SAM KHALAF

Controls Project Management | Procore Certified (PM, Superintendent & Admin) | Ignition Gold | OSHA 30

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PROFESSIONAL SUMMARY

Controls engineer with 2+ years of professional experience across data center BMS/EMS, automotive manufacturing, and OEM validation, a project-management focus, and a dual B.S.E. in Electrical and Computer Engineering. Now Project Specialist II at Bosch Building Technologies. Procore (PM, Superintendent, Admin) and Ignition Gold (93.5%) certified, OSHA 30 trained. Brings an engineer's command of drawings, sequences, and field conditions to scope review and commissioning.

CORE STRENGTHS

End-to-End Delivery
Three-robot cell demo built from PLC logic to HMI, simulation, and SCADA

Commissioning & Validation
I/O checks, interlocks, permissives, and controlled machine-cycle tests

Mission-Critical Controls
Data center BMS/EMS integration support and commissioning readiness

Cross-Functional Coordination
Machine startups with maintenance, production, and engineering teams

Procore Workflows
RFIs, submittals, budgets, change orders, and crew planning

Quality, Risk & Safety
FMEA/DFMEA, root-cause analysis, OSHA 30, NFPA 70E/79, and LOTO

CERTIFICATIONS

Procore (2026)	Project Manager: Core Tools, Project Management, Financial Management, Quality & Safety, Resource Planning, Resource Tracking · Superintendent Certification · Admin Certification, full series: Configure Settings, Configure Users & Projects, Manage Tools & Data
Ignition	Gold Certified, 93.5% (Sep 2026) · Core Certified (Aug 2026) · Ignition 8.3 Credential (Aug 2026)
Safety & Robotics	OSHA 30-Hour Construction · NACHI Robotic Systems, in person (2024): AX PLC & I/O (3-day, teach-pendant programming and motion control); FD Operation & Programming (2-day)

PROFESSIONAL EXPERIENCE

Project Specialist II — Ignition SCADA/HMI | BMS/EMS Nov 2026 – Present
Bosch Building Technologies North America | Phoenix, AZ (Hybrid)

Controls Specialist I — Ignition SCADA/HMI | BMS/EMS Aug 2026 – Sep 2026 | Relocated to Phoenix, AZ
RoviSys Building Technologies | Saline, MI

- Supported BMS/EMS integration planning and commissioning readiness for a mission-critical data center, reviewing P&IDs, control drawings, SOOs, SOPs, interlocks, and chiller sequences for HVAC automation and FAT preparation.
- Built and delivered an Ignition Perspective BMS/EMS simulation and training application that models chiller operations, equipment states, alarms, and plant-level KPIs, using Python and SQL to drive simulation logic and update process tags.
- Standardized equipment templates (UDTs, indirect bindings, parameterized Perspective views) so the application scales across equipment instead of relying on one-off builds.
- Authored BACnet/IP and TCP/IP technical references covering field controllers, IP addressing, network topology, SCADA connectivity, and structured troubleshooting.

Controls Technician Jan 2026 – May 2026
American Axle & Manufacturing, DAUCH Forge Facility | Oxford, MI

- Partnered with maintenance, production, and engineering teams on machine startups, taking equipment from fault diagnosis through repair to a validated return to production.
- Verified repairs through PLC I/O checks, field-device testing, interlock/permissive verification, and machine-cycle tests.
- Documented downtime causes, repairs, and corrective actions to support root-cause analysis of recurring faults.
- Diagnosed PLC-controlled equipment in Studio 5000 and TIA Portal, tracing HMI alarms through ladder logic and field I/O to failed sensors, actuators, relays, motors, VFDs, and control panels.
- Supported HMI/SCADA development and equipment monitoring with SQL and Python scripting.

EMC Lab Test Technician
Aug 2024 – Sep 2025

Applus Reliable | Madison Heights, MI

- Executed automotive EMC testing to OEM procedures (BCI, radiated emissions and immunity, ESD) and recorded traceable pass/fail outcomes, failure modes, and measurement plots for compliance documentation.
- Ran signal-integrity, impedance, continuity, and polarity checks, separating test-setup faults from true device behavior.

Electrical Engineer Intern, ECU Test & Validation
Apr 2021 – Sep 2021

Robert Bosch (XC-Multimedia) | Plymouth, MI

- Flashed ECU software (ETAS INCA, Vector), traced DTCs and CAN faults, and improved VCU reliability by 20%.

SELECTED PROJECTS

Automotive Oil Pan Automation Cell: PLC, HMI & SCADA Demo
2026

Independent portfolio project | Siemens TIA Portal, PLCSIM, ROBOGUIDE, OPC UA, web SCADA

- Delivered an end-to-end controls design for a three-robot oil pan cell on a Siemens S7-1500 (SCL): screw placement, torque/angle-verified fastening, laser barcode etching, scanning, and duplicate detection.
- Structured the logic as a step-controlled state machine with auto, manual, step, and demo modes, plus modular blocks for robot handshakes, traceability FIFO, alarm history, downtime, OEE, and PM counters.
- Validated the sequence offline in PLCSIM and ROBOGUIDE, supervised through a TP2200 Comfort Pro HMI with OPC UA data exchange and operator, maintenance, and engineering user levels.
- Designed a web SCADA command center (JavaScript, HTML/CSS) that tracks the 7-step sequence, 10 permissives, torque/angle, alarms, OEE, loss Pareto, and traceability, plus a digital-twin cell view.

TECHNICAL SKILLS & TRAINING

Project Tools	Procore: RFIs, submittals, project documents, budgets, commitments, change orders, inspections, observations, crew planning, labor-hour tracking, site records, administration
PLC, HMI & SCADA	Allen-Bradley Studio 5000; Siemens TIA Portal (S7-1500/1200, SCL, ladder, PLCSIM, WinCC, Comfort HMI); Ignition (Perspective, Vision, UDTs, alarm pipelines); OPC UA; ROBOGUIDE; VFDs
BAS & Networking	BACnet/IP, BMS/EMS integration, chilled-water systems, TCP/IP, Ethernet, VLANs, RS485, CAN
Design, Data & Test	AutoCAD Electrical, EPLAN P8, SQL, Python, JavaScript, HTML/CSS, Vector CANoe/CANalyzer
Recent Training	12 courses, Jun–Aug 2026: RSLogix/Studio 5000 (22 hrs), S7-1200 & WinCC (TIA V20), PowerFlex 525 and G120 VFDs, PLCopen motion, BACnet, chilled-water piping, CCNA prep

EDUCATION

University of Michigan–Dearborn
Sep 2019 – Apr 2024

Dual B.S.E., Electrical Engineering & Computer Engineering | GPA 3.4

- Relevant coursework: Controls, Electrical Power Systems, Mobile Robots, Computer Architecture, Operating Systems
- Senior Design, Smart Shoe System: developed an ESP32-based smart shoe integrating force, IMU, and ultrasonic sensors; calibrated sensor outputs and built a mobile app for real-time visualization and data logging.

RECOMMENDATIONS

> *"...a dedicated, reliable, and collaborative team player who takes ownership of his responsibilities."*
> — Syed Haider, Quality Manager and Validation Project Lead; Bosch teammate

> *"...motivation, curiosity, and systems-level thinking... Very bright engineer who strives for perfection."*
> — Dr. Ali Hariri, PhD, Principal Engineer, DTE Energy; Adjunct Faculty, University of Michigan–Dearborn

> *"Sam shows a great understanding of Electrical Engineering. I really recommend him for any position."*
> — Mahmmod Al-Askary, M.Sc, Project Chief, Chrysler; mentor at University of Michigan–Dearborn

> *"...always willing to learn and improve. He constantly sought feedback and was always driven to push his work further."*
> — Khalil Zbiss, PhD, Senior Robotics Researcher, GM R&D; Control Theory Lab instructor, University of Michigan–Dearborn

> *"Sam demonstrates strong initiative, technical curiosity, and a practical engineering mindset..."*
> — Junaid Farooq, Associate Professor (controls), University of Michigan–Dearborn