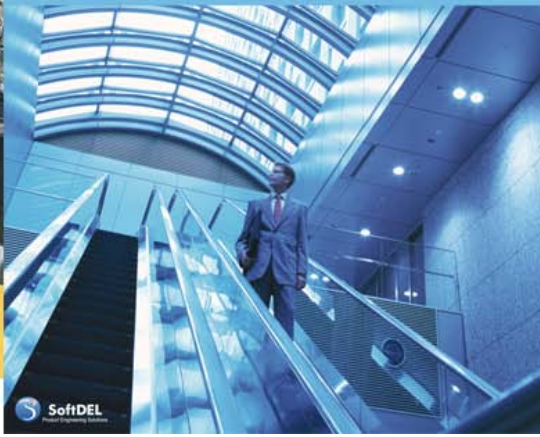


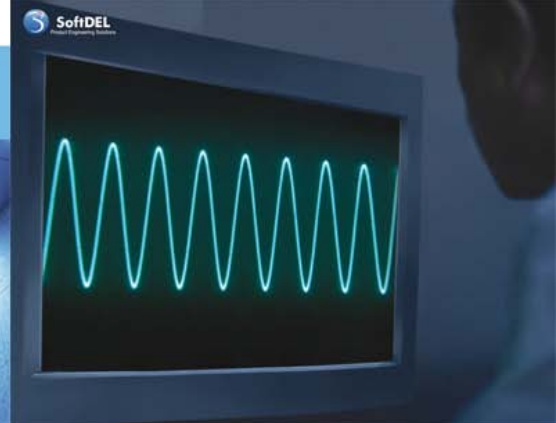


factory &
process automation
solutions

building automation
solutions



SoftDEL



test & measurement
solutions

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

Intelligent Register Control System

The Customer

The customer is one of the pioneers of the textile engineering industry offering its products to countries around the world. Their product offerings are Cone Winder, Dyeing Apparatus, Spinning Equipment and Testing Equipment.

Customer Need

The customer required an Intelligent Register Control System (IRCS) for the Rotogravure type of printing machine with state-of-the-art features. This also needs to have a facility to be adaptable for Offset and Flexo type of machines without the need for a major change in the hardware subsystem. These machines are used for printing and packaging requirements mostly by the FMCG and Media Publishing companies.

SoftDEL Solution

SoftDEL conceptualized the complete system development in a phased manner. The development phases are:

Phase I: Smart Cameras with Central 32 bit CPU with NO GUI support

Phase II: Smart Camera with Central 32 bit CPU with GUI Support

Phase III: Indigenous smart Camera with inbuilt Vision Control Software interfaced with Central 32 bit CPU with GUI support

System Overview

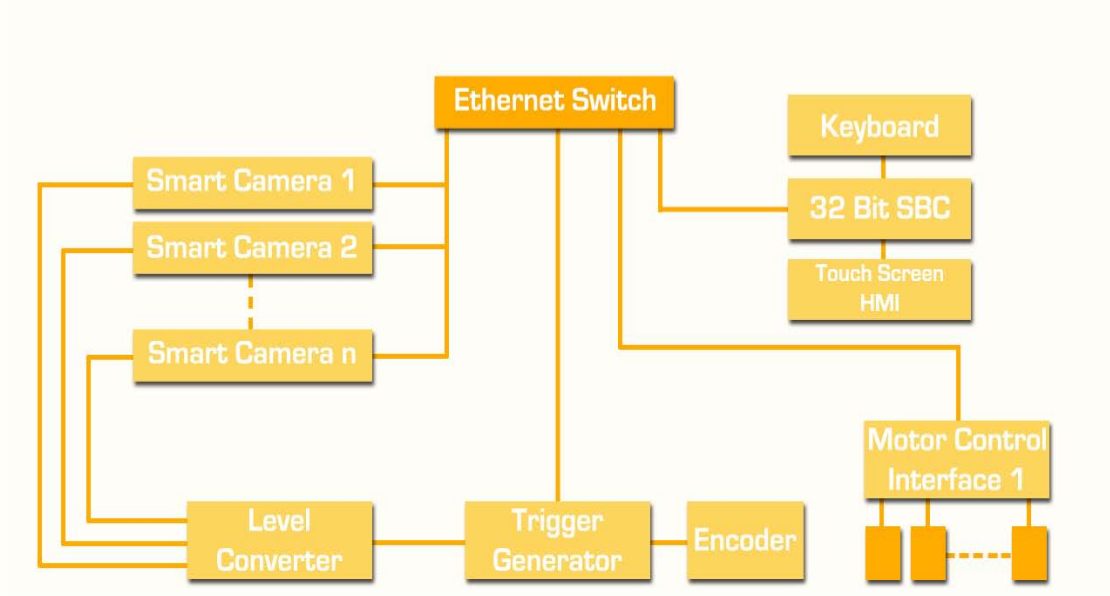
The IRCS system is based on 32-bit CPU, which is operating on hard real-time Windows CE RTOS for processing the real time mark position and correction data. This CPU communicates with a number of

Web Cameras associated with different stations, which are going to feed the mark position error data to this CPU. The number of Web Cameras needed for this system will be based on the user requirement, considering the number of print stations installed at the site. But one web camera will be needed for every print station. The processed position correction data is generated by the central CPU and fed to the network of register motors which are either Stepper or Sync motors. The GUI screen, for configuration and monitoring, is designed and made available on a color LCD Monitor with appropriate resolution for user-friendly interactions with Operators. The display is driven by central CPU and it does the processing of various operating commands. User interface is provided via a touch screen monitor.

The system senses the side error and length error by means of recognizing the color pattern position using smart cameras. The smart camera is programmed with an image processing algorithm to directly obtain the error output and communicate it to the SBC. The enriched features of the smart camera, helps meet the specified benchmarks. SoftDEL has used an encoder sub-system, to calculate the angular position, speed and direction information. Smart camera can be programmed to measure the side and length error. Central CPU is programmed to execute control action (PI with fuzzy logic) to deliver the output to the drive. It can be programmed for user interface by means of a rich GUI and with connectivity to a database. This is required for system configuration and maintenance. SoftDEL has used Intel Xscale based SBC with WinCE running on the target. GUI is developed with a number of configuration parameters, which decides the behavior of the system.

SoftDEL has carried out the complete application development and tested the prototype successfully.

Block Diagram



Key Features

- Flexible and accurate register control for any kind of printing of colors/coating or lacquering/varnishing
- Complete automatic and Intelligent system with minimum Operator intervention
- Very high scanning accuracy, control speed and facility to store default control parameters
- Can be configured to use with Rotogravure machine, Offset machine, Flexographic machine and Single unit controller printing machine through the system menu
- User configurable for number of Printing stations and number of register motors
- Minimum and reliable hardware with self diagnostics facility
- High reliability with interchangeable Hardware
- Automatic switchover between sequential to key color measurement during print run
- Precise and fast register setting reduces the system setup time and wastages

Impact

- Shortened development time through COTS based hardware components and subsystems
- Efficient product development and sustenance support team
- Complete end-to-end system development including hardware, software, UI
- Configurable system for other machines with operator commands
- User friendly touch-screen UI operation

WWW.SOFTDEL.COM

USA
1050 Winter St. #1000
Waltham, MA 02451
+1 (832) 886 0006
info@softdel.com

India
3rd Floor, Pentagon P-4
Magarpatta City, Hadapsar,
Pune, 411028
+91 (20) 6701 0001
india@softdel.com

Japan
Nitte Bldg, 1101,
1-22-12 Shinkawa,
Chuo-Ku, Tokyo 104-0033.
Japan.
japan@softdel.com

