

MANUFACTURING DOCUMENTATION MANAGEMENT SYSTEM

Final - Report Outline

1. Introduction
 - i. The company background
 - ii. Current situation
 1. Documentation outdated or missing
 2. Not in compliance with ISO 9000
2. Problem Statement
 - i. Database management system desired
 1. Developed with Microsoft technologies
 - ii. Read-only access for assembly personnel
 - iii. Secure editing access for engineering staff
 - iv. Costs justified by a 2-year payback.
3. Objectives
 - i. Identify Information
 - ii. Analyze Information
 - iii. Develop Database
 - iv. Develop Interface
 - v. Implementation
 - vi. Economic Analysis
 - vii. ISO 9000 Compliance
4. Initial Analysis
 - i. Identify problems
 - a. Current documentation system is antiquated
 - b. Leads to costly scrap or rework
 - ii. Documentation Analysis
 - a. Assembly number prefixes
 1. G: In-development assembly
 2. A1: Legacy Commercial model
 3. C: Commercial alternator
 4. N: Military alternator
 - b. Drawings
 1. Every Assembly can have a technical drawing
 - c. Work Instructions
 1. Every Work Instruction can be associated to many assemblies
 2. Each assembly can have one WI
 3. Each Work Instruction can have many headings
 4. Each heading can have many steps
 5. Each step can have one image
 - iii. What CEN wants
 - a. Easy access to work instructions
 - b. Built using Microsoft technology
 - c. Central location for all documents, images, drawings
 - d. Two interfaces

1. Management
 2. Plant floor
5. Data Relationships
 - i. Introduction to concepts
 - a. Different relationships
 - ii. Advantages
 - a. Supports CEN business model
 - b. Efficient data entry and retrieval
 - c. Show Relationships
6. Access interface
 - i. Functions
 - a. Add
 - b. Edit
 - c. Delete
 - d. Retrieve
 - e. Report
 - ii. Data Entry User Flowchart
 - iii. Management Interface
 - a. Forms
 1. Main SwitchBoard
 - a. From this screen all major functions can be performed
 2. Assembly Input
 - a. Input all information about a new assembly
 - b. Functions
 - a. Create/Associate Work Instruction
 - b. Create/Associate Drawing
 - c. Requires certain information before it can save the assembly
 3. Assemblies with no Work Instructions
 4. Image and Drawing Master
 - a. Easy to view all drawings and images
 - b. Create new drawings or images
 5. Assembly List
 - a. Most important form
 - b. Perform a variety of functions on existing assemblies
 - c. Sort all assemblies
 6. Associated Assemblies
 - a. Displays all assemblies that use one particular Work Instruction
 7. Work Instruction Creation
 - a. Creating Heading
 - b. Creating Step
 - c. Adding Images
 8. Work Instruction Report

- a. Viewing and Printing functionality
 - 9. Engineering Drawings
 - a. Creating
 - b. Editing
 - c. Viewing
 - 10. Data Parameters
 - a. Used for passing Data from Form to Form
 - 11. Path Master
 - a. Set the file paths to vital folders
 - iv. Error Trapping
 - 1. Catching MS Access errors when one occurs
 - 2. Sending error data to the error table
 - 3. Displaying the error the designer wants the user to see
 - v. Security
 - 1. Linking tables by creating an APP and DATA file
 - a. No access to raw Creating Heading data
 - 2. .MDE file
 - a. Makes it so the user cannot access the code behind database
 - 3. AllowByPassKey and Start up tool
 - a. makes the database window hidden
 - b. Restricts access to the different views of the forms
 - c. Takes away right click functionality
 - d. Locking records
 - 4. Windows user
 - a. makes a log of the user when creating a record in the db
 - 5. Take away quick keys
 - a. Makes Control key useless (Ctrl N, W, S etc..)
7. Plant floor interface
- i. Design
 - 1. Minimize keyboard usage
 - 2. Security with read only access
 - ii. Sample screens
 - 1. Initial screen
 - 2. Screen displaying retrieved data
 - 3. Sample work instruction
 - 4. Advanced search screen
 - 5. Advanced search with range function
 - 6. Advanced search of department
 - 7. Advanced search of department with range function
 - 8. Advanced search of department and type
8. Client / Server
- i. Administrative Interface - Fat client

- 1. Must be utilized through Access
 - ii. Plant Floor Interface – Thin client
 - 1. Accessed through a simple web browser
 - 2. Less functionality than Fat client
- 9. Implementation
 - a. Testing Procedures
 - i. Basic testing procedures
 - ii. Data entry records
 - i. Initial testing at GE lab
 - ii. Feedback with live testing onsite
 - iii.
- 10. Economic Analysis
 - i. Reduce Re-work and Scrap
 - ii. Time Savings
 - 1. Finding Work Instructions
 - 2. Less Training
 - iii. 2 Year Payback
 - iv. Capital Costs
 - 1. Hardware
 - a. Servers – approx \$3000
 - 2. Software
 - a. MS Office – CEN has license
 - 3. Data Entry
 - a. Employment Costs
 - v. Recurring Costs
 - a. Maintenance of data
- 11. Conclusions and Recommendations
 - i. System is designed to model CEN's information flow
 - ii. Management interface utilizes the strengths of a database system to retrieve, enter, and edit the Work Instructions
 - iii. Plant floor interface is designed to facilitate simple, accurate, and rapid information retrieval
 - iv. Compact and repair database regularly
 - v. Backup database regularly
 - vi. Train employees to use their respective interface
- 12. References List
- 13. Appendices
 - A1. Database Criteria and Conventions
 - i. Leszynski naming convention
 - ii. Data Normalization
 - iii. Four Rules
 - iv. Referential Integrity
 - i. How it is used
 - A2. ISO-9000 Compliance
 - i. ISO-9000 summary
 - ii. Auditor must check plant

- iii. Why CEN needs to become ISO certified
 - a. May lose customers
 - b. Better management of data

A3. Access Quick Keys

A4. Plant Floor Interface Code

A5. Management Interface Code