



December 28, 2017

TRADING LOCATION

## Customer

A Japanese multi-national leader in industrial automation and control systems with subsidiaries across North America, Europe and Asia-Pacific.

## Problem Statement/Requirements

The customer wanted to design, develop and manufacture an 'industrial panel energy meter' specifically for a value conscious market like India. It should have the feature set to stand against a majority of competitor offerings in the market. The product should have low product engineering, manufacturing and support costs, and also low turn-around time and reduced time-to-market.

## Solution Methodology

SFO designed and manufactured an industrial panel energy meter for value conscious market with feature set comparable to premium offerings at two-thirds the cost. SFO's fast prototyping facilities and co-located engineering, design and manufacturing teams allowed for tighter inter-team interactions and faster push-outs.

The product had the following features:

- Standard front panel mount design
- Measurement of major electrical parameters and power quality
- User selectable phase wire system
- User programmable CT/ PT primary, CT/ PT secondary
- Built-in RS-485 Modbus RTU communication
- Easy display navigation and settings
- Screw-less protected terminals

## Brief description of product:

### a) Hardware

- MCU - MSP430F6779A
- LED Indicators, 7 Segment display
- Memory : FRAM (Ferroelectric Random Access Memory)
- Soft keypads
- CT Sensors, PT Sensors
- Protection circuit
- RS-485 transceiver

### b) Firmware

- Code Composer™ Studio V7
- Programming Language : C & Assembly

### c) Compliance

- CMMI ML5

## Impact

- a) Our solution has helped the customer to get a product at low cost with features set to stand against a majority of competitor offerings in the market.
- b) SFO delivered high quality product which prompted customer to take the product to global 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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