From Idea to V1

An Engineer’s Guide to Hardtech Startups

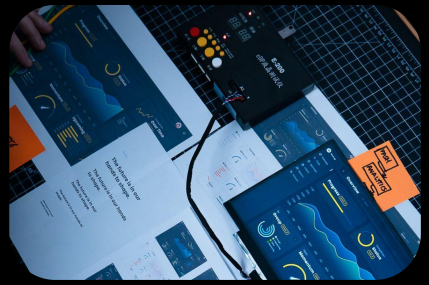
Glassboard

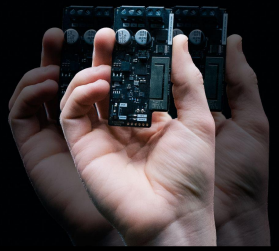
[OCT.30.2025]

From Idea to V1

Stops on the Journey

Developing hardware as a venture backed startup is not the straightforward path that existing companies can take. You are never building the **end product,** you are always building the thing that de-risks **your next raise**.





01 Plan

Building the vision and the roadmap to get there. Technology development at this stage is often premature. Think Renders, 3D prints, development kits.

02 Prototype

Building prototypes to prove your idea can become a “thing”. Don’t go straight for the final formfactor or all the functions. Build a looks like prototype and a separate works like prototype.

03 Develop

Finally developing the product with production in mind. Taking all that you’ve learned with prototypes and ensure you’re building for the volume you can hit at your next step, not your dreams.

04 Make

Building a supply chain that can scale along side your sales. Striving for efficiency in manufacturing and fixing reliability issues along the way.

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Plan

Big Picture

Plan

Prototype

Develop

Make

Do:

- Define the product
- Assemble the team required
- Understand the tech stack
- Build a Roadmap

Don’t:

- Make a detailed task list to production
- Think this plan will survive 1st contact
- Do this alone, make a plan with someone who has been there

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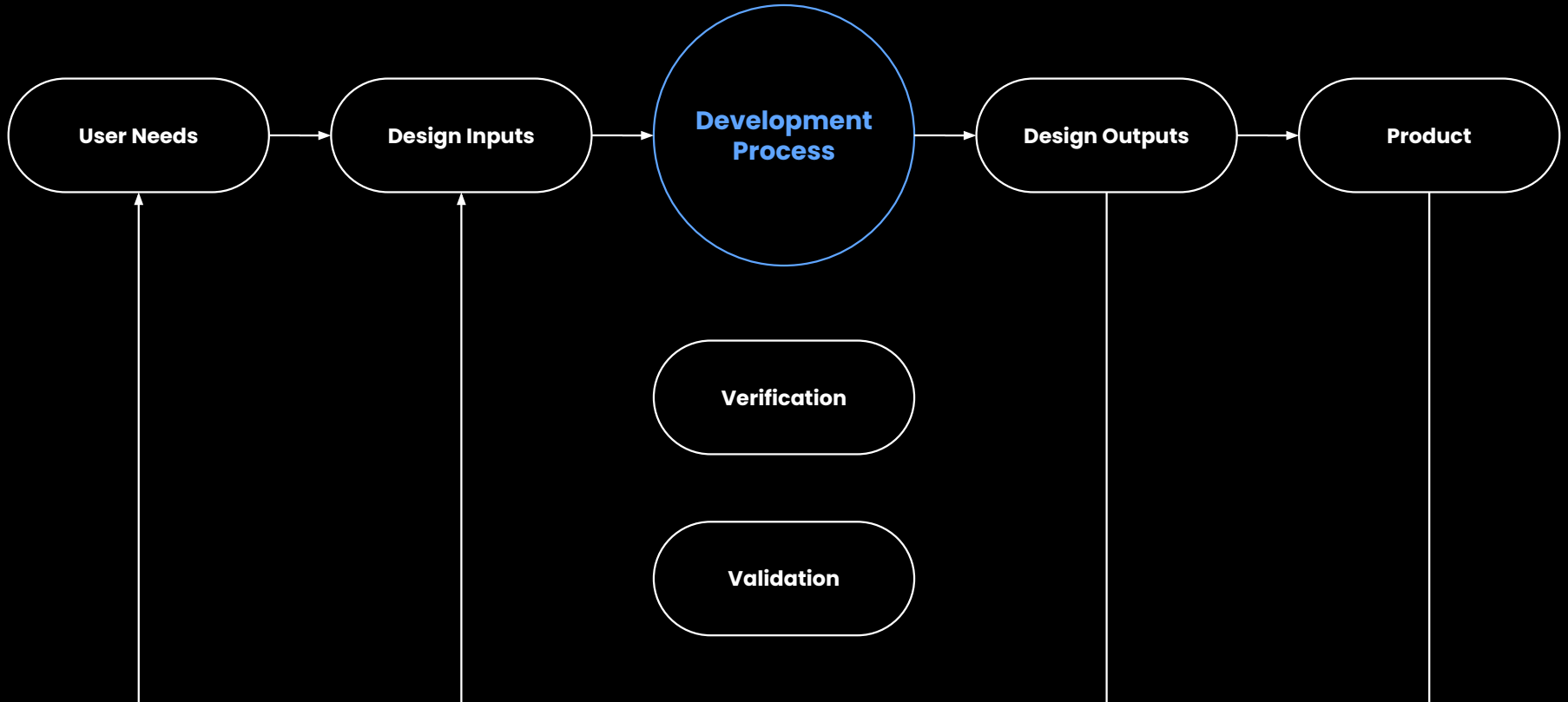
The Development Process



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Stakeholder Strategy

Product Definition

Voice of the Customer
- [Insert]

Voice of the Business
- [Insert]

User Needs
- [Insert]

Design Input Requirements
- [Insert]

Documentation + Traceability
- [Insert]

Design + Development

UI/UX Design
- [Insert]

Industrial Design
- [Insert]

Mechanical Engineering
- [Insert]

Electrical Engineering
- [Insert]

Embedded Software Dev.
- [Insert]

Project Management
- [Insert]

Packaging + IFU Dev.
- [Insert]

Verification + Validation

Bench Testing
- [Insert]

Field Testing
- [Insert]

Verification Testing
- [Insert]

Validation Testing
- [Insert]

Quality / Regulatory

Design Controls
- [Insert]

Quality Management
- [Insert]

Regulatory Advisory
- [Insert]

Risk Analysis
- [Insert]

Risk Acceptance
- [Insert]

Manufacturing

Design for Manufacturing
- [Insert]

MFG. Trials + Debug
- [Insert]

Contract MFG + ASM
- [Insert]

3rd Party Logistics
- [Insert]

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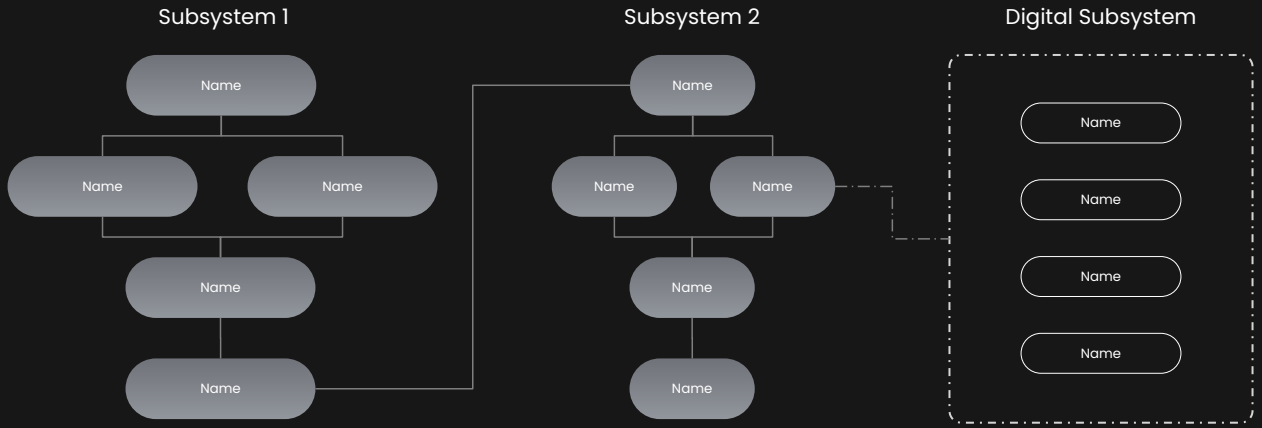
System Architecture

Primary Device



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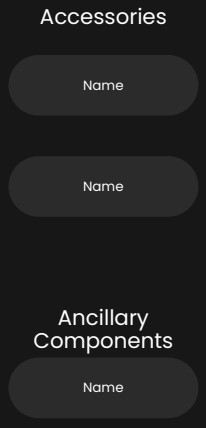
Peripherals



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Roadmap

Product Definition & Concept

Build an exhaustive list of user needs and design input requirements, and begin conceptualizing ways to bring the product to life.

Alpha Development

Develop along two parallel works streams for design and engineering to develop a '*works-like*' unit, and a separate '*looks-like*' concept.

Beta Development

Progress feature completion to ~80% in a functional build that marries performance with the established design direction.

EVT Build

Mature to 100% feature completion and develop a production-intent build(s) to kickoff verification and validation testing.

Manufacturing Transfer

Stand up manufacturing in the production-intent environment, qualify manufacturing processes, and perform the remaining verification and validation tests before product launch.

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Prototyping

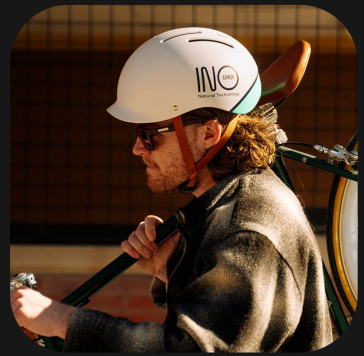
Why?

Functional

- Does it work?
- Do users like it?
- Does it solve the core problem?

Visual

- Does it drive online engagement?
- Does it get investors excited?
- Does it fit our brand?



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Develop

DBT (repeat)

Design
Engineering and Software Development

Core Engineering

This is 3D CAD, Simulation, PCB Design, Software development, and component selection.

Don't spend too much time here before you've completed a Build and Test iteration.

Build
Production Intent Prototyping

Prototype Like The Pros

When building prototypes in development, ensure you are using materials and processes that are as close to production as possible.

If your prototypes don't work like the end product, the next step of testing could lead you down quite a few rabbit holes.

Test
Verification and Validation

Test Like you mean it

Don't just "test for success" test to failure to find out how close to the sun you're flying.

It only happened if you write it down. Testing should have a written test plan, success criteria, and documented results (you'll want to look at these later)

From Idea to V1

Make At Scale

Find the Right Partner
Manufacturing is a long partnership that hopefully doesn't end. Spend time finding the right partner for your product, your scale, and your team.

Making things is hard
Manufacturers have likely never built "your product before". They are going to learn with you along this journey. Plan for iterative cycles just to bring up the manufacturing supply chain to make the parts you've been prototyping for months.

Asymptotic Effects:
In manufacturing there is far less room for fixing things by hand. Getting from an 80% to 100% production process is not linear in time or costs. Ensure you have sufficient capital reserves to survive this.

Testing:
Make sure to redo the Verification and Validation testing as parts start to come off of the line. Plan for this effort & timeline and be ready to hold the manufacturer's feet to the fire.

From Idea to V1

Summary of the Journey

Idea
$0

Inputs:

Problem & Technology
Market size & ICP identified

Outputs:

Product Idea
Rough Pricing/GTM Strategy

Gates to exit:

Customer Discovery
Founding Team
Friends & Family Round

Plan
$10k-$50k

Inputs:

Development Team
Product Vision

Outputs:

Development Roadmap
Pitch Deck

Gates to exit:

Technology Identified
Cashflow Strategy
Pre-Seed Round

Prototype
$75k-$250k

Inputs:

Product Design
User Feedback

Outputs:

Works like prototype
Looks like prototype

Gates to exit:

Technology De-Risked
Initial Market Validation
Seed Round

Develop
$500k+

Inputs:

Engineering & **TESTING!**
Low Volume Manufacturing

Outputs:

Production Intent Design
Initial Production batch

Gates to exit:

Verified and Validated Units
Initial Sales Motions
Series A

Make
$1M+

Inputs:

High Volume Manufacturing
Repeatable GTM strategy

Outputs:

Revenue (+ profit)
Market Penetration

Gates to exit:

Graphs go up and to the right

Series B (or exit!)

Contact

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We sincerely appreciate the opportunity to jump in and help your team tackle the product challenges that are ahead. We do this because we love this, and new products get us amped. If you have any questions, our doors are always open.