Portal Laptop

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Why Portal Laptop?

1

Seamless

An easier setup process than any other remote desktop solution on the market.

2

Performant

Imperceptible latency across long distances, just as if a user was using their desktop locally.

3

Secure

Other remote desktop software products monitor user activity to determine what to charge users. We don’t.

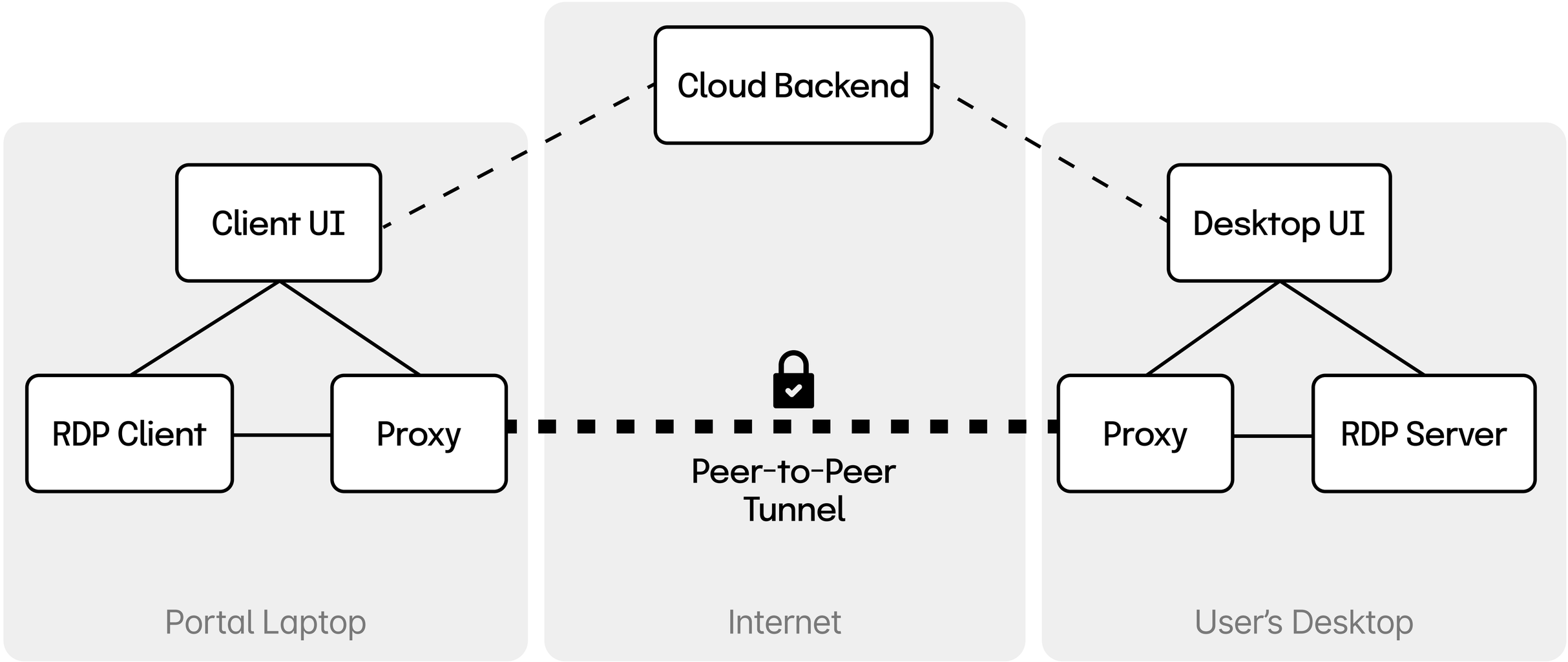
4

No Subscription

Users own the connection to their desktop without having to pay monthly fees.

Our Architecture

Software



Network Proxy

1

Peer-to-peer

Establishes peer-to-peer connection via hole punching allowing the portal laptop and users desktop to communicate.

2

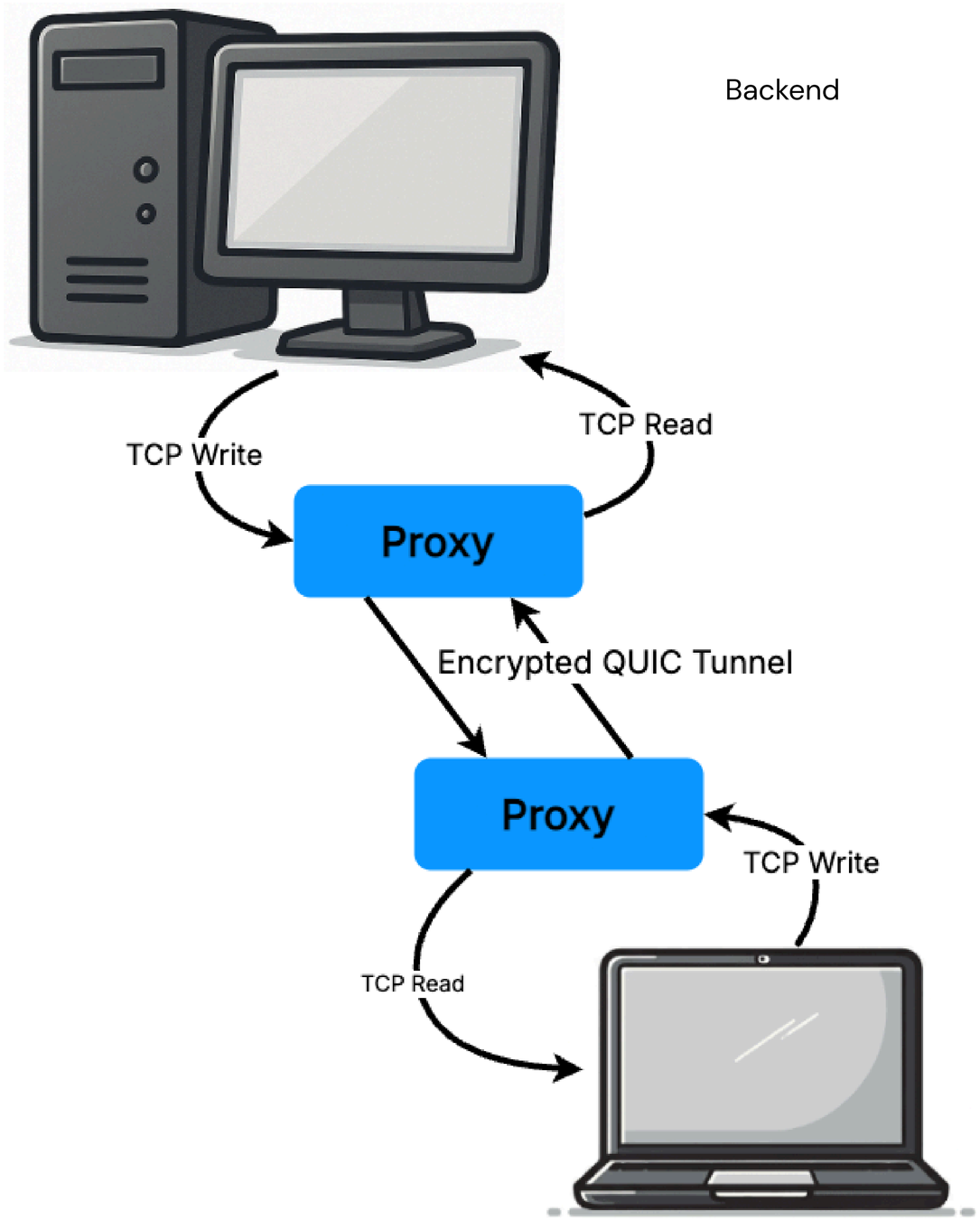
Encrypted

Utilizes a QUIC connection.

3

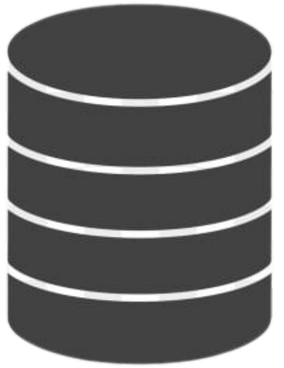
Dynamic Routing

Optimize latency by routing through relay servers if they perform better.

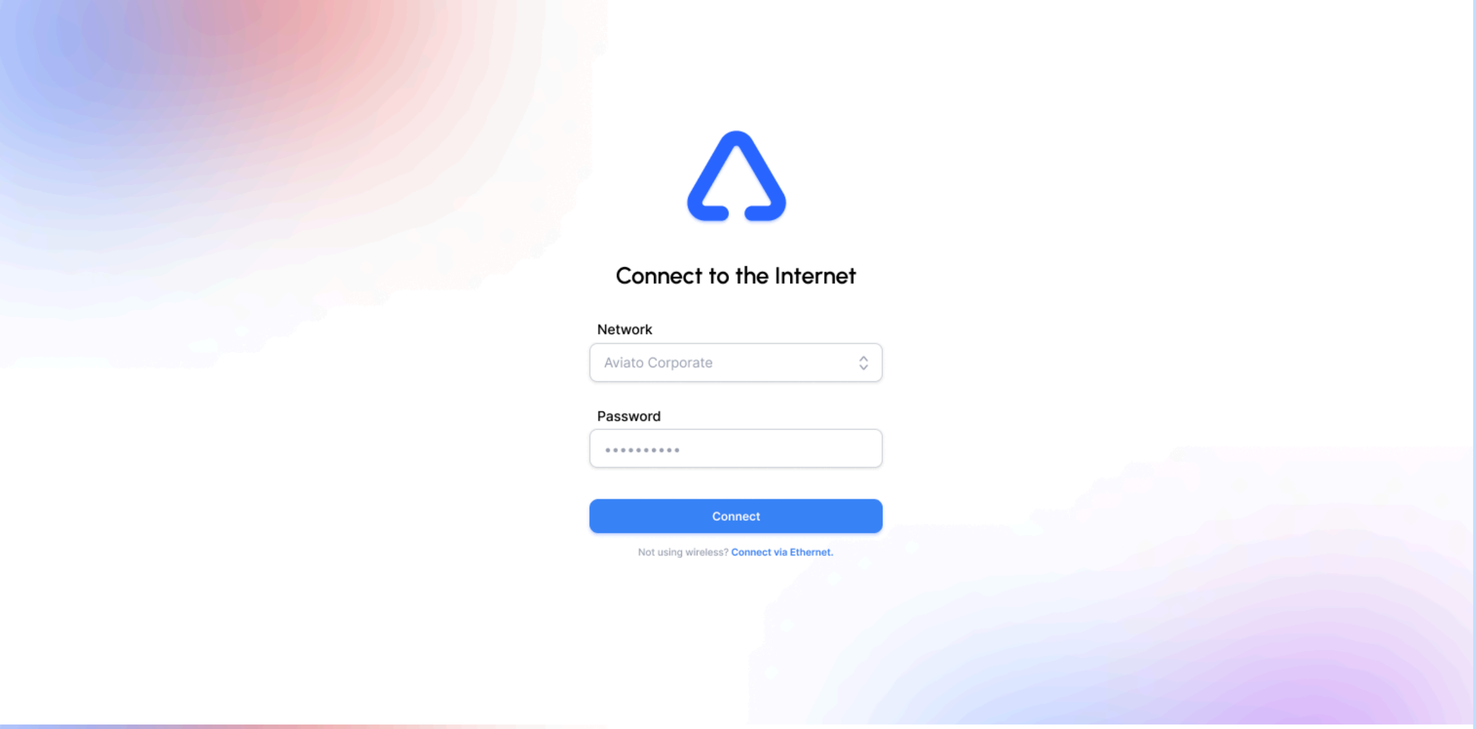


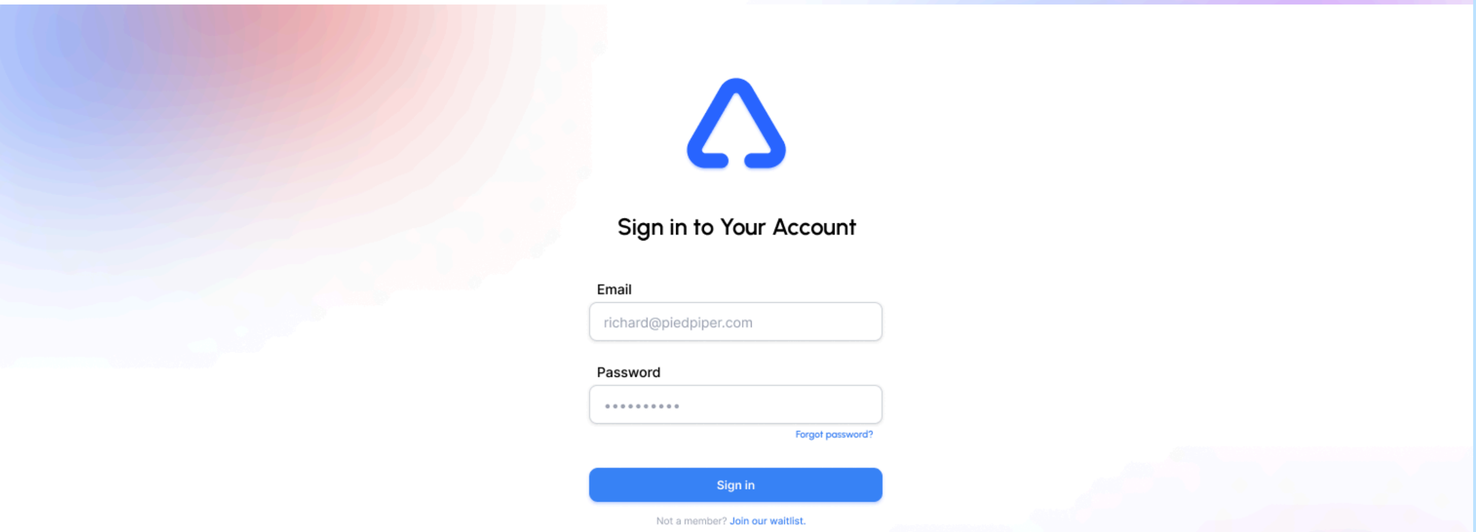
Backend

- **Database:**
  - Stores accounts and associated device addresses.
  - Keeps only necessary authentication information.



- **Cloud Server:**
  - Registers devices using Ed25519 keys.
  - Private keys securely stored on the device and never transmitted.
  - Assists in connection establishment, but remote desktop session flows directly peer-to-peer.





Desktop and Client UI

Minimal and User-Friendly

Focused on seamless, intuitive user experience.

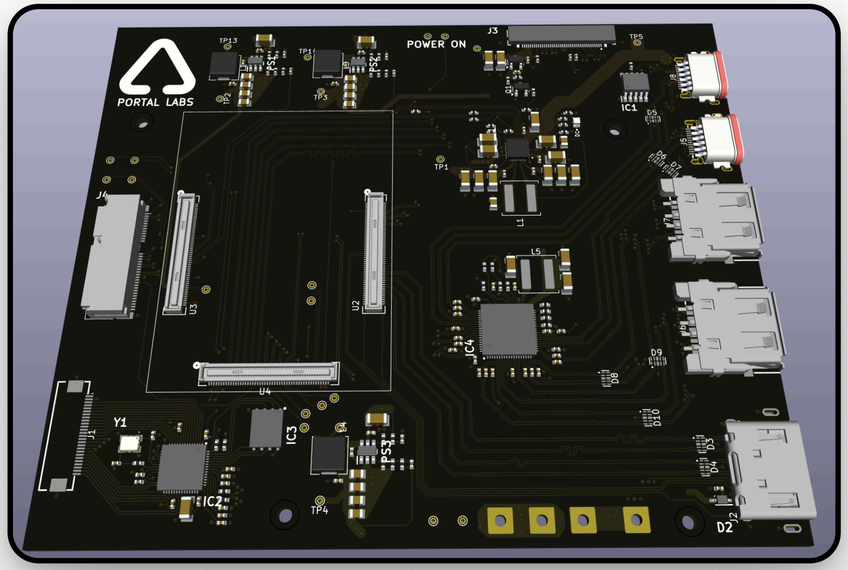
Electrical

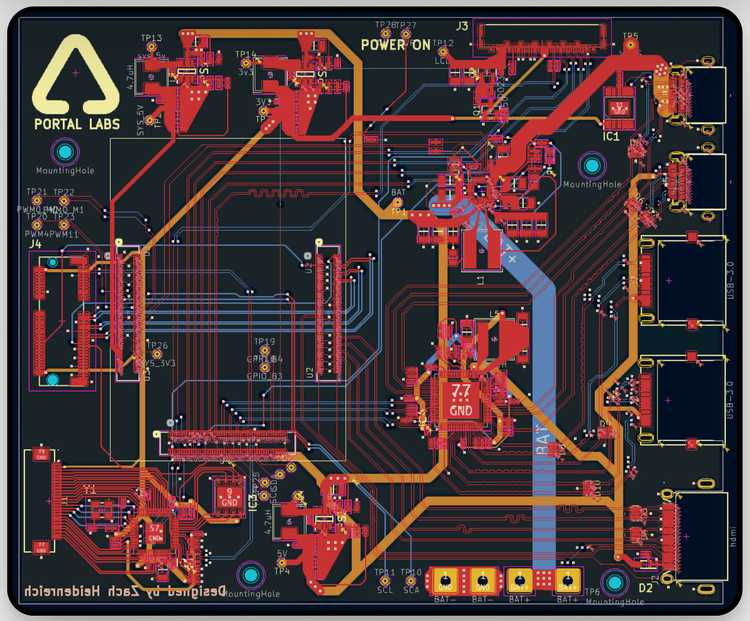
PCB

- High-Speed traces for HDMI, USB, and PCIe.
- >90% efficiency DC-DC converters.
- Test points for rapid prototype and development.

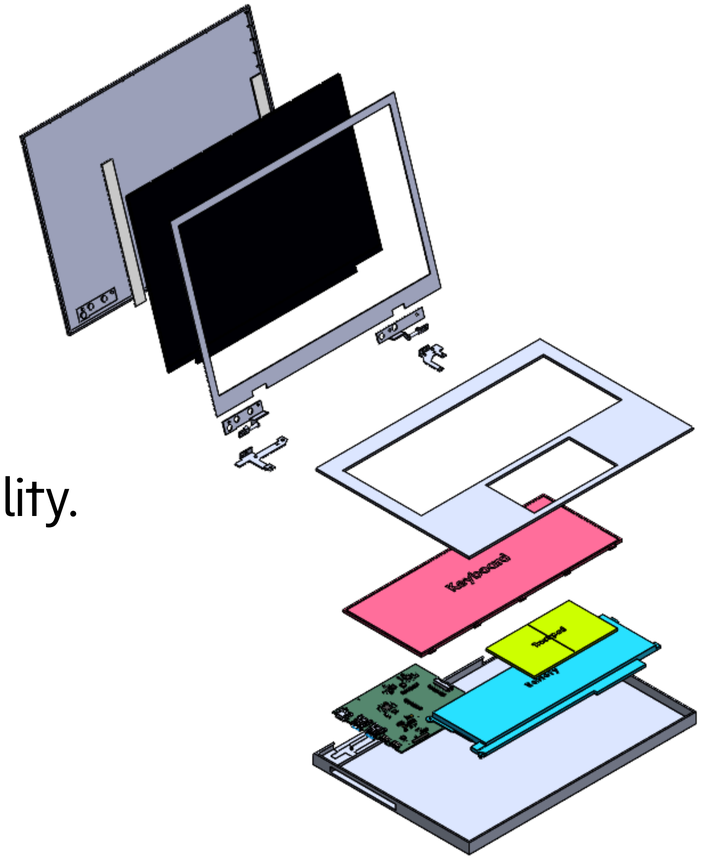
System Integration

- Display wired to eDP or HDMI.
- Antenna away from PCB allows for better Wi-Fi connection.



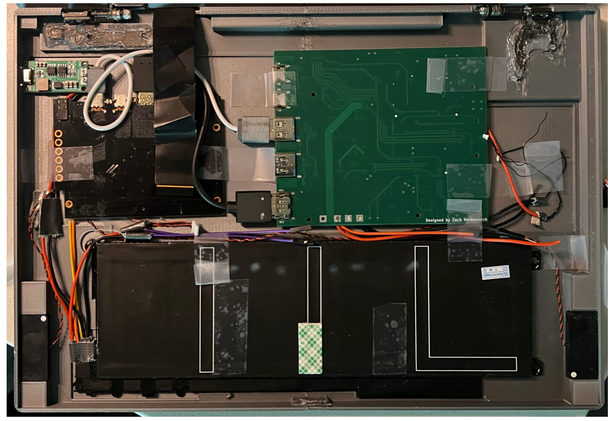


Mechanical



Final Iteration

- Final material selection - PETG.
- Optimized architecture with easier accessibility.
- 20% lighter than before.
- Improved hinge strength.
- Speaker is added and integrated.



Progressive Improvements

- Material: PLA → ASA → PETG
- Fitting: Snap-fit → Snap-fit + Adhesive + Screws

What it took.

Sunday 8:38 PM Meeting ended: **4h 36m 28s**

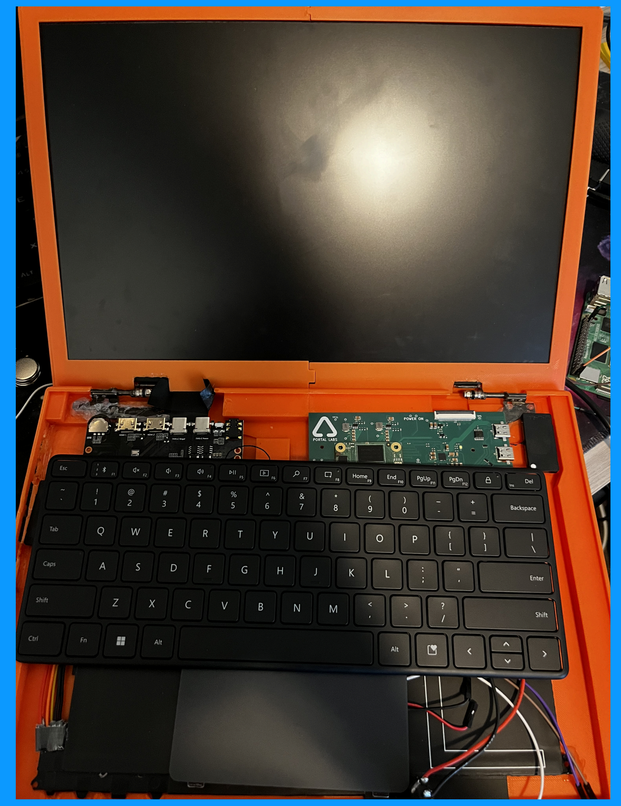
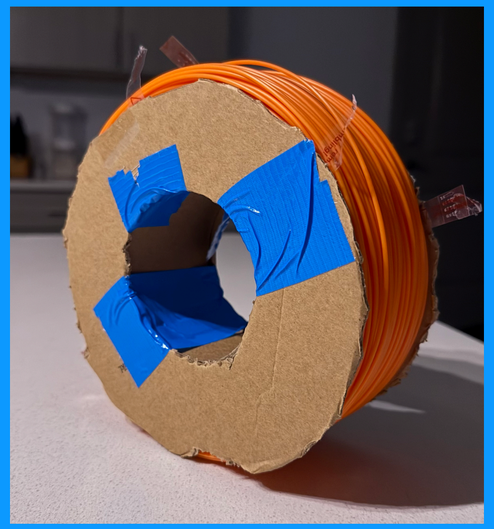
2/20 8:26 PM Meeting ended: **1h 38m 45s**

2/9 4:24 PM Meeting ended: **1h 23m 55s**

Sunday 3:21 AM Meeting ended: **11h 22m 9s**

4/2 4:30 AM Meeting ended: **9h 26m 30s**

2/16 6:12 PM Meeting ended: **1h 51m 16s**

2/18 7:11 PM Meeting ended: **1h 11m 7s**

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