Accelerating EV Adoption
Leveraging the Economy of Scale

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Confidential
IoTecha is accelerating the Electric Vehicle revolution by providing critical hardware and software components for the Smart Charging infrastructure and enabling the integration of tens of millions of Electric Vehicles with the Power Grid.

- IoTecha’s core team co-invented HomePlug Powerline Communication (IEEE 1901) – used by ISO/IEC 15118 and SEP2.0
- IoTecha team designed the customizable STMicroelectronics’ ST2100 chip that implements IEEE 1901
- IoTecha’s products include:
  - Combined Charging System on Module (CCSoM)
  - HomePlug GP and ISO/IEC 15118 Protocol Analyzer (PilotShark)
  - IoTecha Intelligent Power Platform (I2P2) for charger management and grid integration
Use Cases (examples)

Fleet Charging Orchestration (V1G and V2G)

Home Smart Charging and Energy Management

DC Discharge – V2H/V2G and Emergency Backup

Orchestration

Device Management

Energy Storage

EVSE

PV System

Heat Pump

DC Discharge – V2H/V2G and Emergency Backup

Dist. Board with disconnect

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Accelerating the adoption leveraging the economy of scale

Key enablers:
● Multi-vendor support
● Multi-vendor interoperability
● Affordable solution cost
The interoperability and an open ecosystem - ISO/IEC 15118

- The 6th International CCS & ISO/IEC 15118 Testing Symposium hosted by the CharIN member VEDECOM brought together more than 200 participants from 85 companies
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Examining the cost: A “Simple Charger”

- Relays and/or Power Electronics / RCD
- MCU
- PWM
- UI
- Power

Pilot Line
- J1772
- IEC 62196
Examining the cost: Adding a Smartphone Control

- WiFi
- MCU
- PWM
- Relays and/or Power Electronics / RCD
- UI

Power

WiFi

~ $3

SW:
+ IP Stack
+ Smartphone support

Pilot Line
- J1772
- IEC 62196

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Examining the cost: Adding Cloud Connectivity (LAN)

- WiFi
- MCU
- PWM
- UI
- Relays and/or Power Electronics / RCD

Power

OCPP

~ $3

SW:
+ IP Stack
+ Smartphone support
+ Cloud Connectivity Stack (OCPP)

Pilot Line
- J1772
- IEC 62196
Examining the cost: Adding Cloud Connectivity (Mobile)

- MCU
- Pilot Line
  - J1772
  - IEC 62196

- UI
- Power
- Relays and/or Power Electronics / RCD
- SW:
  + IP Stack
  + Cloud Connectivity Stack (OCPP)

- OCPP
- Cell Modem
- ~ $17+

- PWM

SW: + IP Stack + Cloud Connectivity Stack (OCPP)
Examining the cost: Adding EMS Connectivity

Relays and/or Power Electronics / RCD

WiFi

~ $3

SW:
+ IP Stack
+ Smartphone support
+ EMS Connectivity Stack (SEP 2.0)

PWM

Pilot Line
- J1772
- IEC 62196
Examining the cost: Adding EV – EVSE Connectivity

Relays and/or Power Electronics / RCD

- WiFi: ~ $3
- MCU
- PLC
- UI
- PHY/MAC: ~ $5*
- PWM
- Filter
- Pilot Line
  - J1772
  - IEC 62196
  - ISO/IEC 15118

SW:
- + IP Stack
- + Smartphone support
- + Cloud Connectivity Stack
- + ISO/IEC 15118 Stack

Note: STMicroelectronics ST2100 SoC includes HomePlug AV/GP communication block and does not require an additional PHY/MAC chip
## Software Costs

<table>
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<tr>
<th></th>
<th>OS with IP Stack</th>
<th>OCPP Stack</th>
<th>ISO/IEC 15118 Stack</th>
<th>SEP 2.0 Stack</th>
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The Solution

Enables the economy of scale and flexible support of diverse use cases worldwide
Thank You!

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