RAPIDISE®

QUALITY DELIVERED

Turn-key Product Engineering &
Electronics Manufacturing

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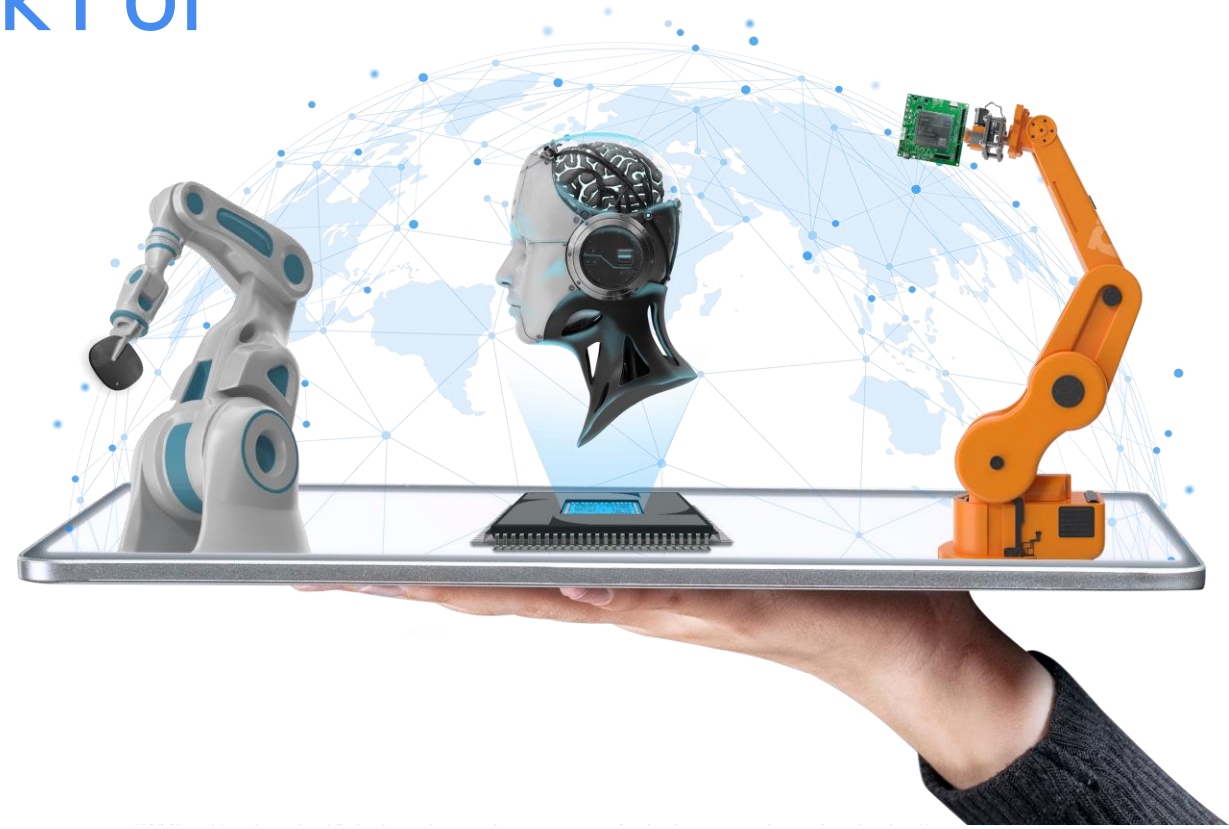
Rapidise Capabilities Deck For

eSolutions
Free2move



rapidise.co

About Us:

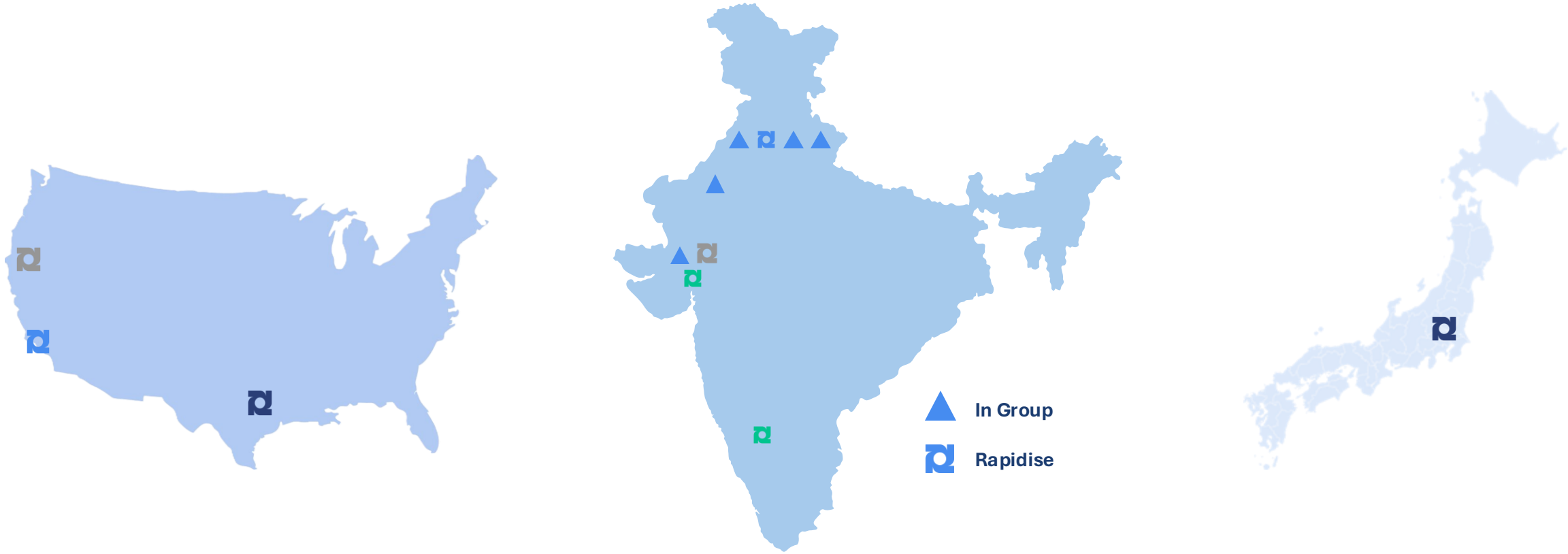
We are **transforming the ODM landscape** by seamlessly connecting design and manufacturing with our cutting-edge on-demand platform

Our USP

- 25+ yrs of Manufacturing Services Delivery
- 12+ Yrs of Design Services Delivery
- Owned Manufacturing & Assembly Line
- Electronics, Mechanical, IoT, AI & Cloud Development
- Ready Products for White-labelling

Manufacturing & Engineering Team	300+	SMT & PCBA Facilities	2
Successful Product Deliveries	135+	Full Product Assembly & Testing Lines	6
Satisfied Customers	100+	R&D, Development & Product Testing Centers	3

Global Footprint:



1 Manufacturing Facility
1 Sales Offices
1 USA HQ

3 R & D Centers
9 Manufacturing Facilities
1 India HQ

1 Sales Office

Hardware Development Life Cycle

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Sample A

Prototype / Pre-production Samples)

Key Deliverable

- Architecture Documentation & Blueprints
- Sample A -Prototype

Key Results:

- Design Version 1.0
- Architecture with Test Cases & Acceptance Criteria
- Component Selection & Bill Of Materials(BOM)
- PCB Schematic, Layout & Gerber Files
- Mechanical Design CAD Files

Sample B

Engineering Sample / Pre-Production Sample)

Key Deliverable

- Engineering Sample, DFM Prototype
- Sample B – Prototype with Multiple Units Testing

Key Results:

- Design Version 2.0
  -Corner Cases
  -Ensuring Operational Safety on Board Level
- DFM/ DFA
- Verify compliance with safety standards and regulations.
- Multiple Units Testing – Functional Testing at Hardware Level

Sample C

Production Validation Sample)

Key Deliverable

- Sample C –Prototype

Key Results:

- Reliability Test, EMI/EMC
- Temperature Endurance Testing
- Evaluate Manufacturing Process & Tooling
- HALT / HAST Tests
- Automated Testing Zig

Sample D

Production Samples

Key Deliverable

- Production – Documentation release

Key Results:

- Design Version 4.0 :
  - Field Testing
  - Performance Improvement
- Final Design For Manufacturing (DFM) Changes
- Final Manufacturable Design Files Injection Molded Enclosure

Manufacturing / Production Level

Key Deliverable

- Fully Commercialized Product (2000 Units)

Key Results:

- Product Manufacturing & Assembly
- Component Supply Chain Management
- Packaging & Shipping
- Ongoing QA/QC Testing

Services

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Product Engineering Service

- Embedded Hardware
- Embedded Software
- AI Development
- Information Technology (Web, Cloud Engineering, Mobility)
- Mechanical Design
- New Product Introduction

- IP - Accelerators
  - SOM
  - SBC
  - SDK
  - Telep AI Models

Electronics Manufacturing Service

- Supply Chain Setup & Procurement
- PCB Fabrication
- PCBA (SMT, DIP, TH)
- Cables & Wire Harness
- Mold Manufacturing
- Enclosure Manufacturing
- Automated & Manual Product Testing
- Product Assembly
- Packaging & Logistics

ODM Marketplace

- Ready Products
  - Beacons
  - Data Loggers
  - BLE Tags
  - Edge AI Box
  - Dash Camera
  - LTE Camera
  - Body Camera

- Strategic Revenue Driver towards ODM / OEM

Services – Engineering :

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Embedded Hardware

- Hardware Architecture
- BoM Optimization
- Electrical Schematic Design
- Multilayer PCB Layout Design
- High-Speed Board Design
- Analog & RF Design
- Certification & DFM
- Image, Audio, Antenna Tuning

AI Development

- Computer Vision
- Edge Computing & AI
- Algorithm Development
- Recommendation Engine
- Natural Language Processing
- ADAS & DMS
- Healthcare AI
- Predictive Maintenance

Mechanical Design

- New ID concept generation
- Product Design & Development
- Reverse Engineering & Concept designing
- Simulation and Analysis
- IP Standards Validation
- 3D Engineering

Embedded Software

- Bare Metal, RTOS, Linux, AOSP
- BSP, Device Driver and Firmware
- Linux Kernel Customization
- HAL, I2C, SPI, PCIe, WiFi, Cellular, Sensors
- Multimedia Codec & Framework
- FOTA - Firmware Over the Air
- User Interface Software

Information Technology

- Web & Mobile App Development
- API Development and integration
- IoT Dataflow Architecture
- Data Visualization
- Managed DevOps Services
- Cloud Engineering - AWS, Azure, GCP
- Robotic Process Automation
- Metaverse, AR/VR App

New Product Introduction

- Certifications
- DFM Analysis
- Supply Chain Management
- Automated Test Jigs
- Feature Enhancing and Re-engineering
- BOM Optimization
- Performance Optimization

Services & Capabilities – Manufactuing :

Manufacturing Services

- Electronic Design Validation
- PCB Assembly (SMD, DIP, TH)
- Supply Chain & Sourcing
- Mold & Enclosure Manufacturing
- Prototyping
- Box Build & Full Product Assembly
- QA/QC & Testing
- Packaging
- Green Manufacturing

Manufacturing Capabilities

- Manufacturing & Engineering Team of 500+
- 10 Electronics Manufacturing & PCBA Facilities
- 18 SMT & 22 Full Product Assembly Lines
- 6 R&D and Final Product Testing Centers
- SMT Area Rated Class 100,000 Clean Room
- Camera Module Assembly Area Rated Class 100,000 Clean Room
- Solder Paste Printer
- In line Solder Paste Inspection (Make: Kohyoung)
- Nitrogen and Lead-free Compatible Soldering
- Wave Soldering
- Solective Soldering (Make: ERSA)
- Pin INsertion Machine (Make: TE P350)
- Inspection- 3D Automatic Optical (Make: Omron)
- Inspection- In-line X Ray Machine (Viscom (Germany) and Shimadzu (Japan))
- PCB Cleaning (Make: Unitech)
  - Electromagnetic Testing (EMI & EMC), ESD (Electrostatic) Control workstation
  - Thermal, Humidity, Insulation Testing, Endurance & Ageing Testing
  - Climatic Chambers (Hot, Cold and Humid)
- Component mounting machine Capability:
  - Min : 0402mm/ 03015 inch
  - Max : 102*102*T 25.4 mm
  - Accuracy : 30 Micron

Services - Product Reliability Test Lab :

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EMI Testing

- Electro Magnetic Interference
- ESD checker system
- ESD Simulator
- Semi Anechoic Chambers:
- EMI Test Receivers:
- RF Power Amplifiers:
- Pre-Amplifiers
- Antennas
- Directional Couplers
- BCI Probes

IP Rating

- Air Showers
- Bench Top Environmental Chamber
- Temperature & Humidity Test
- Salt Spray Chamber
- Dust Chamber
- Water Spray
- Thermal Shock
- Vibration Test
- Transient Voltage
- Laboratory Oven

RF Tuning

- Spectrum Analyzers
- Vector network Analyzers
- Signal Generators
- RF and Microwave Switches

EPC Testing

- 100x Microscope
- Profile Tuning Suite
- ESD protected production floors
- Electro-Static Discharge
- Dark Room for camera lens calibration
- Resistance Meter
- Power Analyzer
- Thermal Imager
- Function Generator
- Insulation Test
- Electronic Lead Test
- LCR Meter
- Highly Accelerated Stress Test
- Switch Endurance
- Oscilloscope
- ACG Rig Test Bench (Vehicle Simulation)
- Digital Call Box and Analog Call Box

Vehicle Testing

- Vehicle Cold Chamber
- Chassis Dynamometer

Water Spray Chamber

Salt spray & Thermal Shock

Accelerated Stress Test

Hot / Cold Environment Chambe

MID Motor Performance Test Rig

Sensor Functional Tester

Performance Measurement

EMI-EMC

Products

Camera (Tejas)

Camera

LTE Edge AI LTE Camera 12 TOPS

WiFi Edge AI LTE Camera 48 TOPS

LTE Edge AI LTE Camera 8 TOPS

WiFi Camera

Video Doorbell

Dashcam

LTE Dashcam

WiFi Dashcam

Edge AI Dashcam

Edge AI Bodycam 8TOPS

LTE Bodycam

5G Bodycam

WiFi Bodycam

Trackers (Tekt)

Beacon

Lite N1

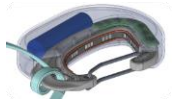
Pro N4

Safety

Tejas Safety Lite

Tejas Safety Pro

Smart Helmet



Smart Hook

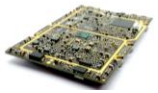
Gateway / HMI (RISE)

AI Box 12 Tops

AI Box 8 Tops

8 TOPS HMI

SBC 6125

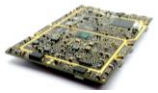


SOM 6490

SOM 5430

LTE Gateway 2 TOPS

Career Board for 6490/5430



SOM 8550

Career Board For 8550

Products: IOT & Industrial Application

IOT and Connected Devices

Smart Tag

Environmental Tracker

Personal Tracker

Asset Tracker

Security Devices

Router

Edge Gateway

Office Devices

ADAS Camera

Telematics

Automotive Devices

Smart headband

Fitness tracker

Smart Watch

Health Devices

Surveillance Camera

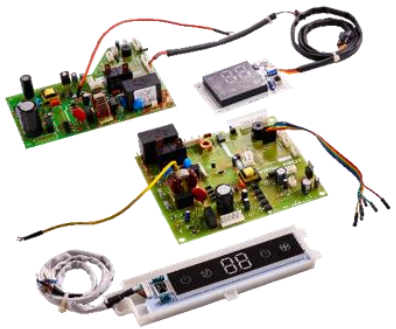
Smart Wi-Fi Plug

Smart BLE Lock

Home Devices

Industrial Application Controller / Controllers for Fans & Air Conditioners

Brushless DC Fan Controller


Internal Display Unit PCB

Internal Display Units (IDU)

Outdoor Unit PCB Assembly

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Deliveries Across Industries Served :

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Automotive

ADAS Camera

DMS Camera

Infotainment System

Vehicle Tracker

Location Tracker

Telematics

Instrument Cluster

Battery Management System

ECU

Consumer Electronics

Smart Watch

Personal Tracker

Smart Headphone

Smart Speaker

Smart Wi-Fi Plug

Smart Mailbox

Laptop

Mobile

Smart Farming Device

Smart Grain Monitoring

Security & Surveillance

VMS System

Tejas Safety

Surveillance Camera

Smart BLE Lock

Smart Access Control System

LoWRA Gateway

Wi-Fi Door Bell

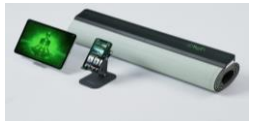
Healthcare & Fitness

Fitness tracker

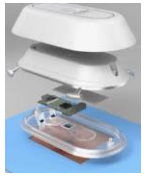
Smart headband

Smart Skin Care

Smart Trainer


Smart Yoga Mat

Smart Lap Counter


Smart Wound Care

Value Proposition For Free2Move

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Value Proposition For Free2Move

RAPIDISE

- **EV Data Logger**
- **VSaaS Platform**
- **Edge AI Box**
- **HMI Expertise**

EV Data Logger Product

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Product Image

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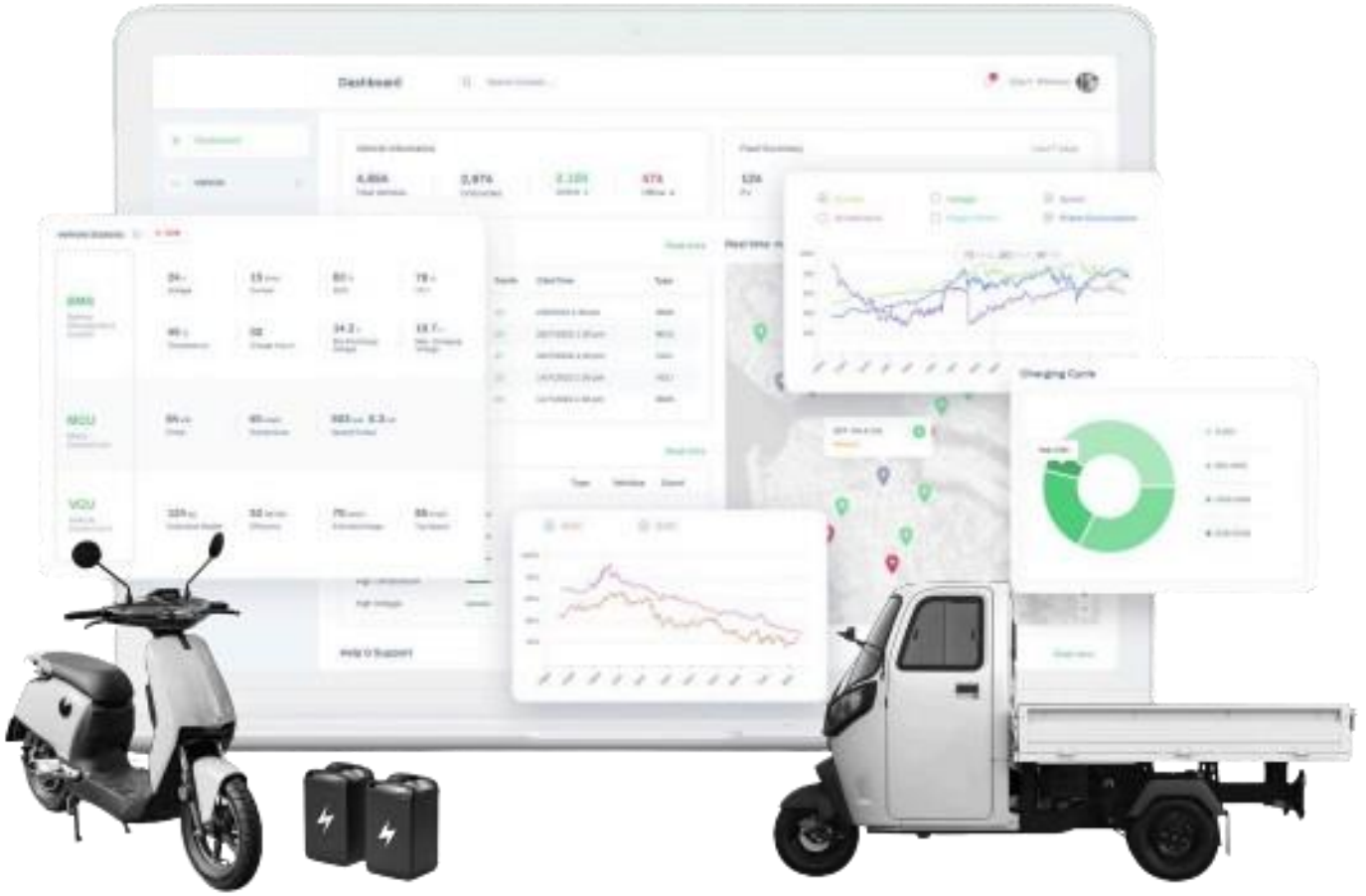


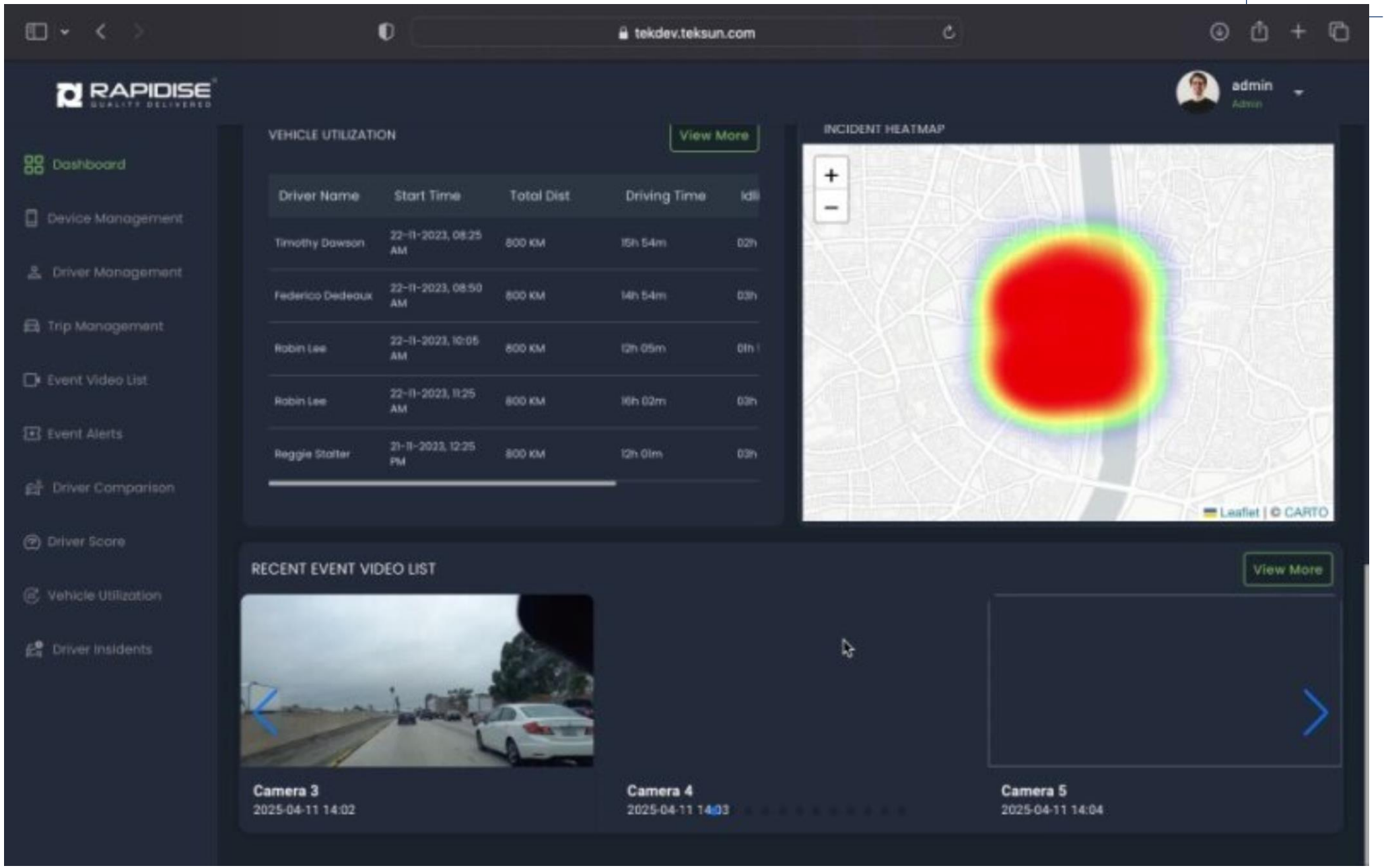
Technical Specifications – EV Data Logger

Module	
Product	Sarathi 1 Version 3.0
Technology	GSM/GPRS/GNSS/CAN 2.0
Color	Black
CAN Speed	50, 100, 125, 200, 250, 333, 500, 625, 833, 1000
GNSS	
GNSS	GPS, GLONASS, IRNSS, BEIDOU, QZSS, BDS
Receiver	33 Channel
Autonomous Acquisition	-148 dbM
Position Velocity	< 1.8 m CEP
Velocity Accuracy	< 0.03 m/sec
Communication Protocol	
CAN	CAN 2.0 A and CAN 2.0 B
External Memory	
External Memory Size	8 MB
Cellular	
SIM	Micro SIM
Technology Band	GSM/GPRS : 2G/4G
Data Transfer	GPRS
Data Support	SMS
Antenna	GSM (FPC)

Features	
GNSS	GPS, GLONASS, IRNSS, BEIDOU, QZSS, BDS
Sensors	6 – Axis IMU (Accelerometer & Gyroscope)
Sleep Mode	Online Deep Sleep, Deep Sleep
Diagnostics and FOTA	FOTA Supported
GPIO	4 DI/DO, 1 AI/AO
LED Indication	3 LEDs
Other Features	Offline Data Storage Internal GPS Battery Backup
Power	
Input Voltage Range	6 – 90VAC with Reverse Voltage Protection
Physical Specifications	
Dimensions	110mm x 40mm x 15.5mm
Operating Environment	-35°C to +75°C

VSaaS Platform

VSaaS Platform



RSP1 - Rapidise ADAS & DMS Analytics Platform

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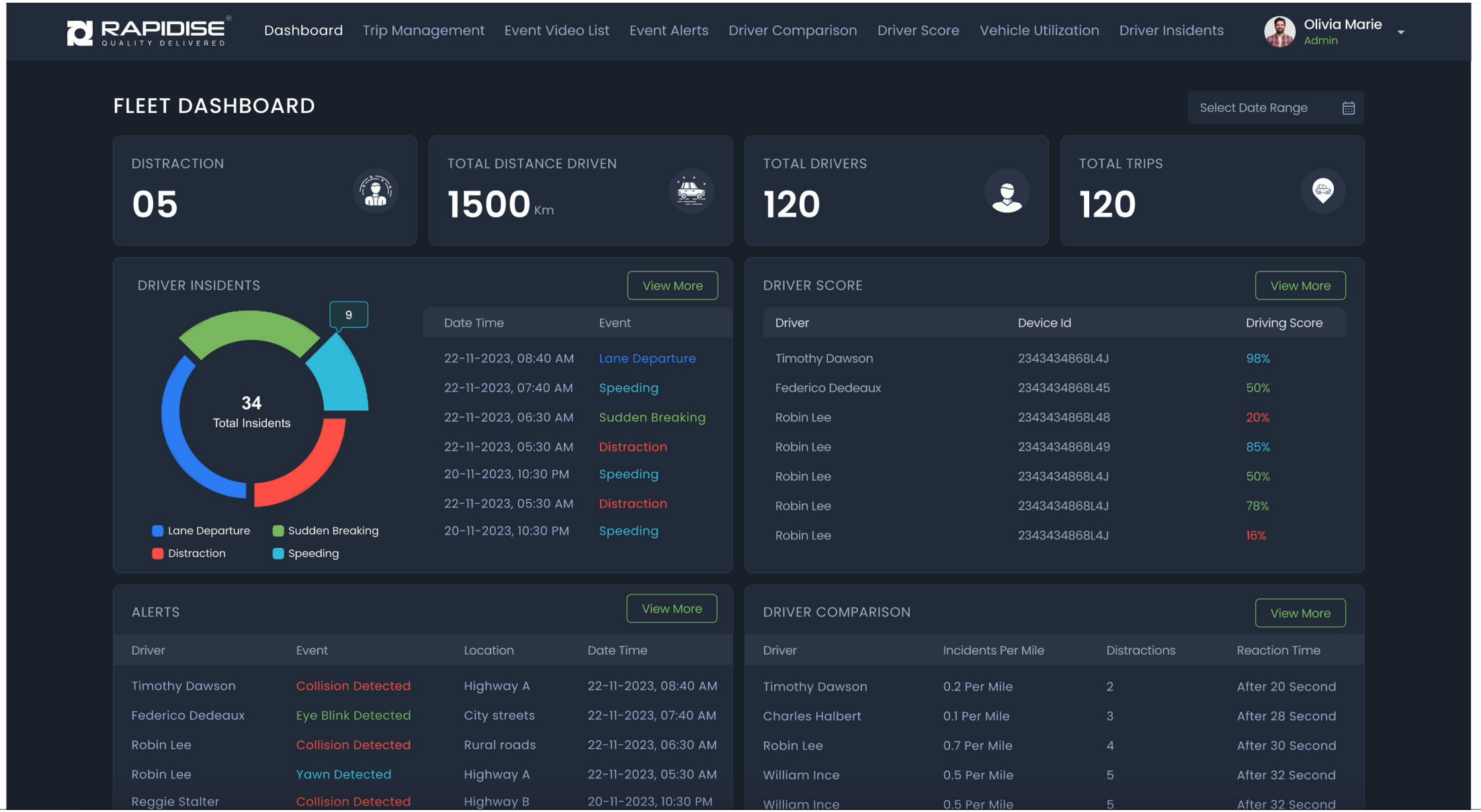
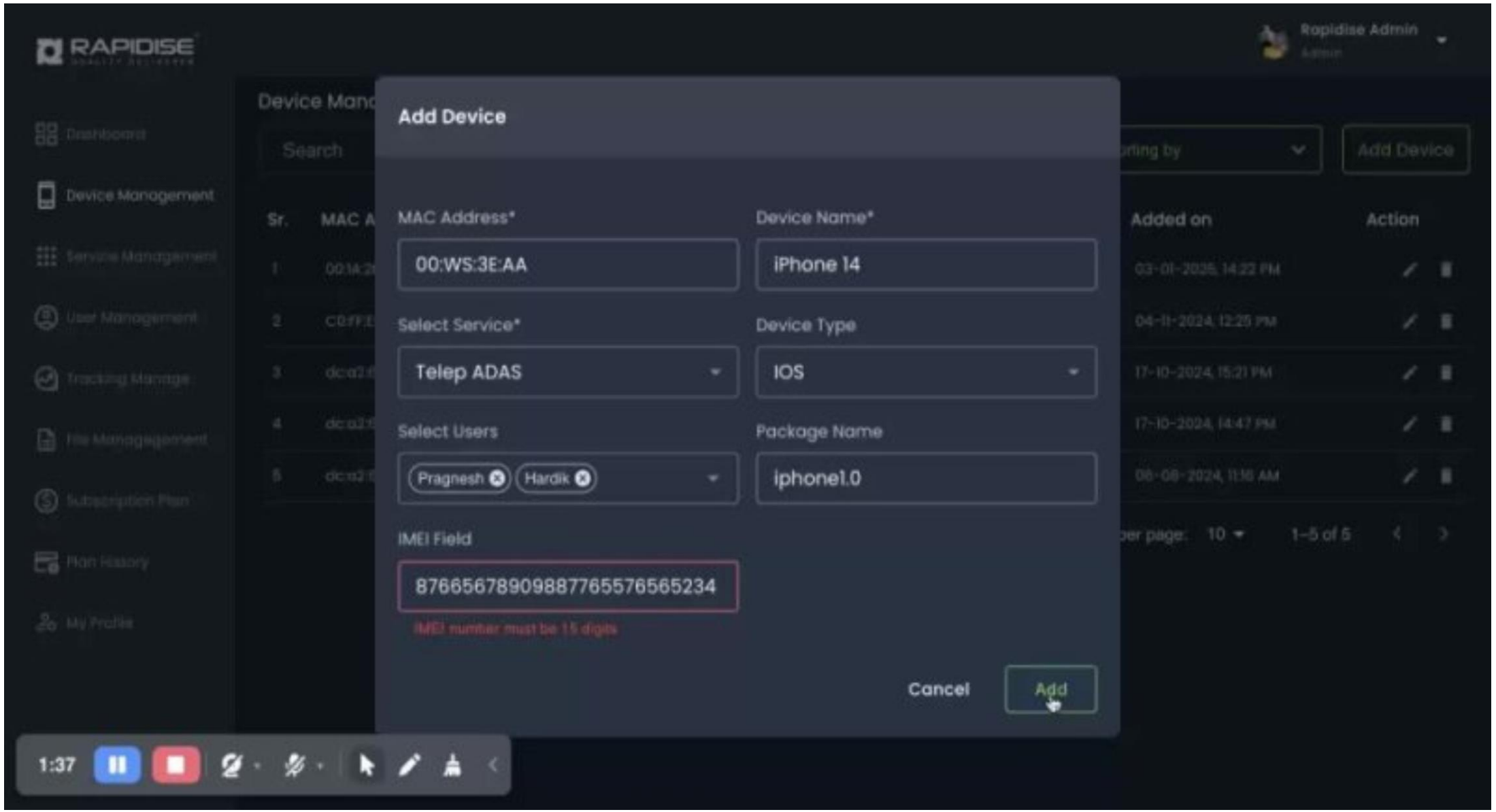
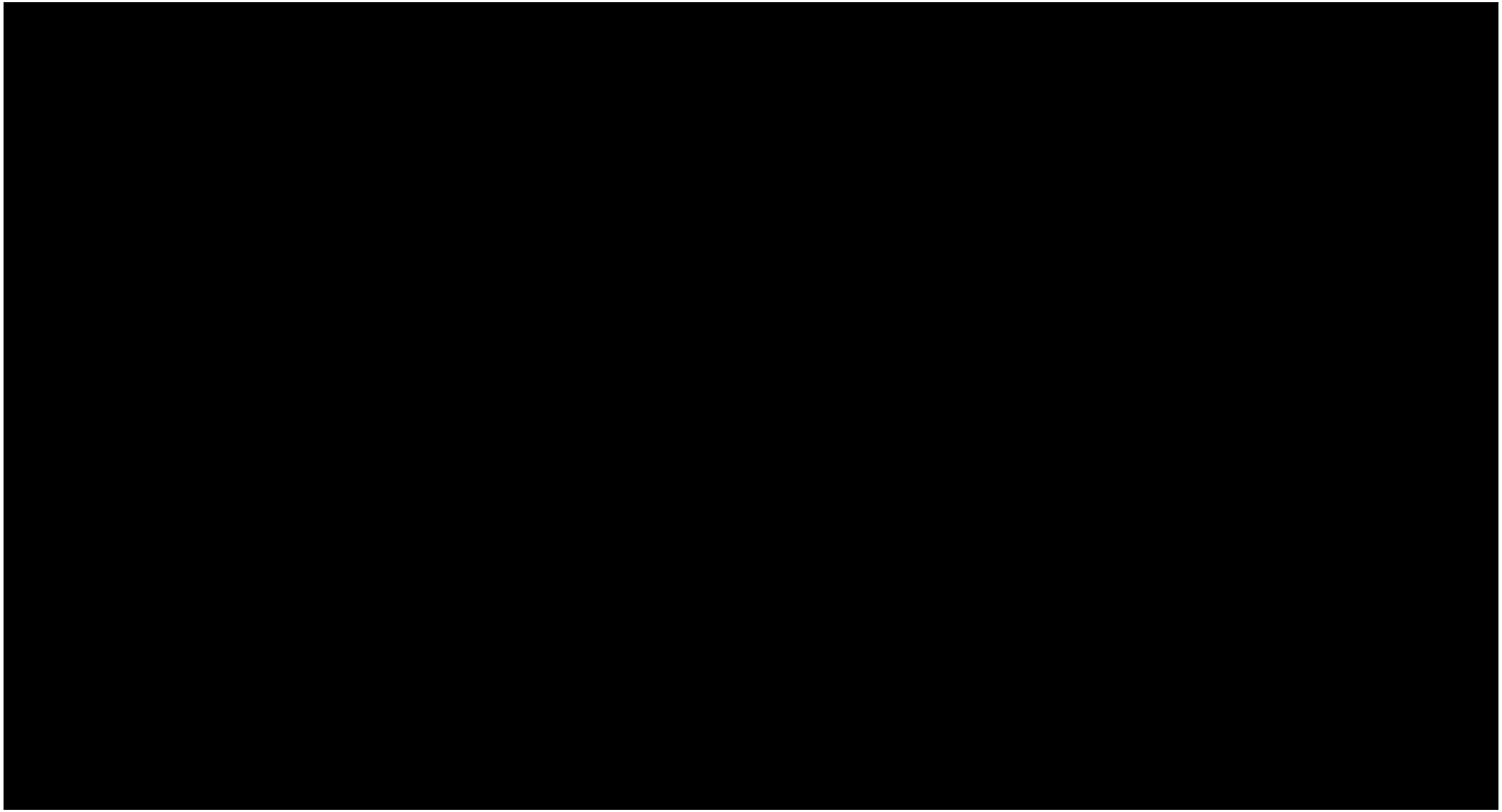


RSP2 - Rapidise Device Management & FOTA Platform



RSP3 - Rapidise Edge AI Processing Platform



Rapidise ODM Products and Roadmap

Private & Confidential

RISE Series Smart IoT Module Roadmap

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Q4

EDGE COMPUTING
SMART CAMERA
AUTONOMOUS VEHICLES
AUTONOMOUS MOBILE ROBOTS (AMR)
VIDEO CONFERENCE
CLOUD GAMING

CPU 8 Core
DSP 4 Core
NPU 48 Tops
GPU 719 MHz
ISP Tripple (108MP)

Drones Real-time Object Tracking
Military Low Light Camera Vision
Defense Environment Monitoring

Q3

EDGE COMPUTING
AUTOMOTIVE
INDUSTRIAL ROBOT
DIGITAL SIGNAGE
RUGGED TABLET/HANDHELD DEVICE
HEALTH CARE
SMART WEARHOUSING

CPU 8 Core
DSP 2 Core
NPU 12 Tops
GPU 812 MHz
ISP Tripple (58MP)

Automotive Pedestrian Detection, Multi-Class Vehicle Detection
Smart Infra Real-time Incident Detection, Over Speed Detection
Healthcare SPO2, Heart Rate, Blood Pressure, Bilirubin

EDGE COMPUTING
RETAIL
AGRITECH
SECUIRITY SURVELLIANCE

CPU 8 Core
DSP 2 Core
NPU 8 Tops
GPU 550 MHz
ISP Tripple (58MP)

Surveillance Face Recognition, Gun Detection, Tailgating
Automotive Lane Departure, Blind Spot, Seat Belt
Agritech Crop Health, Soil Analysis

Q2

INDUSTRIAL AUTOMATION
SMART CITY
HELATHCARE
ROBOTICS

CPU 8 Core
DSP 2 Core
NPU 5 Tops
GPU 315 MHz
ISP Dual (44MP)

Industrial IoT PPE Compliance, Product Assembly QC
Smart City Signal-Light Violation Alerts, Light Traffic Analytics, ANPR
Healthcare Fall Detection, Patient Monitoring

AUTOMOTIVE
RETAIL
HEALTH CARE
ROBOTICS

CPU 6 Core
DSP 2 Core
NPU 3.5 TOPS
GPU 315 MHz
ISP Dual (44MP)

Automotive Driver Drowsiness, Blink Detection, Forward Collision
Retail Smart Shelf Stock Alerts, Heatmap
Healthcare Basic Mask Detection, rPPG HR Estimation

3.5 TOPS **5 TOPS** **8 TOPS** **12 TOPS** **48 TOPS**

RISE C1 Series Module Roadmap

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AUTOMOTIVE
LEGAL & INSURANCE
SAFETY & SECUIRITY
ANALYTICS & AI
FLEET & LOGISTICS

Dashcam
CPU 8 Core
DSP Hexagon™
NPU 1. TOPS
GPU 950 MHz
ISP Dual(16+24)

Automotive Surveillance
Legal Evidence, Verification
AI Analysis, Prediction

Q4

AUTOMOTIVE
ROBOTICS & MACHINERY
PROCESS CONTROL

HMI
CPU 8 Core
DSP Hexagon™
NPU 1.1 TOPS
GPU 950 MHz
ISP Dual(16+24)

Automotive Navigation, Infotainment, Telematics
Robotics & Machinery Command, Calibration, Execution
Process Control Supervision, Feedback, Alarm

HEALTHCARE
TRAFFIC CAM
INDUSTRIAL & FIELD WORK
TRANSPORTATION

Body Camera
CPU 8 Core
DSP Hexagon™
NPU 1.1 TOPS
GPU 950 MHz
ISP Dual(16+24)

Traffic Cam Vehicle tracking, Car Accident Witness, Evidence
Healthcare Monitoring, Protection, Triage
Industrial & Field work Inspection, Auditing, Repair
Transportation Navigation, Validation

Q3

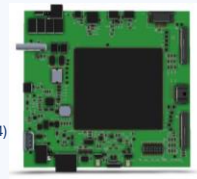
INDUSTRIAL AUTOMATION
SMART CITY
SECURITY
SMART HOTEL

LTE Camera
CPU 8 Core
DSP Hexagon™
NPU 1.1 TOPS
GPU 950 MHz
ISP Dual(16+24)

Industrial IoT PPE Compliance, Product Assembly QC
Smart City Signal-Light Violation Alerts, Light Traffic Analytics, ANPR
Healthcare Fall Detection, Patient Monitoring
Security Theft Alert, Home Surveillance

AUTOMOTIVE
SECUIRITY
ROBOTICS

RISE C1
CPU 8 Core
DSP Hexagon™
NPU 1.1 TOPS
GPU 950 MHz
ISP Dual(16+24)



Automotive Driver Drowsiness, Blink Detection, Forward Collision, Car Accident Witness
Security Home Surveillance, Alarms

Q2

RISE C1 **LTE CAMERA** **BODY CAMERA** **HMI** **DASH CAMERA**

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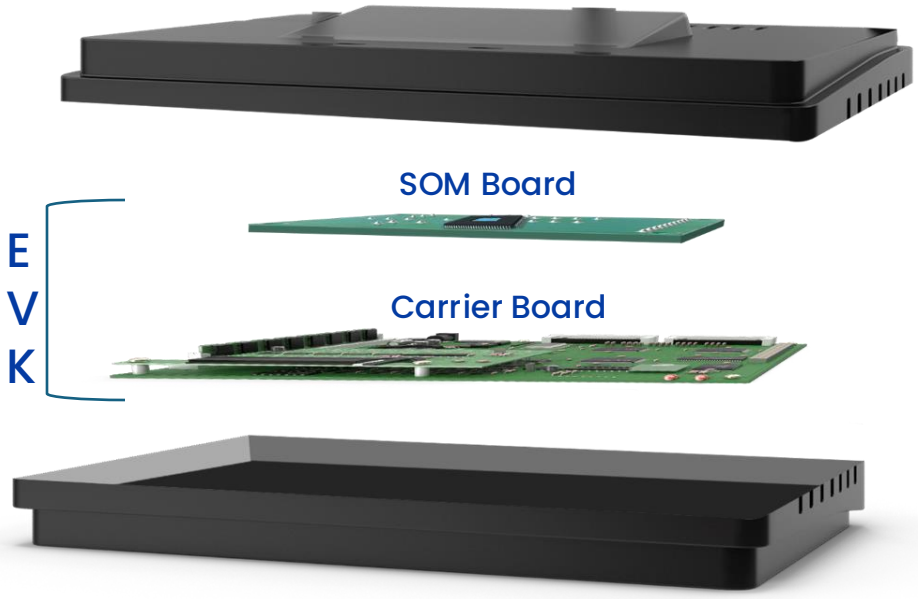
RISE Edge AI Multimedia Box



Edge AI Box

Platform

SOC - Qualcomm QCS6490
CPU - Qualcomm® Kryo™ 670
GPU - Qualcomm® Adreno™ 643L
Video Processor - Adreno VPU 633
System Memory - RAM 8GB
NPU: 12 TOPS
Android OS

Interfaces

USB | Ethernet | COM Port | DI/DO

Display Interfaces

1 x HDMI OUT | 1 x DP V1.4 (Over Type-C)

Audio Interfaces

1 x Speaker OUT | 1 x HDMI IN AND 1 x HDMI OUT with Audio (Over I2S interface)

Camera Interface -

3 x 4-lane D-PHY Camera, 2 x GMSL

Wireless Connectivity

WiFi + BLE - Inbuilt Support for Wi-Fi + BLE
4G - Support M.2 3042 4G/3052 (4G module optional)

Storage

Flash - 128GB eMMC
Expansion - SD Card, M.2 2280 SSD NVMe

Edge AI Box – Target Sectors

Industry 4.0

Product Inspection
Shorting
Predictive Maintenance
Workforce Safety
Energy Management
Productive Measurement

Healthcare

Heart Rate
Blood Oxygen (SPO2)
Physiotherapy
Fall Detection
Worker Stress Monitoring

ADAS/DMS

Collision Detection: Vehicle | Pedestrian
Traffic Sign Detection
Drowsiness
Occupancy
Distraction
Seat Belt

Retail Industry

Head Count
HeatMap
Demographic Analysis
Suspicious Behaviour Identification
Face Recognition

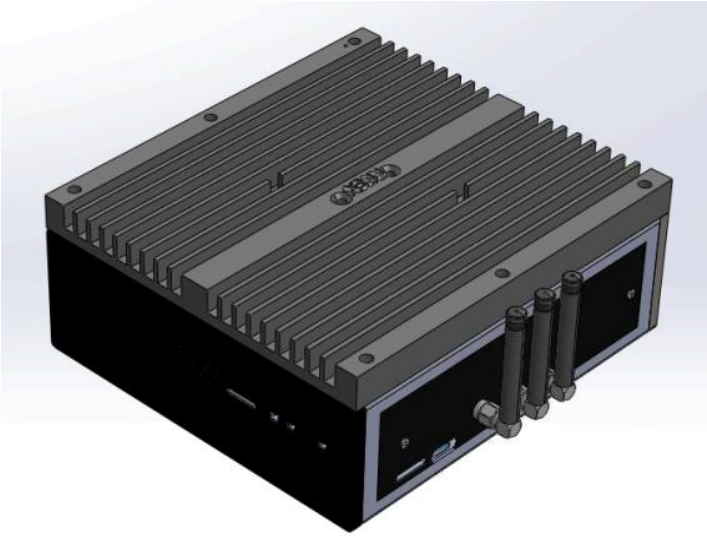
Traffic

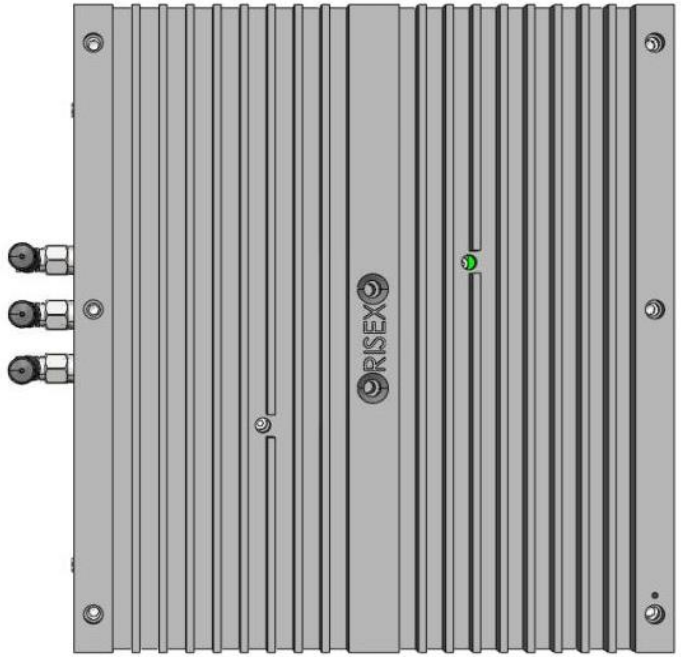
Automatic Number Plate Recognition
Vehicle In Out Monitoring
No Helmet
No Parking

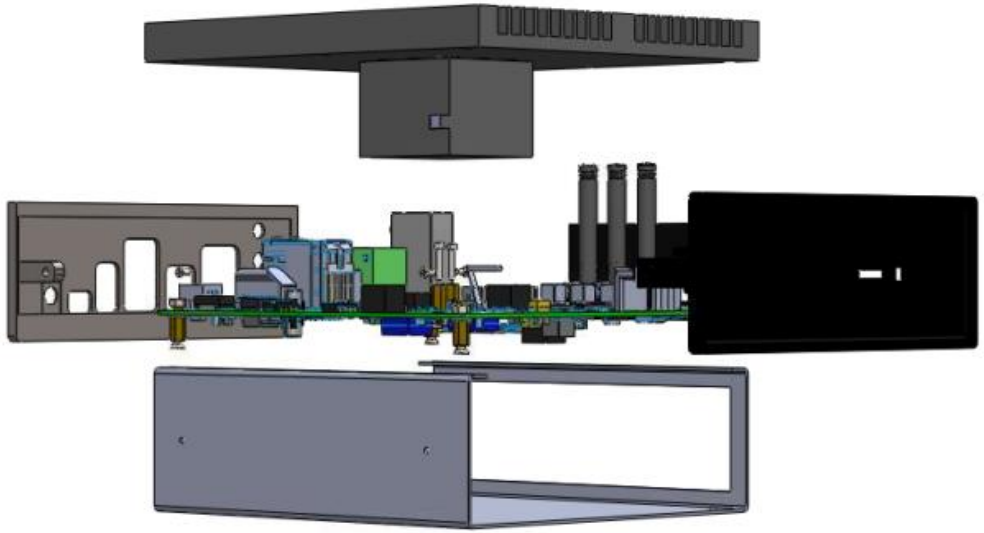
Security & Surveillance

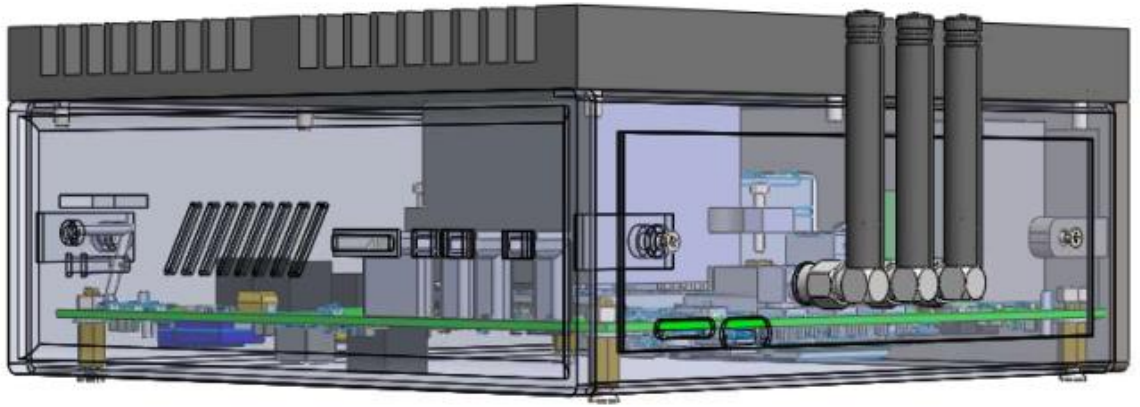
Intrusion Detection
Gun and Gunshot Detection
PPE Kit Detection
Activity Tracking
Fire and Smoke

Edge AI Box – Mechanical Images









HMI Expertise

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Dual Display IVI System for Truck OEM (Design to Production)

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The primary objective of this project is to develop and implement a custom control system for Heavy Duty Trucks, focusing on Human-Machine Interface (HMI) and service layers for both the Head-Unit Cluster and Head-Up Display. The system is designed to operate on Android 10 or greater and aims to enhance vehicle control, monitoring, and data visualization through an intuitive human-controlled interface.

Tech Stack: (CAN Data Acquisition Module)

- OS : Android 10
- Linux Kernel : 5.4
- Language: C
- Android 10
- Quectel’s Android RIL Driver For Radio/Cellular Support
- NXP’s Inbuilt Drivers for CAN, USB, USB hub, Wi-Fi/BLE and Gigabit Ethernet.
- Custom Driver Development for Temperature, Accelerometer, Gyrometer, Magnetometer, Light Sensor.

Tejas Android Infotainment System

Tejas Infotainment is a cutting-edge **IoT-enabled Smart HMI/UI Solution** that offers high-end display interface and seamless connectivity to drive a Premium User Experience. It gets its processing power from **Qualcomm 625** having 16GB eMMC and 2GB LPDDR3 memory and state of art firmware capabilities with **Android 9.0.** Being focused on IoT based Applications, Tejas TM Infotainment Solution carries wireless technology **(LTE, WiFi, BLE)** provisions as well as inbuilt **GPS, Microphone, and Speaker.**

Specifications:

- SOM Board Dimension : 60mm x 60mm x 5mm
- GPU: Adreno 506 with 64-bit addressing
- SOC: Quectel SC600T (Qualcomm 625)
- Charging Type: USB TYPE C. Build-in Charge IC & Fuel Gauge, Qualcomm Quick Charge 3.0 technology
- Temperature Range: -25°F to 167°F
- WiFi: 2.4G/5G, 802.11 a/b/g/n/ac
- BLE: BT2.I+EDR/3.Q/4.I LE/4.2 BLE
- External Storage: 256GB SD Card
- SOM Certification: CE/FCC/UL

Concepts Built By Rapidise

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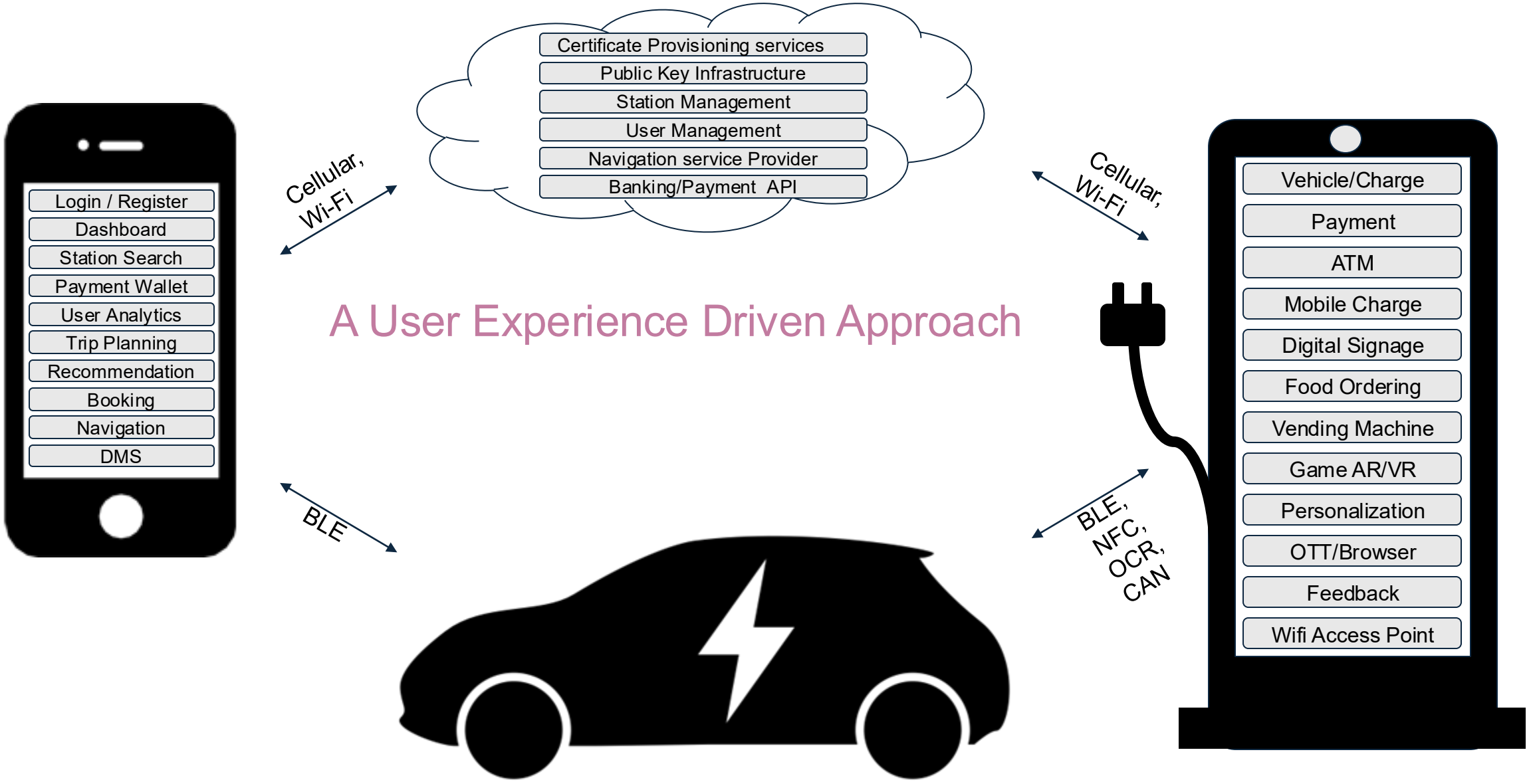
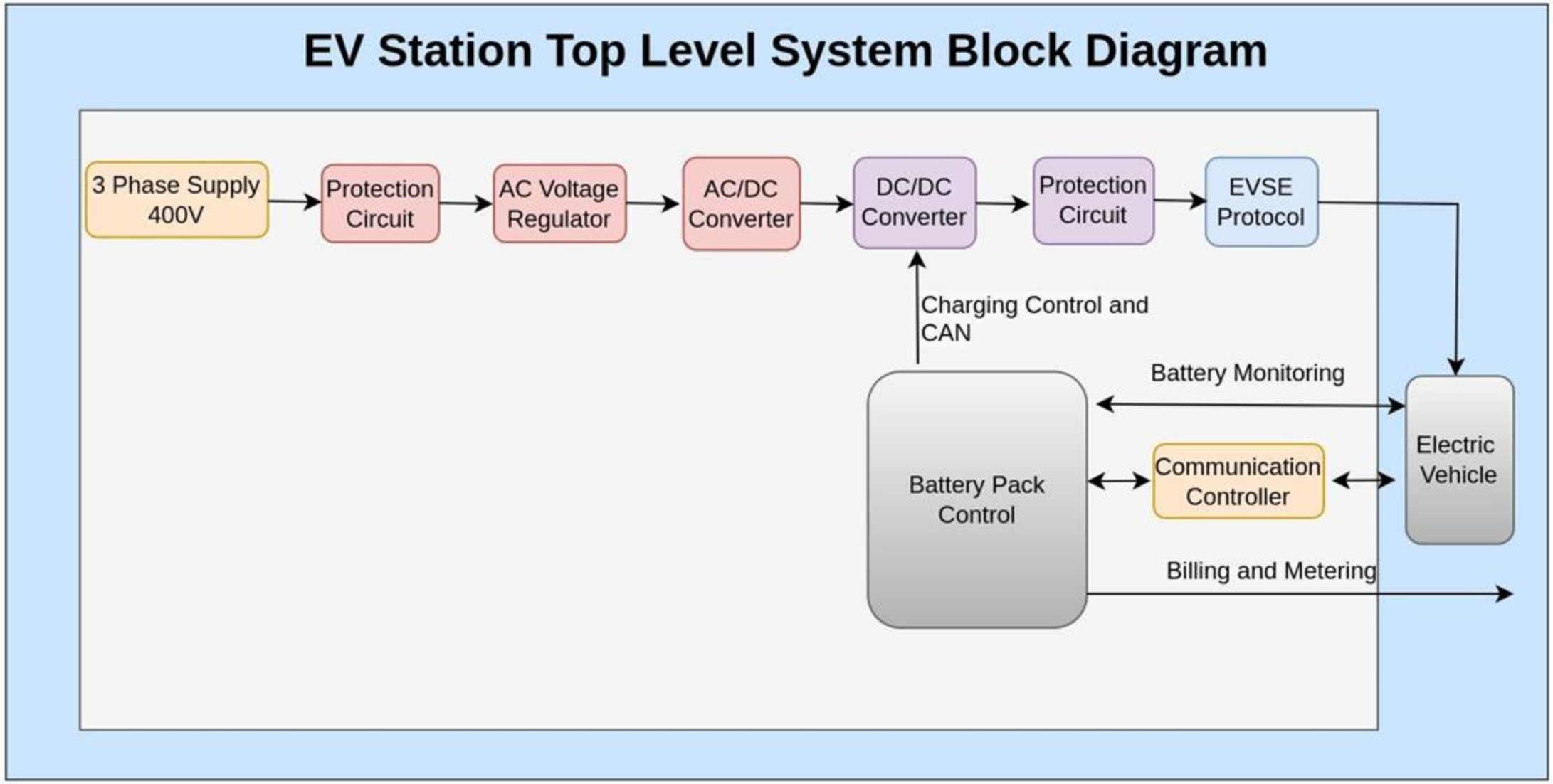
EV Charging Ecosystem



EV Charging Ecosystem



EV Charging Ecosystem – Hardware Block Diagram

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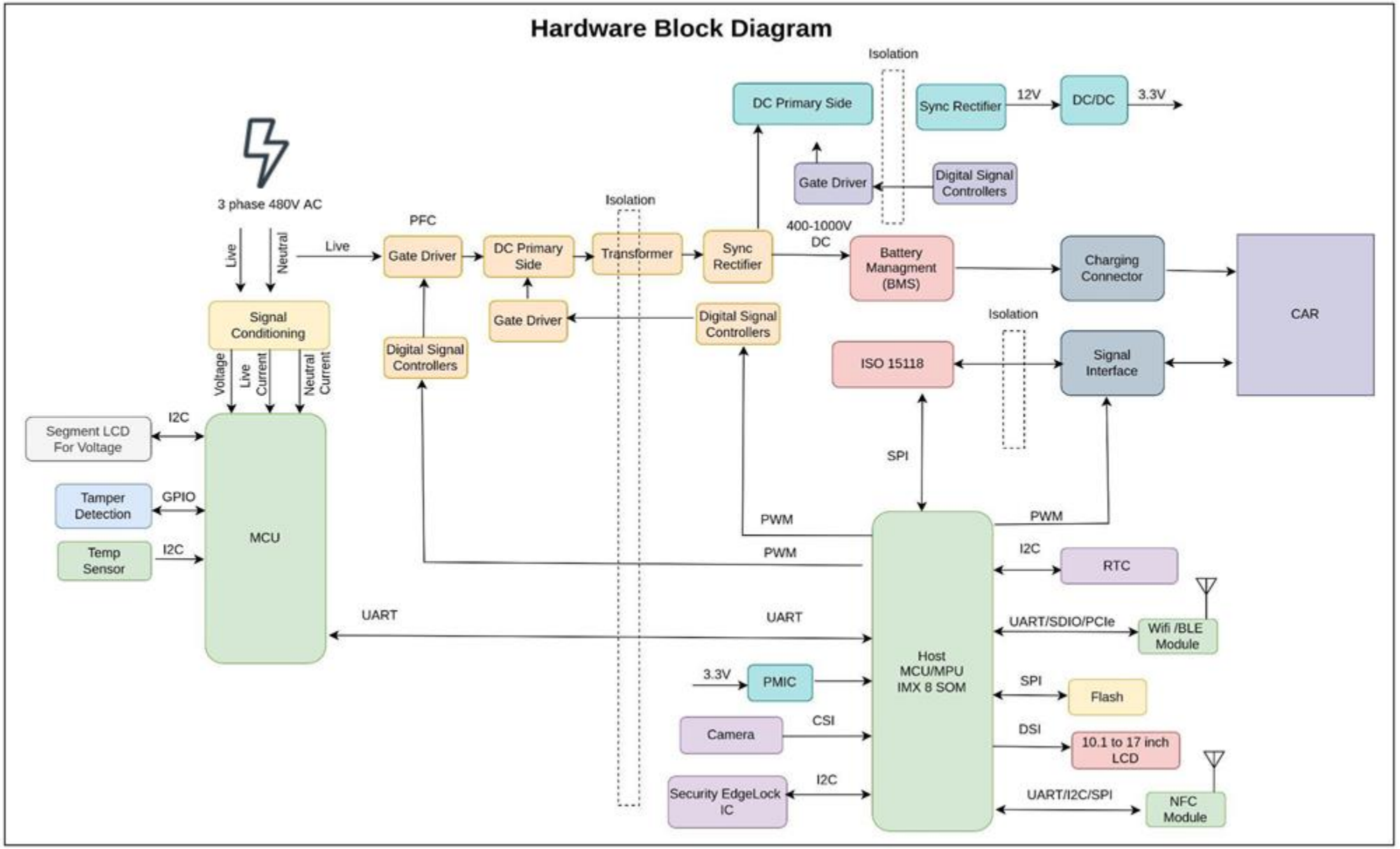

EV Charging Ecosystem – Description Of the System

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Description of the system:

- **Input Voltage** : 415VAC, 3-phase / L1, L2, L3,N, Earthing
- **Signal conditioning** : Voltage,current measurement,Surge protection,Over voltage and Overcurrent protection
- **MCU** : Tamper detection feature,Voltage display on segment LCD,Internal temp sensor
- **Gate Driver** :Gate Driver for SiC MOSFETs/IGBTs
- **Transformer**:To boost the input voltage to required voltage
- **Sync Rectifier** : convert AC voltage to DC voltage
- **BMS** : calculate output current, protect the battery from short circuit,over voltage
- **Charging Connector**: Charging connector based on country and level of charger.
- **Signal Interface:** communication between Car and charging station
- **ISO 15118 :** is an international standard that outlines the digital communication protocol that an electric vehicle (EV) and charging station should use to recharge the EV's high-voltage battery
- **Host MPU** : control Display, wireless connectivity,Camera, connect with our mobile
- **Security EdgeLock IC :**Supports compliance to many security standards like IEC 62443, DLMS/COSEM, OPC-UA and ISO15118-2, Real end-to-end security, from edge to cloud
- **NFC Module :** Contactless EV charging card solution based on MIFARE allows customers to pay easily, quickly and securely at the charging station.
- System will use below part to support 60KW capacity
  - Silicon Carbide MOSFETs,Silicon Carbide Schottky Diodes
  - High voltage and capacity IGBT for converting AC to DC.
  - High frequency/Power transformer

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Digital Transformation

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