

Karl Vaughan Hinbern

Product Design & Development Engineer | Project Manager

(734) 972-0558 • karl@hinbernsolutions.com • hinbernsolutions.com • Ann Arbor, MI

CORE SKILLS

Product Development

- Full product lifecycle management
- DFM / DFA / BOM optimization
- Lightweighting & cost reduction
- Urethane cast → injection molding
- IP67 & drop-test ruggedization
- Concept-to-prototype development

CAD & Fabrication

- SolidWorks 2022 + Visualizer
- Autodesk Fusion 360
- 3D printing: FDM, SLA, SLS
- CNC machining, CAM, G&M codes
- Laser cutting & engraving
- GTAW / oxy-fuel welding & brazing

Electronics & Controls

- PCB design: Eagle, DipTrace
- PLCs: AB ControlLogix, RSLogix 5000
- PID / closed-loop automation
- Robotics, vision systems, RIA stds
- AC/DC motors, VFDs, servo/stepper
- Python, Structured Text, FBD

Quality & Standards

- ANSI 42.34 certification
- ISO quality systems & compliance
- Failure analysis & validation
- Technical writing & documentation
- Cross-functional team leadership

PROFESSIONAL EXPERIENCE

Product Engineer & Project Manager

H3D, Inc. — Ann Arbor, MI | November 2018 – Present

- Lead engineer for the A-Series handheld radiation detection product line — simultaneous gamma & neutron detection, isotope identification, and directionality in a ruggedized, IP-rated portable form factor.
- Managed the full product lifecycle: mechanical & electronic design, rapid prototyping, ANSI 42.34 standard certification, production support, and process flow creation.
- Drove successful domestic and international commercial deployments; represented product at security events (CBOA) and technical conferences (WMS).
- Currently leading next-gen revision targeting IP67 rating and 1-meter drop survival — transitioning from urethane cast to injection-molded housings, reducing BOM complexity, lightweighting the assembly, and sourcing local machine shops for leaner manufacturing. Target release: mid-summer 2026.
- Maintained ISO compliance, quality metrics documentation, and cross-functional coordination across engineering, production, and business development.

Principal Engineer & Consultant

Hinbern Solutions, LLC — Ann Arbor, MI | Ongoing

- Independent product design & development consultancy guiding clients from initial concept through planning and functional prototype.
- Services span ideation, feasibility analysis, DFM, CAD modeling, rapid prototyping, and vendor coordination.

EDUCATION

Washtenaw Community College — Ann Arbor, MI

Mechatronics, Industrial Electronics | 2018–2020 | 4.0 GPA, Dean's High Honor Roll

Music Production & Engineering | 2005–2007 | 3.95 GPA, High Honors

University of Michigan — Ann Arbor, MI

B.A. Music, Minor in German | 2000–2004 | 3.5 GPA

ADDITIONAL EXPERIENCE

Lead Brewer, Wolverine State Brewing Co. (2011–2018) • Head Sound Engineer, LIVE / Goodnight Gracie's (2009–2018) — hands-on facilities maintenance, equipment repair, and production management.

Complete project history and references available upon request.