



Your Engineering Partner for AI Hardware

BOM optimization | DFM | Prototyping | Manufacturing

3,000+

Component suppliers

12 weeks

Concept to prototype

1,000

Min pilot run

hello@breezehw.com | breezehw.com | Shenzhen, China

Building AI Hardware Is Hard.

80% of hardware startups fail at manufacturing, not the idea stage.

✘ **Factories won't take your 1K MOQ**

Most factories want 10K+ units. We start at 1,000.

✘ **IP leaks and design theft**

NDA + IP assignment standard on every engagement. Your designs stay yours.

✘ **No DFM feedback until late**

We run DFM checks at the design stage, not after you've committed to tooling.

✘ **Unpredictable NRE costs**

You get a clear, fixed NRE quote before any work starts.

✘ **Language and timezone barriers**

Native English + Mandarin team. We work your hours.

✘ **Certification maze**

FCC, CE, UL, SRRC -- we handle the paperwork, testing, and timeline.

Who's behind Breeze

Four operators. 60+ combined years in Shenzhen supply chain, smart hardware, and cross-border delivery.



Jett Fu

Founder & CEO

15+ years cross-border operator. Founded AirPop -- smart air wearable launched at CES 2021, covered by Tom's Guide, Wired, Digital Trends. US (Delaware) + HK + Singapore entities. Native EN + ZH. Based in Shenzhen.



Jank Liu

Supply Chain + Quality Lead

30 years across industrial valves, PCB, wire harness connectors, smart masks, and rail transit. GE Six Sigma Black Belt -- led HX-5 rail NPI. Amphenol Medical cross-border supplier development and compliance lead. Alumni: Tyco, Amphenol, GE.



Sky

Engineering Lead

10+ years in Shenzhen consumer electronics supply chain. Prototype to mass production for wearables, IoT devices, and audio products. Ground-truth knowledge of the supplier network within 50 km of our office.



Arting Chen

Partnerships & Deal Flow

AI hardware incubator and investor network. Qualifies deal flow and connects AI hardware founders with Breeze. Direct relationships with YC/HAX-adjacent teams building their first physical product.

10+ Years. Not a New Company.

Before Breeze Hardware, our team shipped production at scale:

AirPop Active+ Halo

World's first smart air wearable -- CES 2021

Bluetooth respiratory sensor + iOS/Android app + certified mask manufacturing. Global retail launch via AirPopHealth direct + national retailers.

PRESS

Tom's Guide, Hypebeast, Digital Trends, Wired

Cross-Border Supply Chain Execution

Customs, logistics, international delivery

Deep fluency in import/export customs clearance, HS-code classification, commercial invoicing, multi-modal freight (ocean, air, rail), bonded warehouse coordination, and destination-country fulfillment into US, EU, LATAM, and APAC.

EU Medical Packaging

Hospital surgical tray systems

Regulated medical device packaging -- material sourcing, sterility validation, third-party lab testing, and full compliance documentation for EU hospital systems.

Full disclosure.

Breeze's co-founder Jett Fu is AirPop's founder & CEO. AirPop Halo was delivered by the same supply-chain and engineering team now powering Breeze.

Concept to Production in 6 Steps

A clear, predictable path from idea to product.

01

Scoping

Share your concept. We assess feasibility, BOM, and ballpark cost.

02

Engineering Design

Schematic, PCB layout, mechanical design, firmware architecture.

03

DFM & Prototyping

Optimize for manufacturability. 3-5 functional prototypes.

04

Tooling & Sourcing

Injection molds, jigs, fixtures. Component sourcing from 3,000+ local suppliers.

05

Pilot Run

50-500 units. Test assembly line, QC process, packaging.

06

Mass Production

Scale to 1K, 10K, 100K+. Ongoing QC, logistics, fulfillment.

Cost Reality Check

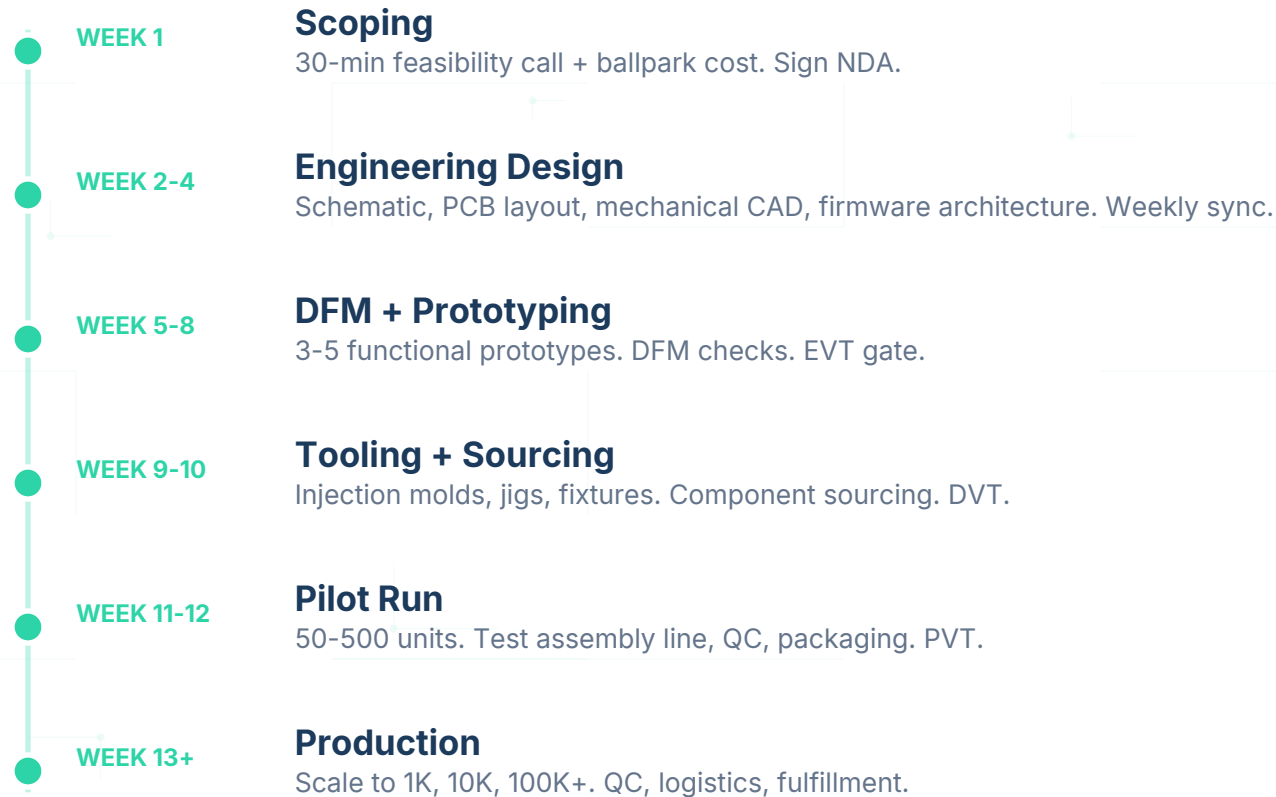
\$99 AI wearable pendant -- real BOM breakdown @ 5K units

\$26.40 / unit avg landed cost

Component	Example	Cost Range
SoC / MCU	ESP32-S3 / nRF5340	\$1.80 - \$4.50
Memory (Flash + RAM)	4MB + 512KB	\$0.60 - \$1.20
Microphone Array	MEMS x2	\$0.80 - \$2.00
Speaker / Haptic	Micro speaker + LRA	\$0.50 - \$1.50
Battery (LiPo)	250mAh pouch cell	\$1.20 - \$2.50
BLE + Wi-Fi Antenna	Chip antenna / FPC	\$0.30 - \$0.80
PCB (4-layer HDI)	30x25mm, ENIG finish	\$0.80 - \$1.50
Enclosure (injection)	PC/ABS, 2-shot mold	\$0.60 - \$1.20
Connector + Misc	USB-C, pogo pins, ESD	\$0.40 - \$0.80
PCBA Assembly	SMT + manual + test	\$1.50 - \$3.00
Packaging	Box, insert, manual, cable	\$0.60 - \$1.20
Landed Unit Cost*		\$26.40 avg

What happens after you sign

A predictable 12-week path to pilot. Transparent weekly sync.



Fixed-price at every gate.

EVT, DVT, and PVT gates each have defined deliverables and sign-off. No T&M. No scope-creep invoices. Weekly status sync on Fridays with photos, videos, and next-week plan.

Typical Project Costs

Fixed-price at every stage. No T&M. No scope-creep invoices.

Scoping Free

Initial concept review. 30-minute call plus a one-page feasibility note.

- ✓ Device feasibility assessment
- ✓ Ballpark BOM range
- ✓ Certification needs summary
- ✓ Timeline estimate

MOST ENGAGEMENTS

NRE + Pilot \$50K – \$150K

Engineering to working prototype plus pilot batch. Fixed-price.

- ✓ Schematic, PCB, mechanical, firmware architecture
- ✓ 3-5 functional prototypes (EVT / DVT)
- ✓ Tooling, jigs, fixtures
- ✓ 50-500 unit pilot run
- ✓ Full source files delivered

Production \$15 – \$60 / unit

At 5K volume for typical AI wearables. Scales with volume and complexity.

- ✓ 1K – 100K+ unit runs
- ✓ Ongoing QC + yield optimization
- ✓ Logistics + fulfillment
- ✓ Global shipping
- ✓ Replenishment planning

Complexity (sensors, radios, battery chemistry, certifications) drives the final number. Try the NRE Simulator at breezehw.com/tools/nre-simulator for a tailored estimate in 60 seconds.

DFM: Top 10 Pitfalls

Mistakes we've seen (and fixed) across 50+ hardware projects.

1 Thermal runaway

AI inference chips generate 2-5W. Without proper thermal paths, throttling kills performance.

3 Battery certification gap

UN38.3 + IEC 62133 are mandatory for shipping. Budget 6-8 weeks and \$3-5K.

5 Acoustic cavity design

Mic array performance depends on cavity geometry, not just microphone specs.

7 Test jig as afterthought

Design the test fixture alongside the product. Retrofitting costs 3x and delays 4 weeks.

9 ESD protection gaps

Every external port needs TVS diodes. Skipping them passes lab testing but fails in the field.

2 Antenna detuning

The human body and enclosure materials shift antenna performance 3-6 dBm. Simulate with real enclosure.

4 Underspec'd power supply

Peak current draw during AI inference can be 3x idle. Size your regulator for bursts.

6 Injection mold draft angles

Below 1.5 degrees on textured surfaces = stuck parts and scratched finish.

8 Connector placement

USB-C orientation and position affect waterproofing, drop strength, and user ergonomics.

10 Silkscreen and markings

FCC ID, CE mark, and recycling symbols need specific sizes and placements per regulation.

Certification Roadmap

What you need, how long it takes, and what it costs.

Certification	Region	Timeline	Budget	Required For
FCC Part 15	United States	4-6 weeks	\$3-8K	Any radio transmitter (BLE, Wi-Fi)
CE (RED)	European Union	6-8 weeks	\$5-12K	Radio equipment sold in EU/EFTA
UL/IEC 62368	US / Global	8-12 weeks	\$8-15K	Audio/video/IT equipment safety
UN38.3	Global	4-6 weeks	\$3-5K	Any product with lithium battery
IC (ISED)	Canada	4-6 weeks	\$2-4K	Radio devices sold in Canada
SRRC + CCC	China	8-16 weeks	\$5-10K	Radio + safety for China market
MIC (Giteki)	Japan	6-10 weeks	\$4-8K	Radio equipment sold in Japan

Pro Tip: Start pre-compliance testing during DFM. Saves 4-8 weeks and \$5-10K.
We include pre-compliance checks in our standard engineering process.

Free Tools

No signup required. Start estimating your project now.

1 BOM Cost Estimator

Input your specs, get a manufacturing cost ballpark in 60 seconds. Covers SoC, memory, sensors, battery, PCB, enclosure, and assembly.

breezehw.com/tools/bom-estimator

2 DFM Checklist

30-point design-for-manufacturability check covering thermal, mechanical, electrical, and certification pitfalls specific to AI hardware.

breezehw.com/tools/dfm-checklist

3 NRE Quote Simulator

Estimate your total development cost: engineering hours, tooling, prototyping, certification, and project management.

breezehw.com/tools/nre-simulator

4 Certification Navigator

FCC, CE, UL, SRRC, UN38.3 -- which do you need? Get a timeline, cost estimate, and testing lab recommendations.

breezehw.com/tools/cert-navigator

OPEN SOURCE

AI Hardware Toolkit -- free on GitHub

github.com/jianjettfu-oss/ai-hardware-toolkit

Why Breeze?

Four reasons founders choose us over brokers and trading companies.

Whole Product, Not Just Parts

We build the full device -- electronics, enclosure, firmware, packaging. One team, one responsibility, one timeline.

No Equity, No Surprises

NRE + per-unit pricing. Pure service model. We don't take a piece of your company. Period.

Your IP Stays Yours

NDA + IP assignment is standard on every engagement. You receive full source files, schematics, and manufacturing data.

AI Hardware Native

We understand edge AI thermal management, antenna design for wearables, battery optimization, and low-power ML inference.

Trading companies: 20-40% margin, zero engineering. | In-house: \$500K+/yr, 6+ months to hire. | Breeze: ready now.

How we compare

Honest differences, not marketing fluff.

Feature	Breeze	Fictiv / Xometry	HAX / SOSV	Titoma	Trading Co
Scope	Whole product	Parts only	Accelerator	Whole product	Sourcing only
Equity taken	None	None	6–10%	None	None
Minimum order	1,000 units	1 unit (parts)	Varies	~1,000	10,000+
Location	Shenzhen	SF + global	SF + Shenzhen	Taiwan	Shenzhen
AI hardware focus	Yes	No	Some	Generalist	No
Price transparency	Tools upfront	Instant quote	Opaque	Quote-based	Opaque
Language	Native EN + ZH	EN	EN	EN	Broken EN
IP policy	Assignment std	Assignment	Varies	Case-by-case	Often unclear
Open-source toolkit	Yes (4 tools)	No	No	No	No

Breeze is the only whole-product engineering partner in Shenzhen with open-source tools, 1K-unit MOQ, and native bilingual delivery.

Ready to Start?

1

Try Our Free Tools

breezew.com/tools -- no signup

2

Book a Scoping Call

30 min -- feasibility + cost range

3

Get Your NRE Proposal

Fixed pricing, clear timeline



hello@breezew.com | breezew.com

No equity. No MOQ surprises. Just engineering.