

# Manuel M. Ramos

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## **Summary:**

I am a seasoned Control Systems Engineer with over 14 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 a team of engineers to complete projects in a fast-paced, challenging, deadline-driven environment and within budgetary constraints.

## **Work Experience:**

### **Syneo**

Sept 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 transcript customer requests into software specification
- 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 – Present

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

## **Technical Experience:**

- Developing PLC software using Omron SYSMAC, Keyence, AB RSLogix 500, and Kollmorgen
- Developing HMI using Maple Systems, Weintek, Kollmorgen, Omron, and Beijer
- Developing PC software using VB.net, C#
- Developed schematics to NFPA 79 standard using Autodesk AutoCAD
- Programming safety controllers
- Programming motion controllers from Galil, Trio, and Omron SYSMAC
- Programming collaborative robots from Universal Robots
- Developing vision applications using systems from Keyence and Banner Engineer
- Programming and commissioning servo drives from Parker, Kollmorgen, and Omron
- Tuning PID Loop for various applications.
- Using Fieldbus technologies such EtherCat, Ethernet/IP, TCP/IP, MODBUS, and more

# Summary of Experiences as a Control System Engineer at Syneo

At the beginning of my career as a Control System Engineer, I found writing and debugging PLC code to be arduous. So, after three months of late nights and frustrations, I began the development of a common framework. This framework was used 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. This framework made it possible for new control and application engineers to learn all Syneo's offerings rapidly.

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 Syneo machines to complete turn-key production cells to meet customer production demands. For example, a system would consist of a feeder, cutter, and inkjet printer. The feeder would deliver a catheter to a cutter that indexed a part to an inkjet printer. Once the printing process is completed, the cutter would cut the part to a programmable length. A production cell system would consist of several standard Syneo machines in conjunction with other vendor products. These systems were controlled by multiple PLC using a custom SCADA system programmed in Visual Studio to coordinate the process. For example, 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 finish 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 testing software that controls extremely 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.