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| Seattle Precision Machine Shop |
| ERP / MRP System Proposal |
| We ARE Quality! |

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# Seattle Precision Machine Shop

Project Background

Seattle Precision Machine Shop is a job shop which provides contracted machining services to the Aerospace, Marine, Industrial and Automotive industries. We are a largely philanthropic business which provides many We also provide employment to those people with significant barriers to employment, including different types of disability, homelessness, etc.

We are requiring a ERP (Enterprise Resource Planning) and Manufacturing Resource Planning (MRP) software package with the following requirements:

Technology and Environmental Requirements

Here are the environment and technology goals and requirements we have for our ERP/MRP system

* Able to access from Windows desktop clients and use a dashboard/front
* Able to access from Android tablet client (on web or App)
* Served by a single Dell rackmount server
* SQL backend / PostgreSQL Database
* Provide access cloud storage (data backup)
* Provide access to data using Android tablets
* Allow access to system with 25 to 50 users concurrently logged into the system [most current apps we have tested have severely limited number of logged in users]
* Easy to administer and maintain with minimal downtime
* Allow easy Barcode / QR Code / RFID data collection on shop floor using standard equipment using also Android tablets for employees doing warehousing, inventory, purchasing, time keeping,
* Able to securely pass data to the web (Web or Cloud client) with a web front end / dashboard
* Software that is updated or patched regularly
* Able to interact with website/webserver

Technology used

IIS ??

ASP.NET MVC Core

REACT

Material-UI

PostgresSQL

Express

Notes

“Forms” are physical printable and/or PDF / paper forms we use.

Physical / Hardware Requirements

25 to 50 Dell Workstations running Windows 10 (Optiplex Tower/MiniTower) with 3rd Generation Intel Core i5 and 8gb RAM. [Series 4 or Series 5]

Minimum of one (1) Dell PowerEdge rackmount R710/R720/R730 Servers

Storage Space Available: 8x 600gb 10kRPM SAS 6gb/s 2.5” [4-6tb]

Server Memory: 288gb

Server Processors: Two (2) Xeon X5650

Five (5) 10” Android tablets

Windows Server 2012 / 2016 / 2019 Standard

Database / Software Requirements

*Human Resource Data*

* List of employees & employee data, hire date etc.
* PDF scanned copy of Application
* Employee Sick time/Leave/Vacation tracking system
* Training Records Management (copies of certificates)
* Career Development (Training, Safety, etc.) Records
* Photo of Employee (Security/Loss Prevention)
* Time Records (Where (location and area)and when employee works/worked)
* Name of direct manager and/or supervisor
* PDF or scanned copies of Job Descriptions
* We use a physical credit/debit card sized ID card for ID tracking which has a mag strip and bar code and a image of the employee plus employee number and our logo
* Easily assign roles and assign managers and supervisors
* Form: PDF Employment Application [Fillable/Online}
* Form: PDF Application [Printable for walk-in’s]

Customer Data

* Able to easily enter and update start dates and
* Production Records (Work Orders/Job Tickets, etc)
* Inventory of Customer Templates, Drawings/Blueprints, Dies, Tooling, Fixtures, etc. including their location, Part information,

Manufacturing / Production Data

* Able to easily enter and update start dates and
* Employee able to easily clock into each operation via bar code and/or mag stripe reader
* Allows a “Expeditor” or “Machine Operator Supervisor” to walk around the shop floor to track and update work in progress on the shop floor and change due dates.
* Allow entry of manufacturing plan data (order of operations by numerical increment of 005 or 010)
* Track and Allow entry of Production and Engineering change order(s)

Shop Floor Data Entry/Dashboard:

* Able to accept input via bar code scanners especially for timekeeping/login
* Uses Code 39 Type Barcodes to enter Text in fillable fields
* Time Keeping: Start and Stop Individual Operations
* Able to see and confirm both individual operations and finished/completed job ticket/workorder/traveller have closed every single operations
* Complete Workorder/Job Tickets
* Able to easily insert new operations

Warehouse / Inventory

* Able to accept input via bar code scanners

Material Inventory System

* Able to easily add materials including type, subtype/subcategory, size (L/W/H), warehouse storage location, quantity, unit (ea.,sq. ft., sq. in., etc.), cost, vendor, lot number, manufacturer
* For Aluminum sheet, plate, rod, tubing, specifically track:

Fed Specification ie QQ-A-200 or QQ-A-250

AMS / ASTM codes

For Aluminum extrusion track: AN, NAS, BAC shape and length

* Make it easy for Material Handlers to pick orders

Shipping and/or Receiving System

* Able to easily enter and update shipping dates and
* Items, equipment, material/materiel scanned in and/or out
* Material Handling equipment maintenance records (forklift)
* Training records for Forklift
* Bill of Lading and/or Packing List
* Enter tracking information and Track various shipping methods, UPS, FedEX, DHL, LTL Freight, Truck, etc.
* Forms: 2”x4” labels – for material ID

Forms 4”x6” UPS/FedEX label

Maintenance System

* Able to easily enter and update machine maintenance records
* Inventory and OCR scanned copy of manuals, etc.
* Able to track and schedule machine maintenance
* Track maintenance request forms (or allow end user to request maintenance by department/machine)
* Schedule Maintenance Tasks to certain staff/personell
* [Data]Maintenance Parts inventory [ie filters, belts, bearings, lubricant/oil]

Quality System

* Able to easily enter and update gage and equipment calibration records including all due dates, add and remove, track gages and equipment (location data), add equipment (gages, etc.)
* Able to enter and track rejection information by part number, lot number, rejection tag number, rejection report number
* Able to enter track production lot data and acceptance/sampling plan data for Statistical Process Control(s) ;ie SPC usually
* Engineering and Manufacturing Drawing records
* Tracking Non-Conforming Material
* Tracking Rejections
* SPC Data
* We have been using a Excel Spreadsheet

Accounting Data System

* Payroll
* Taxes
* Accounts Payable
* Accounts Receivable

Estimating and Request for Quote/Quoting Inventory System

Material Inventory System

* Prints material labels that affix directly to stored material [2”x4”]

Data: [

Forms:

CRM for Sales & Marketing

* Contact data for Vendors, Suppliers, etc.
* Customer contact data
* Form: Sales Order
* Form: Purchase Order
* Form: RFP
* Form: RFQ

Purchasing System

* Able to easily add and enter and update Purchase Orders and automatically assign a sequential purchase order number
* Form: Purchase Order
* Form: Material Requisition Form
* Form: Request for Purchase Form
* Data [EDP No][Model][List No][Manufacturer][MSRP/List Price]
* MRO purchasing System

-Definition: MRO refers to Maintenance, repair and operation supplies. These are materials, equipment and supplies used in the production process at a manufacturing plant but are not part of the finished goods being produced. Ie office supplies, furniture, toiletries, etc.

Tooling, Fixture, Die and Template Inventory System

* Able to easily add, enter and update data on Tooling, Fixture, Dies and Templates.
* Form: Tooling Request Form

Safety System

* Able to easily enter and update start dates and