CASE STUDY:

FULLY DIGITAL INSTRUMENT CLUSTER WITH 10.1” LCD

SFO TECHNOLOGIES
A NeST Group Company

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Customer

The customer is a leading sports car manufacturer who designs and builds concept cars and prototypes. The company also builds custom special order vehicles, in various segments.

Problem Statement/Requirements

The customer, being a leading sports car company, wanted to make a niche digital instrument cluster and shift from analog gauges to an instrument cluster with digital read-out facility. The customer wanted a built-to-concept product based on research into the digital instrument clusters already available in the market.

Solution Methodology

SFO leveraged the technical skills and product engineering capabilities to develop and manufacture digital displays with real-time readings for a fully digital instrument cluster with the following highlights:

- Single point delivery of Hardware, software & manufacturing services.
- Cost effective platform, easily expandable for infotainment applications.
- High precision fuel level display with 1% accuracy.
- Strong technical expertise to optimize Linux BSPs to meet hard real time requirements for CAN transmission and achieve optimized boot time of 3.5 seconds.
- Attractive and high performance user interface developed using hardware accelerated OpenGL ES framework.
- Shorter development cycle achieved using reusable IPC (Inter-Process Communication) frameworks.
- Quick boot mode
- Support for low power sleep mode
- Software upgrade from USB thumb drive
- Fail-safe mechanism in software upgrade
- Support for multiple themes

Product Features:

- **HMI**
  - **10.1” Wide Landscape Display**
  - **HMI Screens**

    Welcome Screen | Gauge Screen | Menu screens | Software Update Screen

  - **Gauges**

    Vehicle speed | Engine speed | Engine temperature | Fuel level

  - **Driver Assistance System**

    Odo meter | Trip meter | Fuel Economy | Distance to Empty | Average Speed

  - **Telltales**

    Door open/close | Left & Right Indicators | Hand brake | Low brake fluid warning | Malfunction Indicator Lamp | Immobilizer | ABS | Air bag | Defogger | Front & Rear fog lamp indicators | Engine oil indicator | Low beam | High beam | EBD

- **Vehicle Interface**

  CAN | Analog and digital inputs | Functional switches - Trip Reset Switch, Mode Switch

- **Audible alarm for warnings**

Impact

- Our solution helped the customer achieve a cost effective, attractive and high performance product.

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. .

Contact: contact@sfotechnologies.net www.sfotechnologies.net

SFO Technologies Pvt. Ltd.

Plot No. 2, Cochin Special Economic Zone (CSEZ), Kakkanad, Kochi (Cochin) – 682 037, India. Tel: 0484 – 6614300