

HEITMANN/GRUNER SP2023

BUNGEE BOARD

**Simplifying the experience of
carrying awkward cargo on
bicycles.**



TRANSPORTATION EVOLUTION:

Getting from A to B is changing.

Bikes on the rise

With the recent increase in safe bicycle-dedicated infrastructure, the use of bikes has skyrocketed. Bikes are increasingly becoming all purpose vehicles.

What's the need?

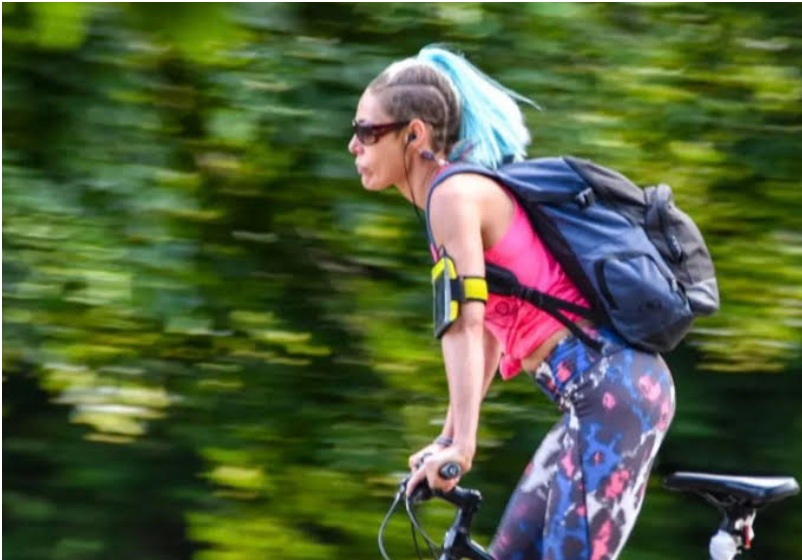
The die-hards and environmentally-minded users are pushing the limits of what their bikes can do, and they need a better cargo system for unusual cargo.

“Now I’m using my bike to pick up lumber, and carry my camera gear to gigs.”



USER ARCHETYPE:

Who are we designing for?



Bicycle Bustler:

- › Uses bicycle as preferred mode of transportation
- › Pursues variety of interests
- › Transports items not compatible with typical panniers
- › Lives in apartment with limited storage space

COMPETITIVE MARKET:

Available products and attributes.



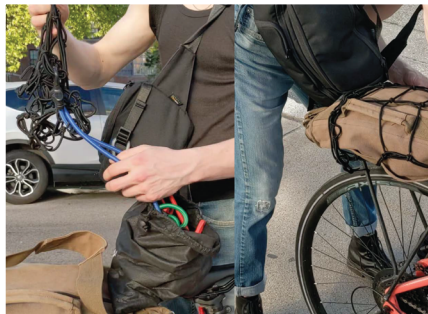
Trailers

- ✗ High-friction use
- ✗ Large footprint
- ✓ Carry irregular cargo



Rear wheel racks and panniers

- ✓ Low friction use
- ✓ Small footprint
- ✗ Carry specific cargo



Bungee cords and nets

- ✗ High-friction use
- ✓ Small footprint
- ✓ Carry irregular cargo

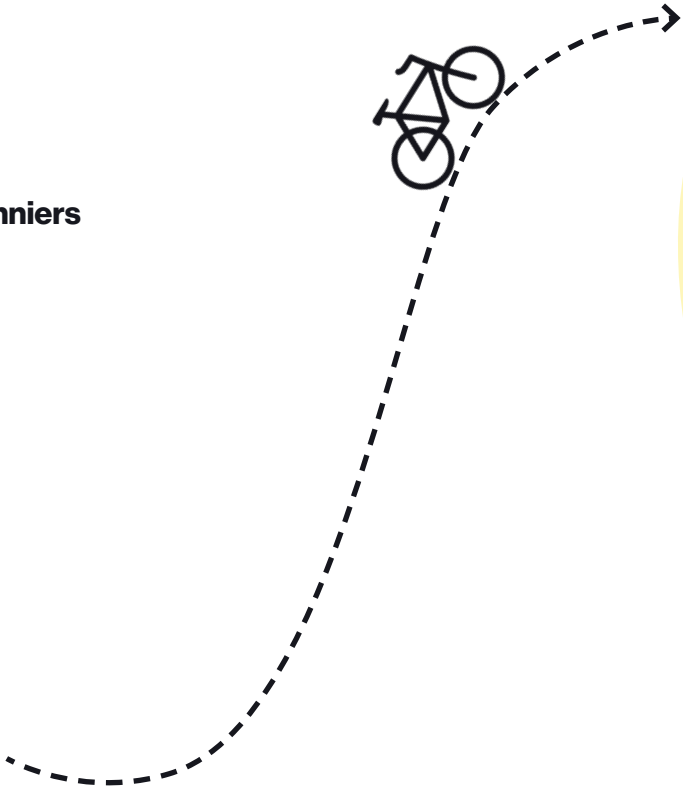
DESIGN GOALS:

What's our aim?

Sweet spot

While there are many available solutions, no products satisfied all three following criteria:

- ✓ **01. Low-friction use**
- ✓ **02. Small footprint**
- ✓ **03. Carry irregular cargo**

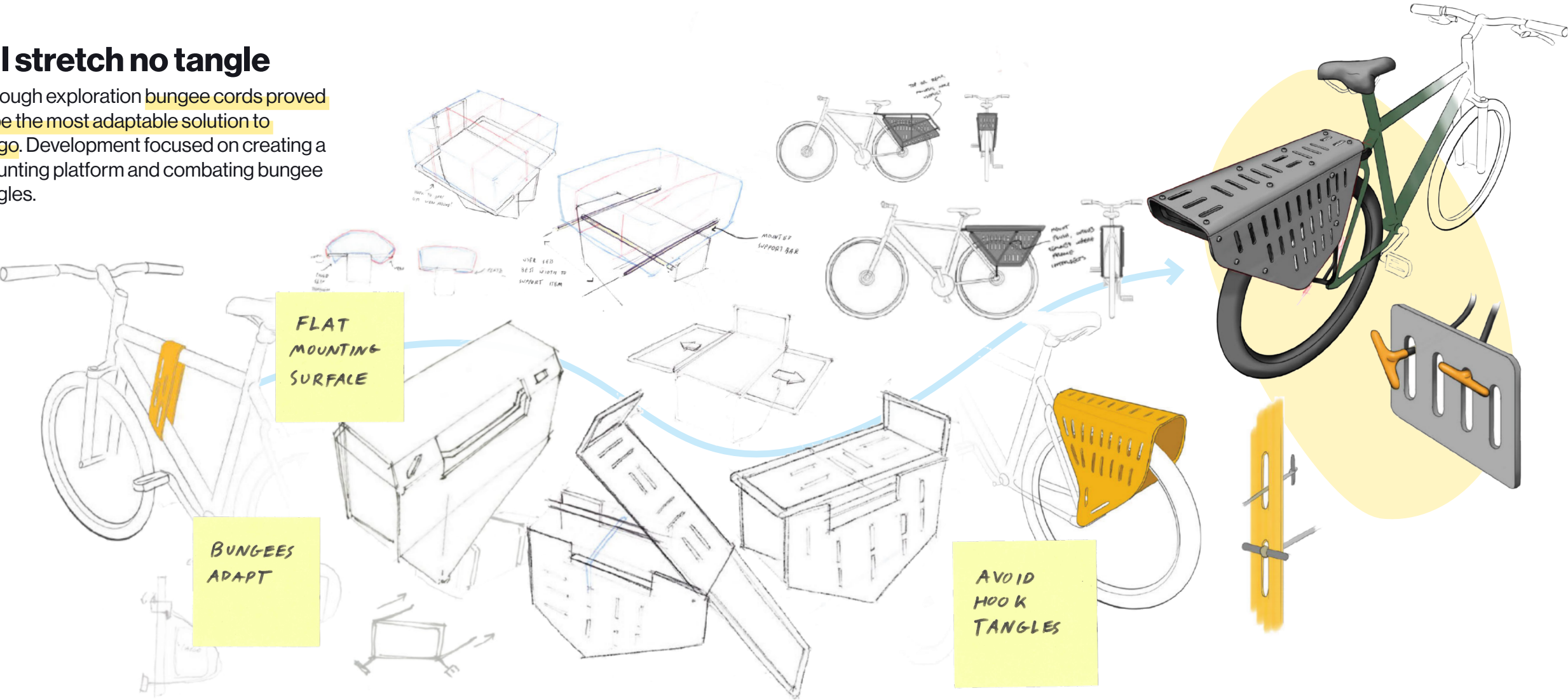


CONCEPT GENERATION:

Sketching it out.

All stretch no tangle

Through exploration **bungee cords** proved to be the most adaptable solution to **cargo**. Development focused on creating a mounting platform and combating bungee tangles.



TESTING AND FEEDBACK:

Concept development.

Prototype

The prototype consisted of acrylic panels mounted to existing rear wheel rack and 3D printed T-bar ends secured to bungee cords.

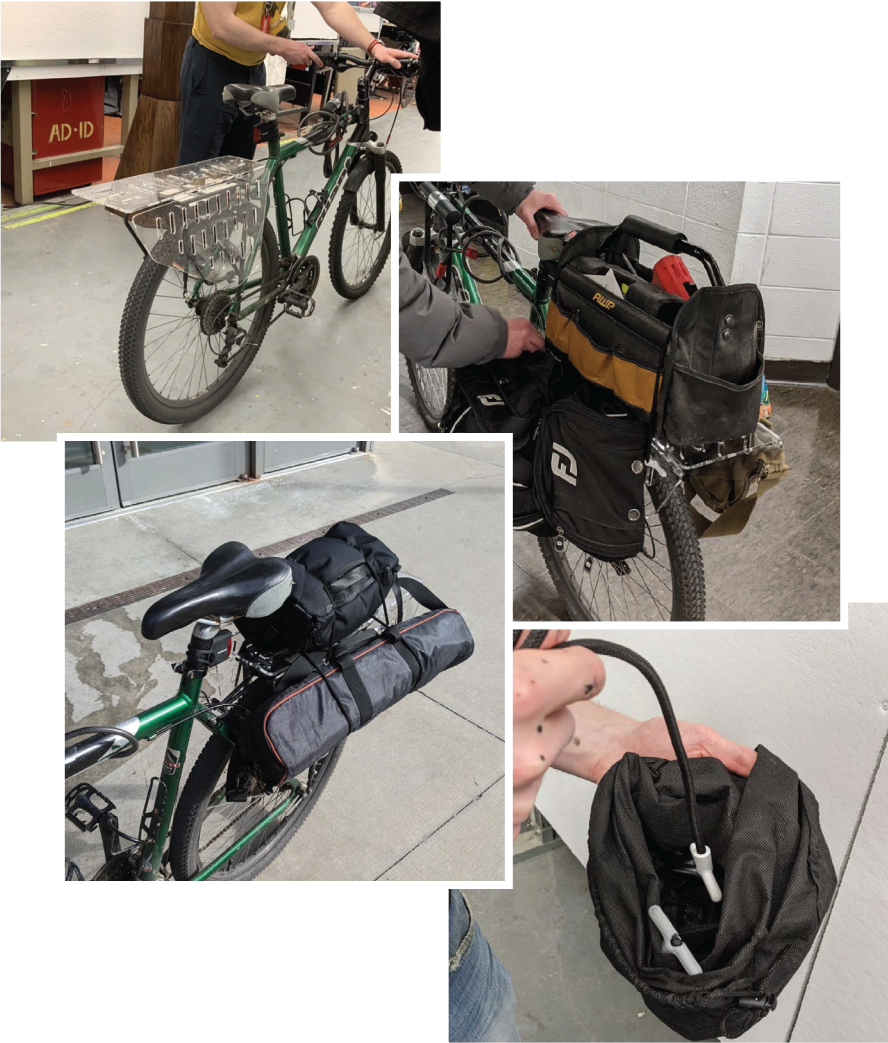
Feedback

Successful concepts:

- › T-bar bungees are strong and don't tangle when stored
- › Bungees are versatile and adaptable provided appropriate mounting points

Adjustments moving forward:

- › Inaccessible mounting points - Some mounting points become obscured when bags are tied down.
- › Barrier to entry - A full rear wheel rack system costs a lot to manufacture and ship, and would potentially require customers to replace their existing rack.



Moving Forward

01. Reduced size

Shrink the mounting panels.

02. Lower barrier to entry

Make panels compatible with existing bike racks.

03. Easier securement

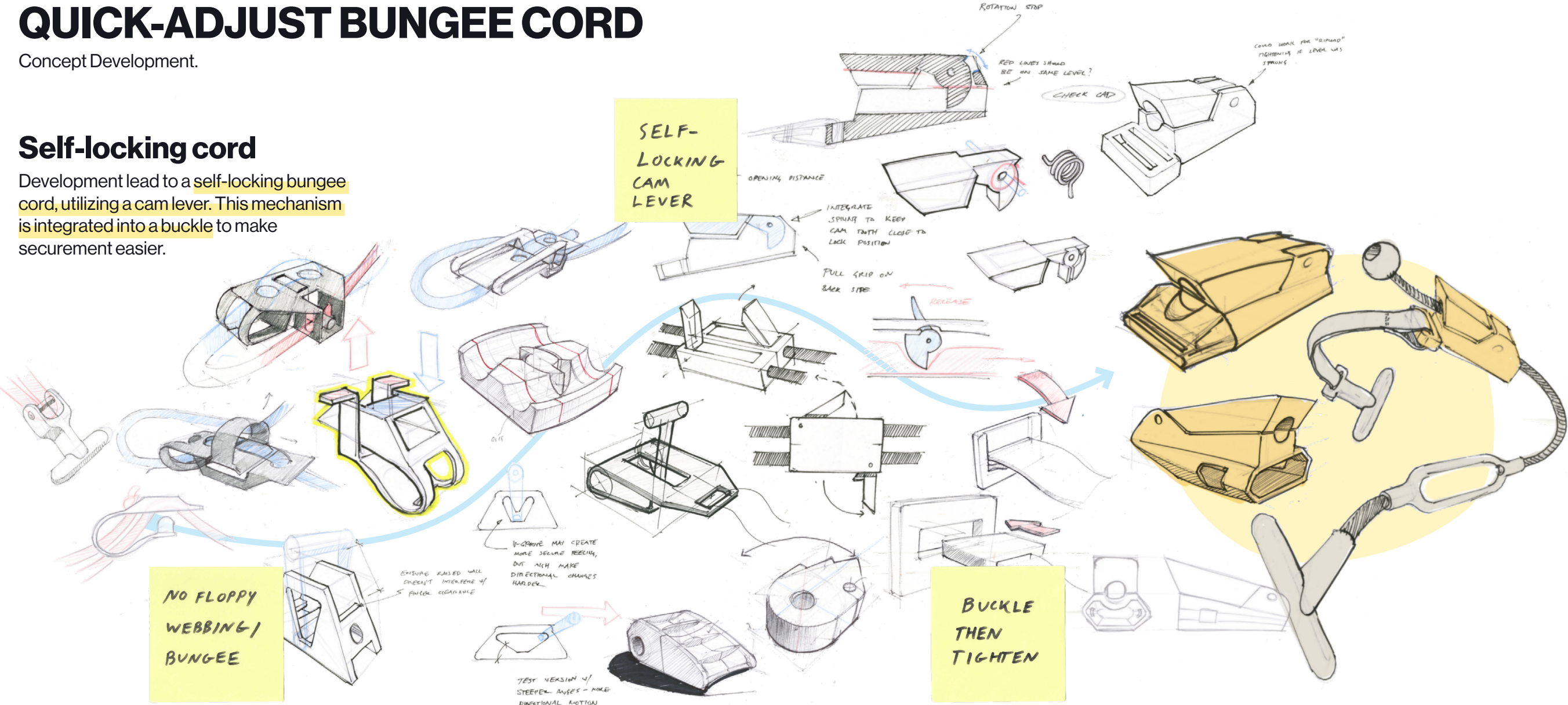
Develop easy-adjust bungee system that connects on top of the cargo, not behind it.

QUICK-ADJUST BUNGEE CORD

Concept Development.

Self-locking cord

Development lead to a self-locking bungee cord, utilizing a cam lever. This mechanism is integrated into a buckle to make securement easier.

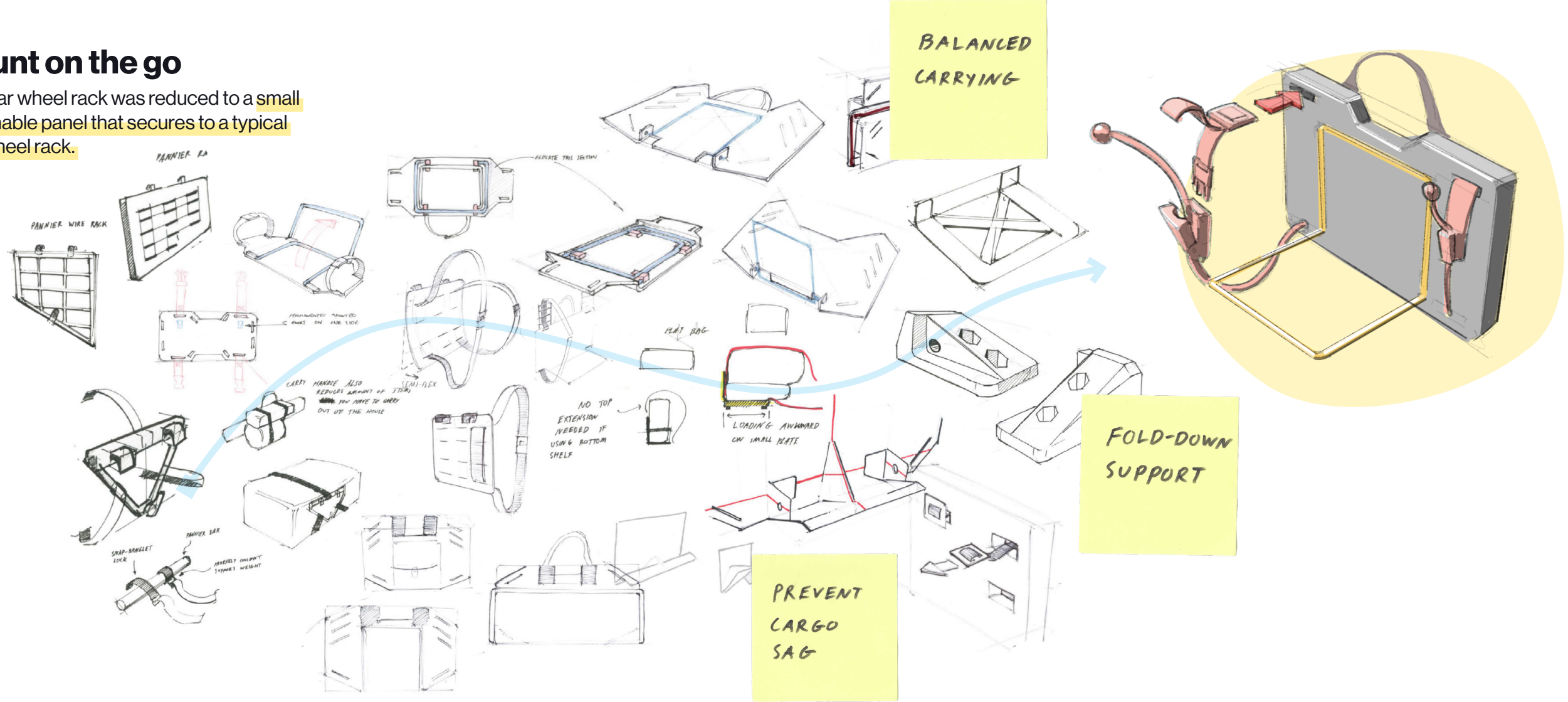


DETACHABLE MOUNTING BOARD

Concept Development.

Mount on the go

The rear wheel rack was reduced to a small detachable panel that secures to a typical rear wheel rack.

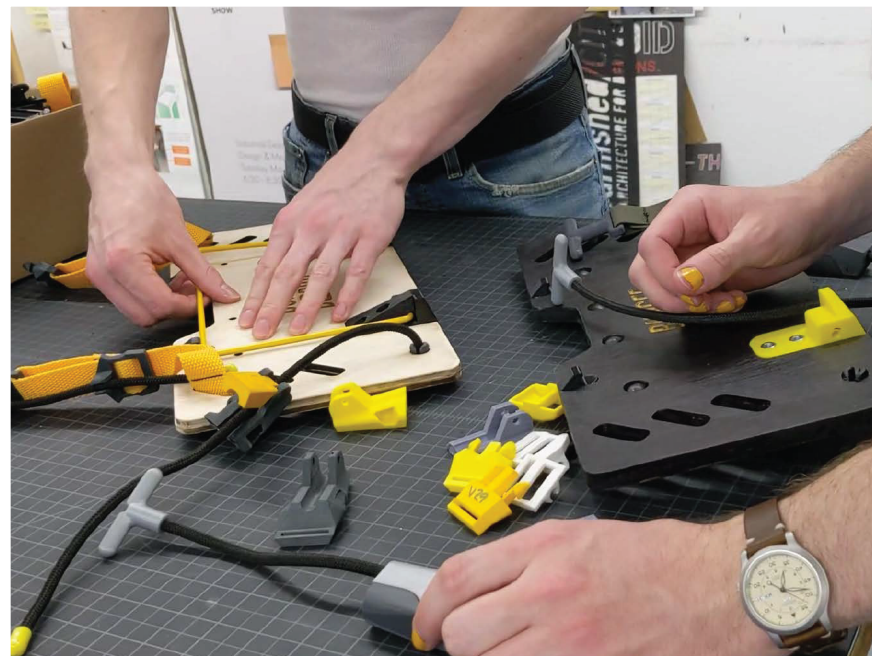
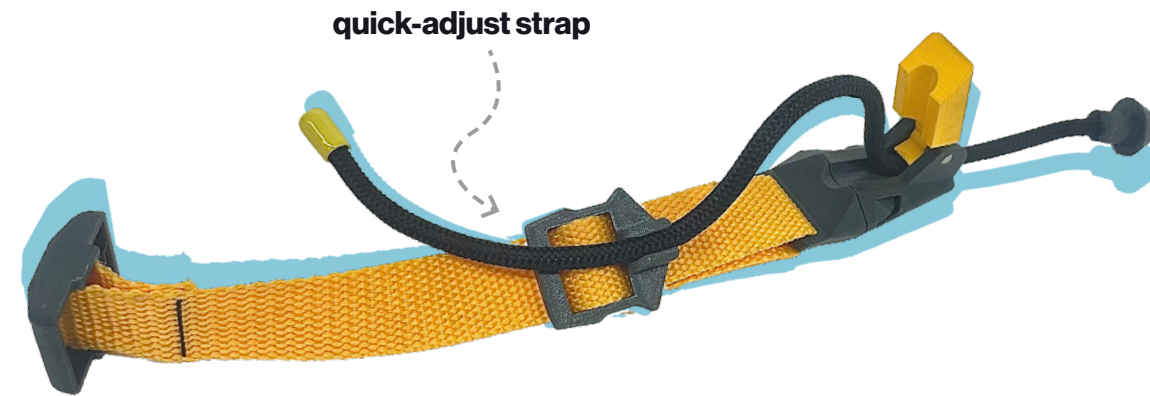


MODELS AND FINAL DIRECTION

Concept development.

Final feedback

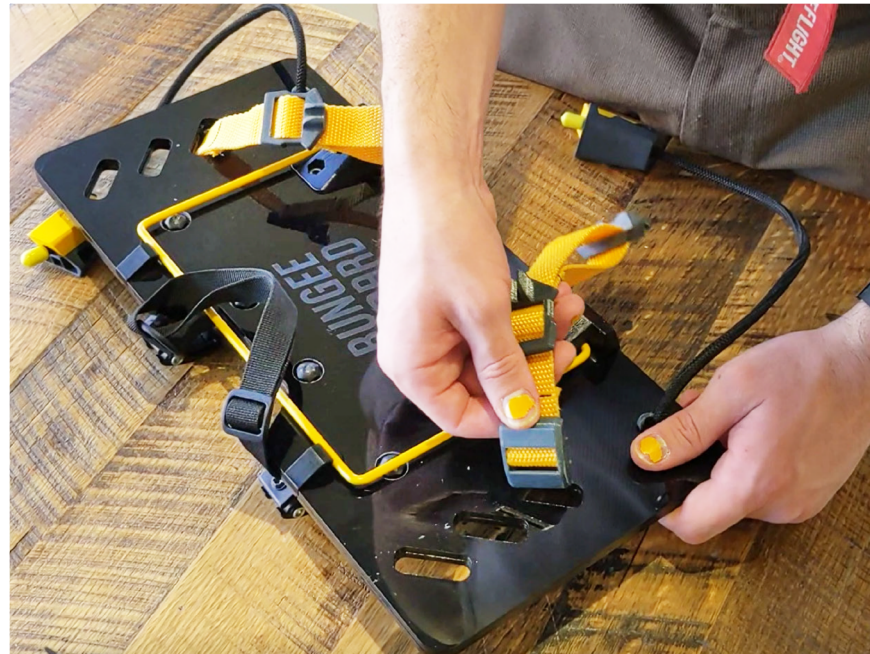
The final model was comprised of acrylic sheet, standard bicycle rack mounting hardware, and 3D printed components. While there are minor improvements to be made, the system overall successfully achieves the targeted design goals.



BUNGEE BOARD

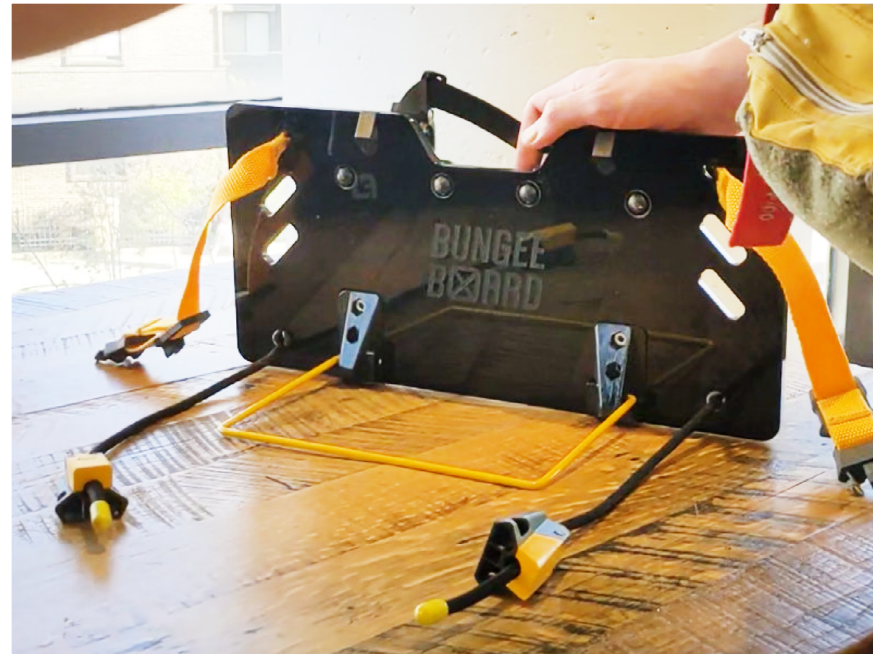
BUNGEE BOARD

Final concept features.



Adjustable strap ends

Hug thinner cargo.



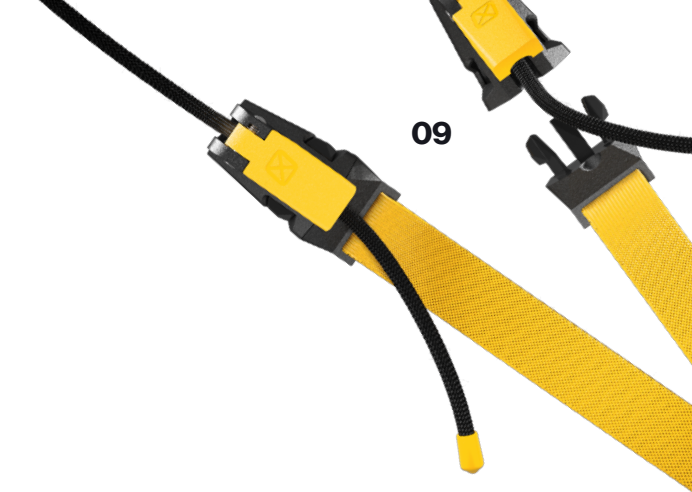
Fold down shelf

Supports heavier loads.



Quick-adjust cam-buckle

Clips over cargo then cinches tight.



USING THE BUNGEE BOARD:

It's that easy!



Clip

Clip the adjustable cord around items to secure to the Bungee Board.



Cinch

Pull the bungee cord to tighten it: the spring-loaded clip will lock it in place automatically.



Mount

The Bungee Board clips onto any standard rear wheel bike rack.





***BUNGEE
B⊗ARD***