Syrak Worku

Oklahoma City, OK
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To obtain a full time job as an engineer dealing in communications, controls and/or power systems with an emphasis on technical hands on work.

Authorized to work in the US for any employer

Work Experience

Electrical Controls Engineer

ATC Drivetrain, LLC - Oklahoma City, OK
2020 to Present

• Engineering support on the installation, configuration, and sustainment of all aspects of manufacturing and electrical control systems for production of Engines, Transmissions and Battery Packs for OEM automotive customers including (Ford, Nissan, Subaru, and Honda)
• Work with 0-600 VAC and 0-1000 VDC, single phase and three phase electrical power systems including Uninterruptible Power Supplies (UPS) ranging from 80 kVA to 300 kVA.
• Built and wired control panels including Power Supplies, PLCs, Relays, Proximity Sensors, Contactors and Terminal Blocks for machine electrical control systems and to specification of existing facility equipment.
• Configured automation equipment such as Programmable logic Controllers (PLCs), Variable Frequency Drives (VFD's) (Yasakwa, Unico), HMI's, Servo Drives, and Robotics (Denso/Fisnar).
• Involved in PLC programming with a strong knowledge of ladder logic including but not limited to (Idec, Allen Bradley, Omron, and Siemens) and familiarity with serial communications protocols used on majority of legacy equipment including RS232 and RS485.
• Involved with automotive electrification processes for remanufacturing of battery packs including reconditioning of battery cells, Inverters, DC/DC Converters and integration of Battery Monitoring Systems (BMS), Electric Drive Units (EDUs) and configuration of SiEVT test stands for hybrid, and plug in hybrid transmission testing.
• Experience and working knowledge using electrical drafting software (AutoCAD, AutoCAD Electrical) and pertinent control programming software packages (WinLDR, WindO/I-NV4, and WinCAPS).
• Experience in the design and troubleshooting of hydraulic and pneumatic systems for machines, material handling, automation, controls design, and data collection.
• Knowledge of electrical distribution systems for voltage below 600V using NEC, UL508, NFPA 79/70E codes, and OSHA (10) regulations specific to industrial manufacturing processes and safety.
• Involved in planning and execution of projects with Production Supervisors and Manufacturing Applications Engineers to review functions of machines and equipment.

Electrical Engineer

Federal Aviation Administration (ASRC) - Oklahoma City, OK
2018 to 2019

• Engineering Support for the National Airspace System (NAS) AJW-223 Critical Power Systems including the Air Traffic Control Center Critical Essential Power System (ACEPS) which included Critical and Essential Standby Power Systems for government facilities.

• Troubleshoot ACEPS II Phase I system which is an uninterruptible power supply (UPS) that ensures continuous electrical power to Air Route Traffic Control Centers (ARTCC). The switchgear was comprised of multiple Allen Bradley PLCs, Relays, and 50KW-100KW circuit breakers.

• Performed Quality Assurance& Evaluation (QA&E) and System Test on ACEPS II Phase I equipment including but not limited to: 650 KW Diesel Engine Generators, UPS Systems, Switchgear, Battery Banks, Load Banks, L3 Static Switches, and SCADA.

• Review drawings, develop comments for improvement, and conduct engineering studies on systems and code requirements to assist in design decisions.

• Developed and made recommendations to design blueprints, electrical schematics, and flowcharts, FAA Technical Instructions (TI), SDRs, SSMs and Handbooks.

• Knowledge of NEC and OSHA Standards and Regulations. FAA Standards and Orders.

• Involved in maintaining and monitoring commercial and standby power for all critical and essential building feeds.

• Designed, and supervised the installation of electrical and mechanical systems in an En Route, Terminal and Tower Air Traffic Control facilities needed for navigation electrical/mechanical support for facilities on and off airports within the network of the National Airspace System (NAS).

Radar Systems Engineer

National Weather Service (Centuria) - Norman, OK
2015 to 2018

•Engineering support on the National Weather Service NEXRAD WSR-88D Weather Surveillance Radar System.

•Provide technical support for engineering design, development and testing of all hardware and software prototypes.

•Involved in the System Life Extension Program (SLEP) which included modifications to the signal processor, transmitter and receiver by replacing the radar control and video processor (RCP/RVP), Digital Control Unit (DCU), I/O Panel, Intermediate Frequency digitizer, and Surge Suppressor.

•Worked on installations and calibrations of WSR-88D Radar hardware including Signal Processor Interface Panel (SPIP), Radar Signal Processor (RSP), Intermediate Frequency Digital Receiver (IFDR), and DC/DC converters in the pedestal of the radar.

•Performed Obsolescence Investigations on numerous equipment in the NEXRAD WSR-88D Radar including but not limited to AC Distribution Panels, Modular Power Supplies, RF Generator, DC/DC Converters, LAN Switches, GPS, Console Servers, and many other existing hardware.

•Involved in full project Life Cycles including developing Bill of Materials (BOM), schedules (WBS), and budgeting for numerous projects.

•Participated in investigations and evaluations of transmitter, RF pallet, Radar Product Generator (RPG), Radar Data Acquisition (RDA), and Antenna Mounted Electronics (AME).

•Developed wiring schematics, technical documentation, and built hardware for Pedestal Simulator (PedSIM) which emulates the entire Pedestal Drive System by receiving commands to drive the antenna, control the servo amplifiers, and query the encoders using a single board computer (beagle bone black). The simulator sends data to the SPIP on antenna location, motor tachometer, and the various sensors in the pedestal.

•Assisted in the design and development of schematics and documentation for Test Bed Switch Controller (TBSC) which commands and controls switching of the radar to different test bed configurations including NWS single, DOD single, FAA redundant, and NWS redundant. Built receiver card, inter-panel processor link, RPG comms matrix, and waveguide switch control.

•Familiar with radar calibrations including, IFDR acquisition clock frequency, receiver bias, linearity, noise level, power sense, RF Test Attenuator, and Burst Pulse plots.

•Developed remove and replace procedures, preventative maintenance instructions (PMI), and unit specifications for numerous hardware such as low noise amplifiers, power supplies, modulators and fan assemblies relevant to the NEXRAD WSR-88 D Radar.

Electrical Designer
C.H. Guernsey & Co. - Oklahoma City, OK
2012 to 2014

• Engineering planning for electrical systems including AutoCAD design of system architecture.
• Responsible for development of overall system layout including determination of communication systems and protection control hardware for system operability.
• Development of equipment for AC power input involving the design of three phase power systems.
• Design and integration of all power system components including power converters and battery chargers for commercial and military facilities such as multi-workstation Aircraft Hangars.
• Power distribution and generation, UPS, power coordination studies, Test Switches and Fuses.
• Prepare schematics of electrical systems to ensure that installation and operations conform to IEEE standards.
• Perform detailed calculations including Short Circuit, Voltage Drop, and Energy to maintain and implement electrical equipment/instruments.
• Involved with electrical system wiring including one lines, three lines, protection/controls and Block Diagrams, cable lengths, and conduit routing from preliminary design to final system installation.
• Direct and coordinate installation, support, documentation, and testing activities to ensure compliance with specifications, IEC codes, and customer requirements.

Education

BS in Electrical Engineering (136 cr.)
Virginia Polytechnic Institute and State University (Virginia Tech) - Blacksburg, VA
August 2003 to August 2007

HS diploma in Curriculum
Santa Fe High School - Edmond, OK
August 1999 to May 2003

Skills

• Power Systems, Avionics, Radio Frequency Design
• Programmable Logic Controllers
• NEC
• System design
• AutoCAD

Additional Information

RELATED SKILLS

Research Projects:	Operating Systems:	Applications/Languages
LED Displays using PIC Microcontroller	MS-Windows	Microsoft Office
Embedding Mircoblaze Processor using Xilinx EDK	MS-DOS	MATLAB 6.5.1
Electronic Packaging of Intel/AMD Microprocessors	UNIX	Logic Works
Analysis of RLBVC program for Pepco System Protection	Linux	AutoCAD 2012
Solar Panel Simulation for Pepco System Planning		Adobe Photoshop
		C++, JAVA, MS-VB 6.0, Assembly