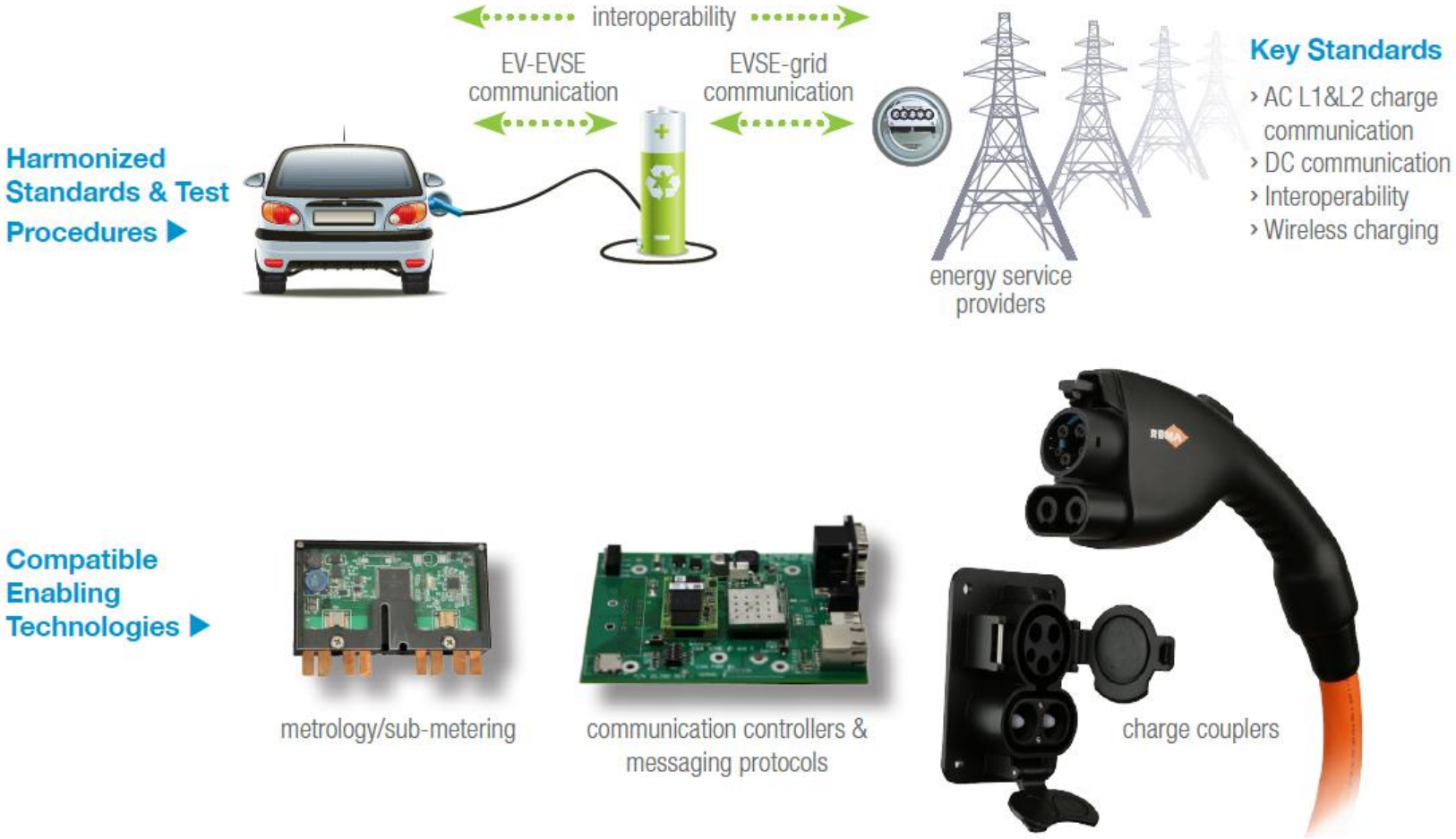




LIDAR	Velodyne, LSLIDAR	DC/AC Inverter	MPP Solar
Vision System	Leopard, BLAUPUNKT	Simulation PC	ILLEGEAR
RADAR	CONTINENTAL	OBD GPS Tracker	Sinocastel
Industrial PC	NEOUSYS TECHNOLOGY	Steering Control Robot	ELM·LAB
GNS Receiver and IMU	XSENS	Energy Storage / BMS	felicity
PCO Express Board	CSD, KVASER	Robot Operating System (ROS)	ROS
Roof Rack	THULE SWEDEN	3D Point Cloud and Mesh Processing	CloudCompare
Autonomous Application	Baidu, TIER IV	Vector Map Builder	TIER IV

CURRENT DEVELOPMENT

- Interoperability will provide standardized devices that



Charging Systems: Studying and validating AC, DC and wireless electric vehicle supply equipment (EVSE) to ensure any EV can plug into any EVSE safety and reliably.

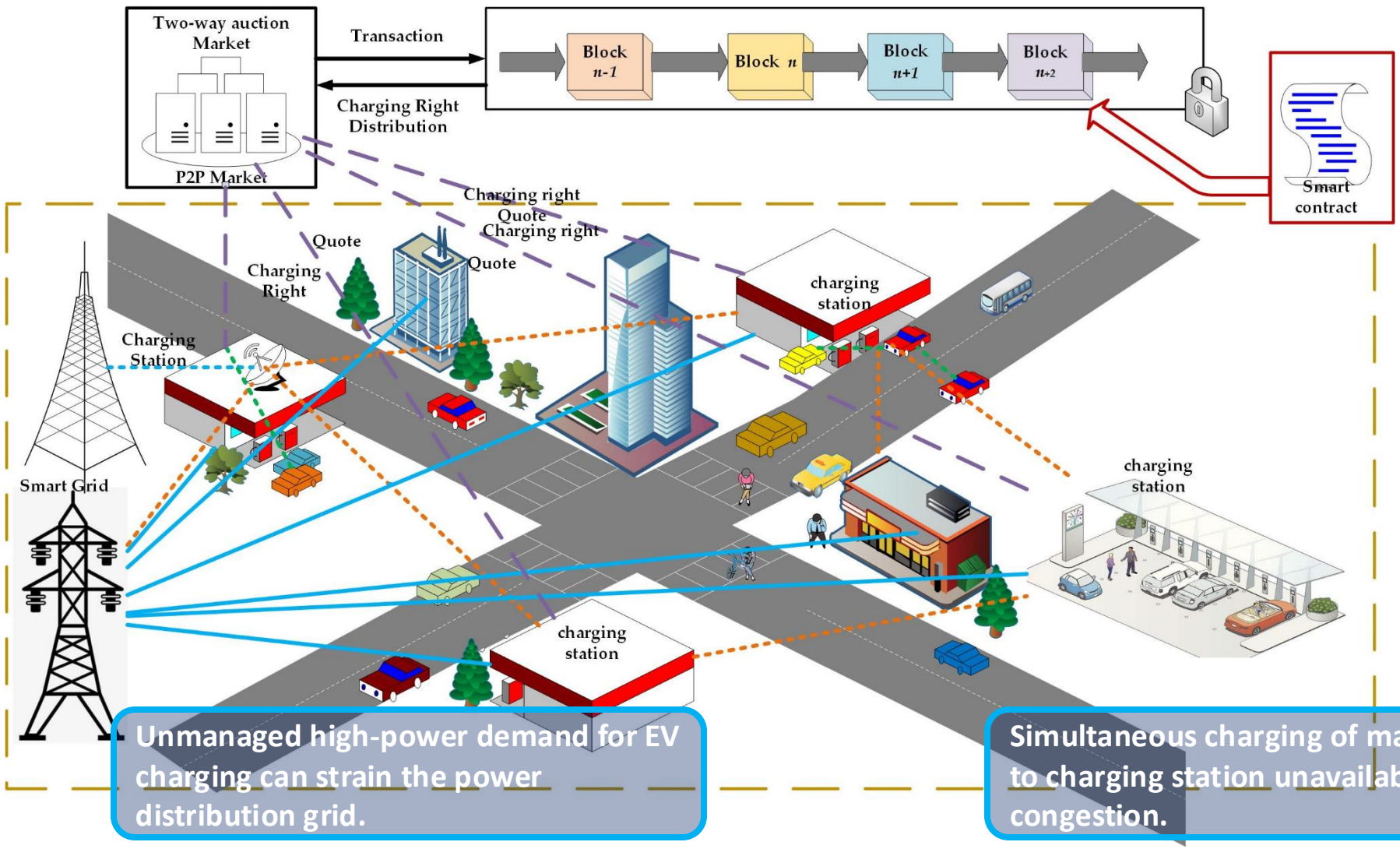
Communications Technology: Developing and verifying software, embedded systems and messaging protocols to support standard connectivity and communication between the EV, EVSE and energy service (grid) interface.

Networks: Examining infrastructure-related systems to help develop a robust and reliable vehicle-to-grid network.

Vehicle and Component Testing: Two- and four-wheel drive dynamometers; thermal and multi-fuel capability; PEV and HEV test procedure development; and component hardware-in-the-loop testing at the Advanced Powertrain Research Facility.

CURRENT DEVELOPMENT

- Blockchain-Enabled EV Charging Stations



The increase in electric vehicle (EV) development poses challenges to the power distribution grid.

Inadequate management of high-power demand for EV charging can lead to charging station unavailability and grid congestion.

The proposed system utilizes a blockchain platform for billing, payment, and clearing functions.

Smart Contracts (SC) are deployed on the blockchain to manage billing and payment, as well as trigger smart charging of individual charging points (CPs).

Unmanaged high-power demand for EV charging can strain the power distribution grid.

Simultaneous charging of many EVs can lead to charging station unavailability and grid congestion.

CURRENT DEVELOPMENT

- Sync between codes & standards, creating a Smart Energy Profile.

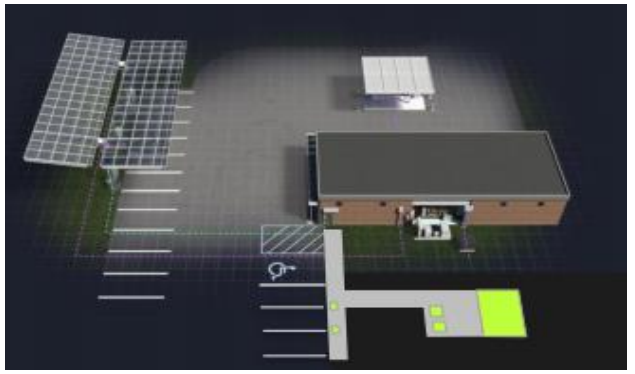
Codes and Standards: Helping to develop and refine EV standards to enable smart, convenient and safe interaction with the electric grid; e.g., ISO/IEC 15118, SAE J1772 (conductive charge coupler), SAE J2954 (wireless charging) and SAE J2953 (interoperability).

Compact Metrology System: Development of proof-of-concept device to measure and communicate charge energy.

Smart Energy Profile: Developing a gateway to bridge the existing messaging infrastructure used by utilities (SEP 1.1) to SEP 2.0, including the adaption of off-the-shelf hardware for use in field trials to encourage commercial development.

Wireless Charging: Developing the test requirements, protocols and a standard test fixture for wireless charging systems.

Electric Vehicle Communication Controller (EVCC) and Supply Equipment Communication Controller (SECC): Creating test methods to evaluate power line communication (PLC) technologies that enable messaging between EVs and EVSE as well as EVSE to the grid.



- WAY FORWARD

- Accelerating EV Adoption in ASEAN through ITS

Collaborative Action:

- ❖ Establish an ASEAN ITS working group focused on EV integration.
- ❖ Develop a regional roadmap for ITS implementation to support EV adoption.
- ❖ Share best practices and lessons learned among ASEAN member states.
- ❖ Foster public-private partnerships to drive innovation and investment.

Policy and Standards:

- ❖ Develop ITS standards and protocols for interoperability.
- ❖ Develop policies on EV adoption and ITS deployment.
- ❖ Address cybersecurity and data privacy concerns related to ITS.

Capacity Building:

- ❖ Conduct training programs and workshops for policymakers and technicians.
- ❖ Facilitate knowledge transfer from Global ITS experts.
- ❖ Support research and development in ITS technologies for EVs.

Driven with Innovation,
Fueled by Impact

MALAYSIA AUTOMOTIVE ROBOTICS AND IoT INSTITUTE
An agency under the Ministry of Investment, Trade & Industry (MITI)

Thank you

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