MiniProto

QUOTE-TO-BUILD AUTOMATION FOR CUSTOM WIRE HARNESSES,
THE MOST MANUAL PART OF HARDWARE BUILDS

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CUSTOM WIRING STILL LIVES IN 1985 AND HOLDS BUILDS BACK

THE PROBLEM IS HARD...

- **Every harness is different** - lengths, connectors, pinouts, labels, sleeving, splices, etc.
- **No universal format** for communicating designs (unlike Gerber for PCB and STEP for MCAD)
- **Millions of component options** with varying degrees of documentation and tooling
- **Automation is difficult**, often requiring days of fine tuning for specific jobs

..AND NO ONE WANTS TO DO IT

- **No one is a specialist** - in-house manufacturing teams often treat wiring as an afterthought, leading to last-minute crunches
- **Manual and human-intensive** processes for quoting and production
- **Job sent overseas for decades**, with only high end manufacturing left onshore, all with high MOQs
- **Largely interdisciplinary effort** requiring careful coordination between mechanical and electrical teams, with neither having ownership

RESULT:

- 4-6+ week lead times for even simple prototypes
- 2-6+ month lead times for complex production runs

CUSTOM WIRING IS THE LAST BOTTLENECK IN MANUFACTURING

CUSTOM HARDWARE

1-5 Days ✓

PROTOLABS

Xometry

MOTORS, HARDWARE, AND SENSORS

1-5 Days ✓

DigiKey

McMASTER-CARR

CUSTOM CIRCUIT BOARDS

1-2 Weeks ✓

MACROFAB

JLCPCB

CUSTOM WIRING

4-6 Weeks ✗

Alibaba

VEZA MANUFACTURING

DELAYS IN WIRING HOLD UP THE ENTIRE BUILD PROCESS

A $20B INDUSTRY RIPE FOR DISRUPTION

$20B
U.S. Wire Harness Market
$60-100B Globally

$2-3B
Target Segment
Low to mid volume, speed at a premium

WHY NOW

RESHORING MOMENTUM
Supply chain fragility pushing manufacturing back to U.S.

DEFENSE SUPPLY CHAIN SCRUTINY
Domestic sourcing requirements and refocus on supply chain depth and innovation

ROBOTICS & DRONE BOOM
Hardware companies scaling faster, need flexible suppliers

AUTOMATION ADVANCES
Digital manufacturing, AI, and automation hardware mature enough to tackle labor intensive processes

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WHOSE PAIN POINTS WE ARE SOLVING

amazonrobotics

R&D ENGINEER

Context: Designing a warehouse robot module to handle baggy parcels that snag, slump, and break neat assumptions. Specs change weekly

Pain point: Needs 10-50 harnesses yesterday to hit a milestone, can't wait 6 weeks

Values: Speed, no MOQs, instant quoting without procurement gymnastics

AWL.

SYSTEM INTEGRATOR
(INDUSTRIAL AUTOMATION)

Context: Delivering a bespoke, turnkey robotic depalletizing cell for a major retailer

Pain point: Every project is bespoke. Late changes (zones, sensors, safety circuits) trigger harness revisions and requotes, and slow suppliers can stall on-site commissioning

Values: Flexibility, reliable lead times, quick requotes when specs change

PERFORMANCE DRONE WORKS

PROCUREMENT SPECIALIST

Context: Sourcing wiring as PDW ramps a modular, multi-mission quadcopter from prototype into low-rate production, while payload configs keep evolving

Pain point: Overseas can look cheaper but adds lead time and quality risk; domestic options are expensive and still slow

Values: Predictable pricing, U.S.-based supplier

WHY WE CAN AND WANT TO SOLVE IT: FOUNDING STORY

FIRST ROBOTICS COMPETITION
Building robots at lightning speed

Cornell Engineering
Mechanical engineering foundation

CU AUV
Building submarines that drive themselves

SPACEX
Quality under pressure

UNLIMITED TOMORROW
Mass customizable medical device startup

CEMTREX
Division GM
Consumer electronics during supply chain disruptions

ALEX MALCOCI

CEO/Founder

Solders together mechanical, electrical, and software engineering

Unrepentant systems thinker and automator

WIRING COMES UP AS A PAIN POINT AGAIN AND AGAIN

AMETEK
Aerospace at production scale

CXR.AGENCY
Director of Ops
Overseas software development with 100+ devs

MiniProto
Solving wire harnessing once and for all

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OUR SOLUTION: AN OPERATING SYSTEM FOR WIRE HARNESSES

PCBS HAVE MACROFAB. CNC HAS XOMETRY.
WIRE HARNESSES HAVE... EMAILS AND PHONE CALLS. UNTIL NOW.

WHAT IS MINIPROTO?

1. **A configurator that speaks manufacturing** - Engineers design in a tool that only allows buildable specs. No back-and-forth, no DFM surprises
2. **Single source of truth** - The same configuration drives quoting, purchasing, and work instructions. No handoffs, no translation errors
3. **Software-first, manufacturing-second** - The configurator is the product. Today we fulfill orders ourselves. Tomorrow we're the platform

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HOW IT WORKS: DESIGN (1/4)

CURRENT STATE

1. **Electrical engineer specs electrical requirements** - pinout, connectors, AWG, etc.
2. **Mechanical engineer determines lengths needed**
3. **Mechanical engineer must document design** using tools like RapidHarness, WireViz, hand sketching, Mechanical CAD, Excel
4. **Manufacturer reviews drawings** and generally has significant back and forth over component choices, availability, and manufacturability

THE MINIPROTO WAY

1. **Electrical engineer configures harness** in the online configuration tool
2. **Mechanical engineer adjusts lengths** in the online tool.
3. **Manufacturability (DFM) check happens live** as only buildable options are available
4. **Done** - spec is production-ready

WHY WE WIN:

- **DFM built in** - you can only design what we can build
- **Nothing lost in translation** - everyone in a mutually understood format

HOW IT WORKS: QUOTING (2/4)

CURRENT STATE

1. **Contract manufacturer (CM) receives spec package** from the customer
2. **CM manually prices out BOM** (connectors, wire, labor) and **builds quote**, including back and forth over design interpretation
3. **CM issues quote**, often revising multiple times to meet cost targets by adjusting components and design

THE MINIPROTO WAY

1. **Engineer receives pricing instantly** from the configuration tool **as soon as the design is complete**
2. **Specs or quantity change? Price updates instantly**
3. **Done** - quote is ready when design is ready

WHY WE WIN:

- **No sales engineer in the loop -** saves cost, saves time, and minimizes interpretation errors
- **Margin flexibility -** lower overhead means savings we can pass to customers

HOW IT WORKS: MANUFACTURING (3/4)

CURRENT STATE

1. **CM engineer interprets specs** and **creates internal work order**
2. **Bills of material created and shopped for manually**
3. **Ambiguity? Engineer goes back to clarify** or makes a judgment call
4. **Skilled technicians build harness** based on interpretation
5. **Hope it matches what customer actually wanted**

THE MINIPROTO WAY

1. **Configurator sends the quote into the internal systems,** generates standardized digital work instructions and shopping lists
2. **Technicians execute** - every wire, connector, and pin pre-defined
3. **Done** - no interpretation, no guesswork

WHY WE WIN:

- **Technicians execute** without spending time interpreting
- **Faster, fewer errors**, less reliance on tribal knowledge

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HOW IT WORKS: QUALITY CONTROL (QC) (4/4)

CURRENT STATE

1. **QC inspector** receives finished harness and **compares against the same ambiguous drawing**
2. **QC inspector manually verifies** tedious elements like pinouts, lengths, and continuity
3. **QC inspector passes/fails** based on the interpretation, experience, and judgement
3. **Issues found? Trace back** through the ambiguity chain

MINIPROTO WAY

1. **Configurator generates inspection checklist and automated testing automatically**
2. **Every checkpoint tied to original spec.** Pass/fail is objective, not interpreted
3. **Done -** traceable, verifiable, fast

WHY WE WIN:

- **Inspection criteria auto-generated from the design**
- **No "I think this is right"** moments

SOME OF OUR 125+ CUSTOMERS

VECNA ROBOTICS

UNITED STATES NAVY

amazonrobotics

PRG

UPLINKROBOTICS

SLIP ROBOTICS

Precision Planting®

iridium®

AWL.

ARGO SPACE CORP

PERFORMANCE DRONE WORKS

Los Alamos NATIONAL LABORATORY

WIRES, WIRES EVERYWHERE:

- Defense and dual use
- Warehouse and logistics
- Industrial automation
- AgTech
- Construction
- Automotive and transportation
- Medical and life sciences
- Hardware
- Research and government
- Entertainment

$55K
2024 Sales

$325K
2025 Sales
500% from 2024

$1.12K
Average Order Size
157% from 2024

$5.5K
Average Lifetime Value

59%
Repeat Customers

$0
Ad Spending
Only SEO, email, referrals

BUSINESS MODEL

SOFTWARE-ENABLED HARNESS MANUFACTURING TODAY

MINIPROTO CONFIGURATION TOOL → QUICK-TURN CUSTOM WIRE HARNESS MANUFACTURING

- **Revenue streams:** harness builds, rush order premiums, design-for-manufacture (DFM) support
- **Pricing power:** customers pay for certainty and speed (not just materials)
- **Margin leverage:** automation reduces labor per quote/order and raises throughput

PLATFORM OPTIONALITY TOMORROW

SAAS: WIRE HARNESS DESIGN TOOL & SPEC STANDARDIZATION

Monetization: per-seat subscription (industry example: RapidHarness)

Why it's strategic: turns quoting inputs into structured data

MANAGED SUPPLIER MARKETPLACE

Monetization: spread on fulfilled orders (industry example: Xometry)

Why it's strategic: scales capacity without scaling headcount/capex

EXPAND INTO ADJACENT CUSTOM MANUFACTURING

Monetization: same playbook (industry example: Protolabs)

Why it's strategic: reuses the hard part (workflow, rules)

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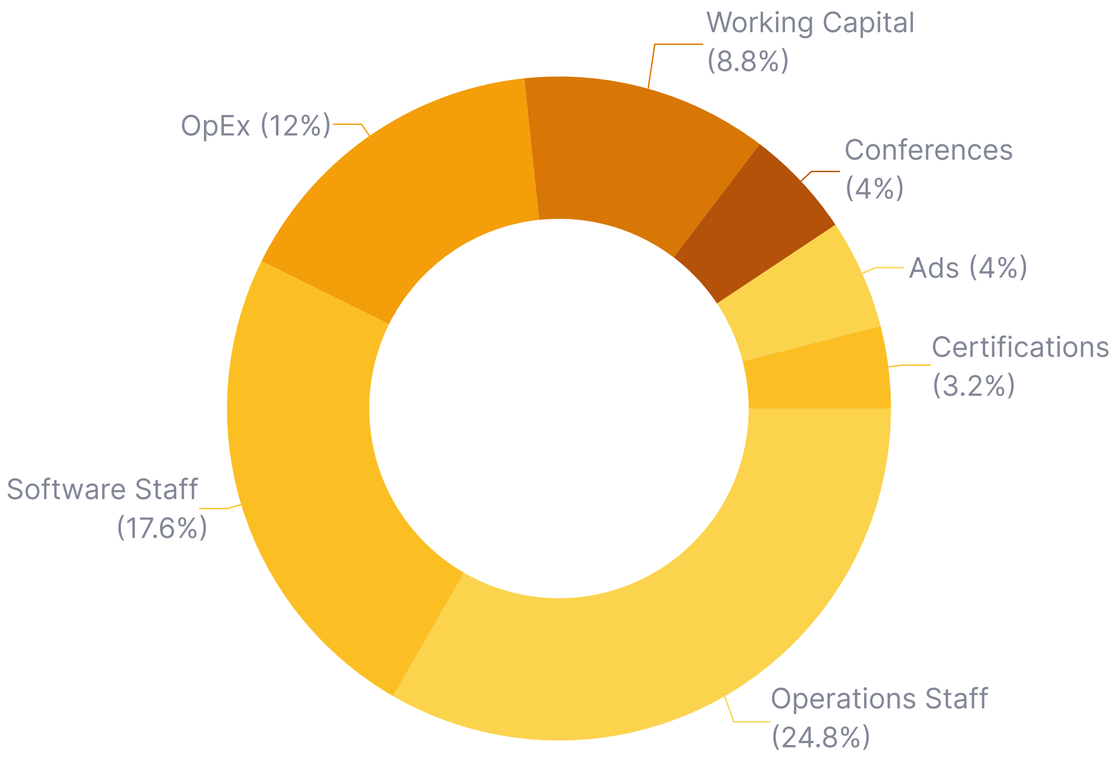
RAISE AND USE OF FUNDS

WE'RE RAISING A SEED ROUND OF $1.5M TO BUILD OUT OUR PLATFORM AND ACT ON CLEAR DEMAND

ESTIMATED USE OF FUNDS



GOAL 1: BUILD OUT CONFIG TOOL

Achieve >90% of orders through config tool

Validate SaaS demand with 100+ paid users for design features

GOAL 2: RAPIDLY SCALE REVENUE

Grow to >$500k MRR in <24 months from current $50k

Retain <$500 CAC and grow customer LTV

GOAL 3: INCREASE THROUGHPUT AND EFFICIENCY

Increase headcount, space, and equipment to match revenue targets

Automate and speed up processes to raise gross margin to 40-50% from 30%

Pilot supplier network to test marketplace model

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