Nicolas Guerrero

Sr. Electrical Design Engineer - Miasolé Thin-Film Solar
San Francisco, CA
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Electrical Engineer with over 10 years of experience in the solar manufacturing equipment industry. Primarily focused in capital equipment design and manufacturing support. Extensive PLC and motion control experience.

Willing to relocate: Anywhere

Work Experience

Sr. Electrical Design Engineer

Miasolé Thin-Film Solar - Santa Clara, CA
May 2008 to Present

Accomplishments
• Designed, tested, and implemented new equipment and equipment upgrades to meet changing cell efficiency, yield, uptime and throughput requirements for the Roll Coater - CIGS(Copper Indium Galli-um Selenium) Roll-to-Roll thin-film solar cell production tool. Subsystems of the Roll Coater include: DC, AC, and pulse DC plasma sputtering power supplies; vacuum; gas delivery; Digital/Analog IO; +24VDC power supplies and UPS for the IO system; heating systems for the substrate and material evaporation; induction motors for cathode rotation, spectroscopy hardware; an HMI; a PLC; and a Web Drive.
• Designed the controls electronics for a scanning system that measures the magnetic field and height

profile of sputtering related parts through the use of a gauss probe and laser profiler mounted on a precision servo motor driven stage. Worked with a mechanical engineer to create custom fixtures for the system and with a software engineer to develop the GUI and profile mapping software.
• Designed prototypes of parts, fixtures and enclosures in AutoCAD and SolidWorks. Worked with mechanical engineers and designers to verify and finalize designs before building in-house or sending out to vendors.
• Designed PCB Assemblies using Eagle PCB and OrCAD. Worked with vendors on PCB fabrication and assembly.
• Designed and built cable assemblies and harnesses: Thermocouple, IO, communications, High-Voltage sputtering, heater power and motor power.
• Worked with external vendors on the specification, design, manufacturing and qualification of the Web Drive, Magnet Scanner, Heater Control subsystem and several electrical enclosures.
• Documented procedures and provided training for the installation, setup, operation, maintenance, repair and troubleshooting of R&D and production equipment.
• Designed and implemented a humidity data logger in C# for solar cell storage.
• Created and ECO released through Agile PLM: schematics, BOMs, specification documents and electrical assembly drawings.
•Integrated an automotive DAQ system for monitoring the performance of Miasole flexible solar panel products on trucks.

Responsibilities
• Lead engineer for the software and electronics of the Web Drive - Stainless Steel Roll-to-Roll Substrate Handler system. Worked side by side with a team of mechanical engineers on continuous design improvements for the system. The Web Drive is comprised of: servo motors, variable frequency drives, an HMI, a PLC, tension control instrumentation, conveyors, gears, pulleys, position sensors, air pressure sensors, moving non-contact barcode printers, and a pneumatic air driven knife to cut the stainless steel substrate into desired lengths.
• Provide 24/7 on-site and remote escalation support for R&D and manufacturing organizations in troubleshooting thin-film production issues.
• Support the manufacturing, tested, and qualified Miasolé manufacturing equipment in China.

Electrical Engineer-Quality Department

Abbott Laboratories - Santa Clara, CA
August 2007 to May 2008

• Conducted manufacturing floor and lab test-bench investigations for component failures and assembly errors.
• Completed discrepancy reports for manufacturing build issues.
• Provided manufacturing floor technical support and troubleshooting for PCB installations in hematology analyzer assemblies.

Lab Assistant

Cal Poly Manufacturing Engineering Dept - San Luis Obispo, CA
March 2007 to June 2007

• Instructed students during OrCAD PCB layout training sessions.
• Supervised evening manufacturing open-lab sessions for students to work on their course long project of building a +12V power supply unit.
• Trained students on how to safely and effectively operate manufacturing lab tools: punches, CNC ma-chine, PCB etching materials, soldering equipment, and sheet metal brake.

Electrical Engineer Co-Op

Alcon Laboratories - Irvine, CA
June 2006 to December 2006

• Assisted senior level electrical engineers with the design, procurement, assembly, testing and debugging of prototype PCBs.
• Wrote programs for PIC Microcontrollers in C for testing and debugging prototype PCB assemblies.
• Collaborated with R&D, Operations and Quality departments to have alpha stage PCBs integrated into Alcon's latest generation vitreous surgery device.
• Managed the schedule for the procurement, assembly, and testing of 50 alpha-stage PCBs for the first manufacturing build of 3 vitreous device assemblies.
• Assisted in identifying and contracting outside vendors to manufacture Alcon's first high current flexible PCB.
• Wrote PCB assembly procedures and provided training for manufacturing technicians on the PCB assembly line.

Education

B.S. in Electrical Engineering
California Polytechnic State University - San Luis Obispo, CA

Skills

PCB, ORCAD, AC, AUTOCAD, C#, PLC, Electrical Engineering

Additional Information

SKILLS
• Rockwell Automation Software: RSLogix5000, RSView, FactoryTalk
• Programming in C, C#, Python, Visual Basic, PLC ladder logic
• SolidWorks, DWGEditor, AutoCAD, Eagle PCB, OrCAD, Agile PLM
• Embedded Design: MPLAB, CCS, PIC, Motorola HCS12, Arduino
• Machine Vision Systems, Spectroscopy Hardware, Barcode Readers
• Servo Motors, Induction Motors, VFD's, Conveyors, Vacuum Pumps, Vacuum Gauges, Proximity Sensors, Watlow Temp Controllers, Festo IO
• +24VDC Power Supplies and UPS
• Plasma Sputtering Power Supplies: Huttinger AC, MKS DC and Pulsed DC
• MKS MFC's and RGA's, XRF, Banner defect vision system
• Fluent in Spanish