

Customer

The customer provides automotive consulting and engineering services for E-mobility, Safety & Driving Assistance Systems, Autonomous Driving, Connectivity, Analytics, Infotainment and Telematics.

Problem Statement/Requirements

The customer requested for a DC charger to charge Electric Vehicle batteries allowing faster charging at higher voltages and currents.

Solution Methodology

SFO developed and manufactured an EVCS (Electric Vehicle Charging Station) suitable for European and Chinese markets based on defined norms for charging (as per customer specification). SFO defined the extended requirements and engaged in an end-to-end process to develop a DC charger that converted AC to DC within the charger and provided direct DC supply to the vehicle battery. EVCS monitors the battery conditions and controls the battery charging. Connection from EVCS to the vehicle is through standard combo connectors based on the region.

The device can be connected via Wi-Fi to a mobile application to inform the user regarding the charging status. Feasibility of an Over the Air (OTA) Software update is provided. EVCS has a set of LEDs (Light-Emitting Diodes) to show the status of the device, and multiple switches for user interfacing. SFO developed the charger for B2C module and plans to extend it to the B2B module. SFO has the capability to extend the functionality of the charger to integrate payment gateway with the central system to allow using pre-paid card to authenticate validity and based on it to charge a given amount for the B2B module (which is governed by a network integrated charge point). The final product has the following features and functionalities:

- DC Fast Charging
- Simple plug & play installation
- High power factor: 0.98
- Standalone or network integrated charger
- B2B and B2C variants
- Communication & Management (Wi-Fi Linked)
- Secured Payment gateway for B2B segment
- Network integration- OCPP (Open Charge Point Protocol)
- CCS (Combined Charging System) – SAE J1772 standard

Product functions include the following:

1. Convert the 3Ø (3 Phase) Supply to the apt DC output (22kW) [this includes AC to DC and DC to DC conversion].
2. Interact with the EV to control charging.

Physical Specification:

Equipment	Multi-standard DC outputs (Mode-4)
Dimensions (W x D x H)	1000 x 650 x 400 mm
Weight	<65 Kg
Enclosure Mounting	Wall Mount
Cable Type	EU : SAE J1772 Combo Type 2 China : GB/T 20234

Impact

- Our solution helped the customer facilitate fast charging, along with the ability to monitor the Charging process through a mobile phone over Wi-Fi. Significant cost saving was achieved compared to similar solutions that were available in the market.

About SFO

SFO Technologies Pvt Ltd, the flagship arm of the diversified conglomerate, the NeST Group provides end-to-end design-engineering-software-manufacturing solutions to clients across geographies such as the USA, Canada, Europe, Middle East, South East Asia, Japan, Australia, and India. SFO has invested in building competence, scale and standards compliant process framework, in PCBA, fibre optics, Cable & wire Harness, Magnetics, High Level Assembly, VLSI design, embedded software development, etc. SFO's capabilities transcend the plain vanilla "Build-to-Spec or Build-to-Print" EMS and our ODM+ solutions are rapidly re-defining standards for the OEMs across Aerospace & Defence, Communications, Transportation, Healthcare and Energy & Industrial domains. .



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