Manuel M. Ramos

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Summary:

I am a seasoned Control Systems Engineer with over 16 years of experience creating cost-effective automated machines. Highly experienced in developing cutting-edge equipment for various industries that have improved the quality of their products and the production speed. In addition, using innovative software techniques has given me a proven record in decreasing code development and debug time. Capable of leading or coordinating with a team of engineers to complete projects in a fast-paced, challenging, deadline-driven environment.

Education:

Florida Atlantic University August 2002 – August 2007
Bachelor of Science in Electrical Engineering

Work Experience:

Syneo LLC September 2007 – June 2021
Lead Control System Engineer

- Develop software standards to reduce development and debug time
- Provide software solutions to complex control problems.
- Coordinate with the production team on building and troubleshooting
- Worked with customer service on troubleshooting machines remotely
- Synchronize with the sales team to transcribe customer requests into software specifications
- Aided a team of mechanical engineers on developing and debugging machines
- Led a group of software engineers in developing complex systems
- Supported the application department in testing customer supplied materials

Hilton International Industry July 2021 – April 2022
Lead Control System Engineer

- Developed a multiple axis servo control battery winding machine
- Aid the assembly team in wiring and troubleshooting
- Generated manual and technical documents

RexelUSA July 2022 – Current
Automation/Product Specialist

- Developed System and Bill of Material for customers application
- Aided customers with troubleshooting Rockwell software and programming
- Generated manual and technical documents

Technical Experience:

- Developed PLC software using:
  - Omron SYSMAC
  - CX-Programmer
  - Keyence
  - RSLogix 500
  - RSLogix 5000
  - Studio 5000
  - Kollmorgen
  - Connected Component Workbench.
- Developed HMI using:
  - Maple Systems
  - Weintek
  - Kollmorgen
  - Omron
  - Beijer
  - FactoryTalk View Studio
  - FactoryTalk View Designer
  - Factorytalk Optix
- Experience with Rockwell Management software:
  - FactoryTalk Historian
  - FactoryTalk AssestCentre
- Developed PC software using:
  - VB.net
  - C#
- Developed schematics to NFPA 79 standard using:
  - Autodesk AutoCAD
- Programmed safety controllers from:
  - Banner Engineering
- Programmed motion controllers from:
  - Galil
  - Trio
  - Omron SYSMAC
  - CompactLogix
- Programmed collaborative robots from:
  - Universal Robots
- Developed vision applications using systems from:
  - Keyence
  - Banner Engineer
- Programmed and commissioned servo drives from
  - Parker
  - Kollmorgen
  - Omron
  - Rockwell
- Design PC Board with the using
  - KiCAD
- Experience using Fieldbus technologies such as:
  - EtherCAT
  - Ethernet/IP
  - TCP/IP
  - MODBUS

Summary of Experiences as a Control System Engineer

At the beginning of my career as a Control System Engineer, I found writing and debugging PLC code time-consuming and complicated. So, after three months of late nights and frustrations, I began the development of a common framework that followed the Structured Programming paradigms. The primary purpose was to streamline the development and debugging of the PLC and HMI. The testbed for this new framework was Syneo's flagship tube cutter, the 202L. After a few weeks of development, the 202L became an outstanding success for its ability to have different options in the same code base. Furthermore, since the framework's purpose is to be modular, readable, portable, and scalable, their other standard and custom offerings enjoy the same success as the 202L. Also, this framework made it possible for new control engineers to learn all Syneo's offerings rapidly.

For 14 years, I have worked with engineers from various manufacturers from the medical, optical, and telecommunications industries. These projects have ranged from one-off custom machines to production cell systems. Developing these various systems gave me experience integrating multiple technologies from different manufacturers.

In the medical device manufacturing industry, hundreds of machines were designed using Syneo's product line consisting of Tube Cutter, Feeder, Tipper, High Voltage Tester, Driller, and custom offerings with other vendors' products. These systems ranged from custom modification to standard machines to complete turn-key production cells to meet customer production demands.

For example, one such custom offering would consist of a Feeder, Cutter, Inkjet Printer, and Robotic Arm. The Feeder would deliver a catheter to the Cutter that indexed the part to an inkjet printer. Then the Cutter would control the printer thru an enable and encoder signal to start and stop the printing. When the printing is concluded, the Cutter will cut the part to a programable length and bin the finished product using the Robotic Arm.

A production cell system was controlled by multiple PLCs using a custom SCADA system programmed in Visual Studio to coordinate the process. An example of one such system consists of a tube feeder picking and feeding catheters to two drillers with a vision system to inspect the hole's quality and diameter. Next, the drilled catheter was transferred to a pad printer for processing. Once completed, the pad printer markings were inspected by another vision system to verify the position and quality of the print. Then the finished part was sorted at a pass failed bin.

For the optical industry, a system was developed for Jenoptik to automate the calibration of a lens fixture used in their SYIONS miniature microscope product. This system comprises Zygo's Laser Interferometer feeding data to custom-built software that communicates with a PLC to control high-resolution stepper motors from PI-USA. This automated system allowed Jenoptik to increase its production rate and quality without requiring the operator to know the process intimately.

The Press-Fit division serves the PC Board industry. The family of machines is used to press connectors onto PC Board. My role in this division was to aid the lead programmer in improving the software, troubleshooting, updating schematics, and more. I also assisted the assembly department in building and debugging the various machines' electrical and mechanical components. Finally, I would calibrate and test these machines functionally before shipping.

The daily duties would consist of assisting the assembly department on manufacturing and debugging any problems during the building process. In addition, working with the applications department to verify customer-supplied products could be processed on the machines and continuous improvements to the software. I also worked with the customer service department to diagnose machines in the field and coordinate customers' requested upgrades.