

Partner to global industrial product companies for control & connectivity based engineering solutions.

New Generation Transformer Winding Temperature Sensor

The Customer

The customer is a global leader in providing temperature and gas sensing solutions to industrial, energy, medical and clean technology markets.

Customer Need

The client wanted to come up with low cost time to market product to measure a power transformer's winding temperature. The complete product design, testing and delivery process was outsourced to SoftDEL. The product needs to be highly configurable with state-of-the-art GUI, communication protocols, small form-factor and light weight modular design.

SoftDEL Solution

SoftDEL completed a comprehensive evaluation of the system requirements and recommended a Single Board Computer based solution to meet the product requirement, low cost and time to market product. SoftDEL developed complete product including hardware, software and mechanical enclosure.

Platform Development

The target platform chosen for the development was Windows Embedded Standards. The various drivers and protocol stacks that were supported on the selected target OS were:

- USB Host driver (USB 2.0)
- Ethernet Driver (10/100 mbps)
- TCP/IP stack
- LCD Graphic Driver (420x310)
- Serial I/O
- LCD and touch screen driver
- IO interface
- Audio I/O
- Printer driver
- Watchdog

Application Development

The following components were developed as part of the Application Development:

FOT communication: Fiber optic module communication with SBC and temperature display of MAX 16 channel. User can be configuring 16 channels as per the requirement.

GUI Application: A rich User-friendly Graphic Interface was provided to the User for easy monitoring and control of the various parameters. The screens were configurable as per User requirements by using .NET based configuration file.

Alarm Module: This product has been designed to provide User configurable alarm modules. A system log is maintained of the various alarms generated. Based on logged data transformer life can be predicted to take pre action plan.

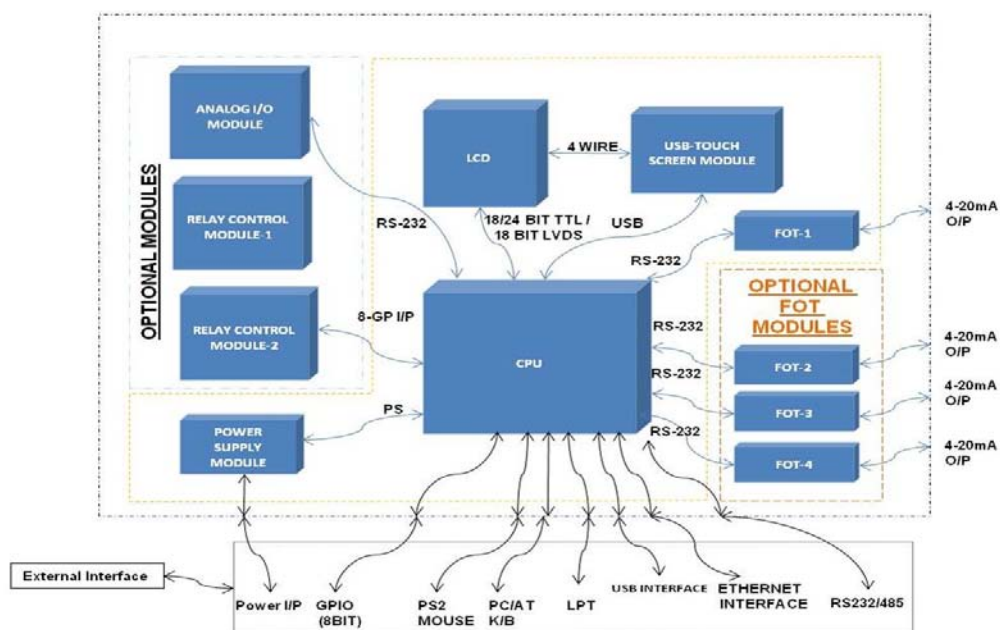
Data Logger: This controller has a data logging facility, which is user configurable. User can add, edit, delete or download selected data log.

Online Application Updating: The controller application can be remotely troubleshot and updated from a host computer.

Relay control Module: To trip or operate different device as per applications

Analog I/O module: To give system feedback for other peripheral systems/Subsystems

System Overview



Key Features

Modular System: User can configure no of temperature channel, relay module, Analog I/O module and GUI as per requirement

Power Supply: Universal input range

Form factor: Small and light weight compare to available industrial product

Rich GUI: TFT-LCD with Touch screen based User interface.

Alarms: Real time Alarms are flashed on screen and email notification for selected alarm is also available.

Data log: Periodic data logging as per predefined time interval for statistical analysis.

User Levels: 2 User levels.

- User: Change set points, schedule, and monitor alarms, data logs
- Administrator Configure, program, setup, firmware upgrade (plus all end user privileges)

Communication: Ethernet, USB and RS232/485 communication mode for user communication

Following interfaces are provided for communication with external world

- 10/100T Ethernet
- USB
- RS232/422/485

Diagnostics: In built diagnosis module is available for user and system administrator. This module generates log information of system errors and user errors. It also predicts transformer life.

Impact

- 30% cost reduction compare to similar functional product
- Shortened over all development time
- Time to market product
- Highest featured product in market compare to competitors product
- Customer satisfaction
- Configurable for other machines with operator commands

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