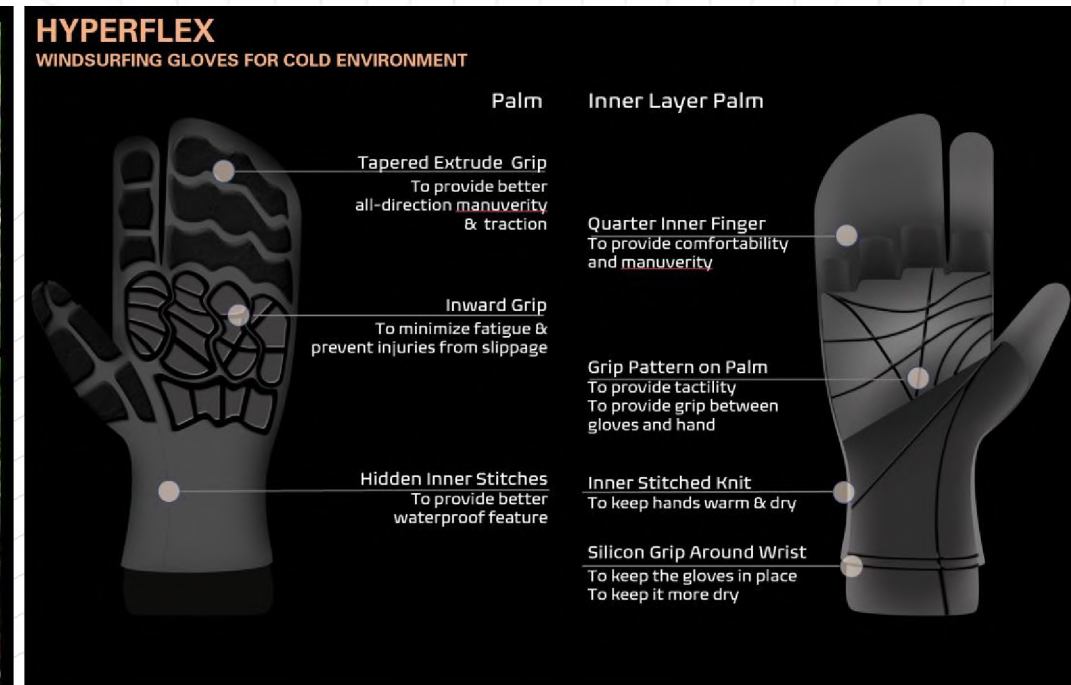
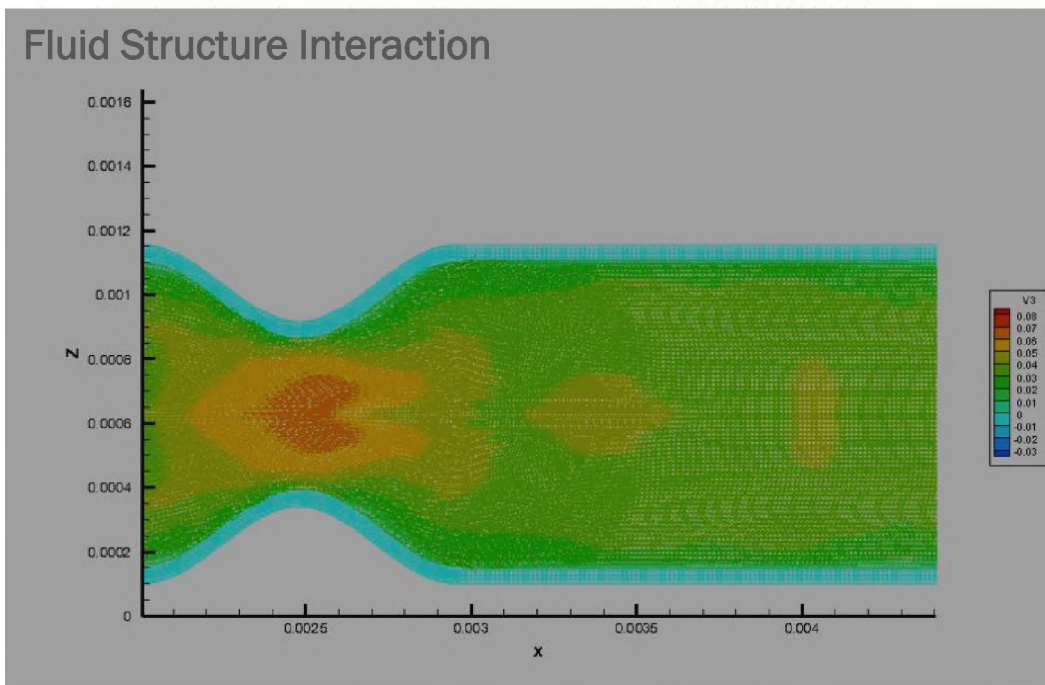


PASSESS

Accessible Outdoor Bag Design
for Nature Enthusiasts

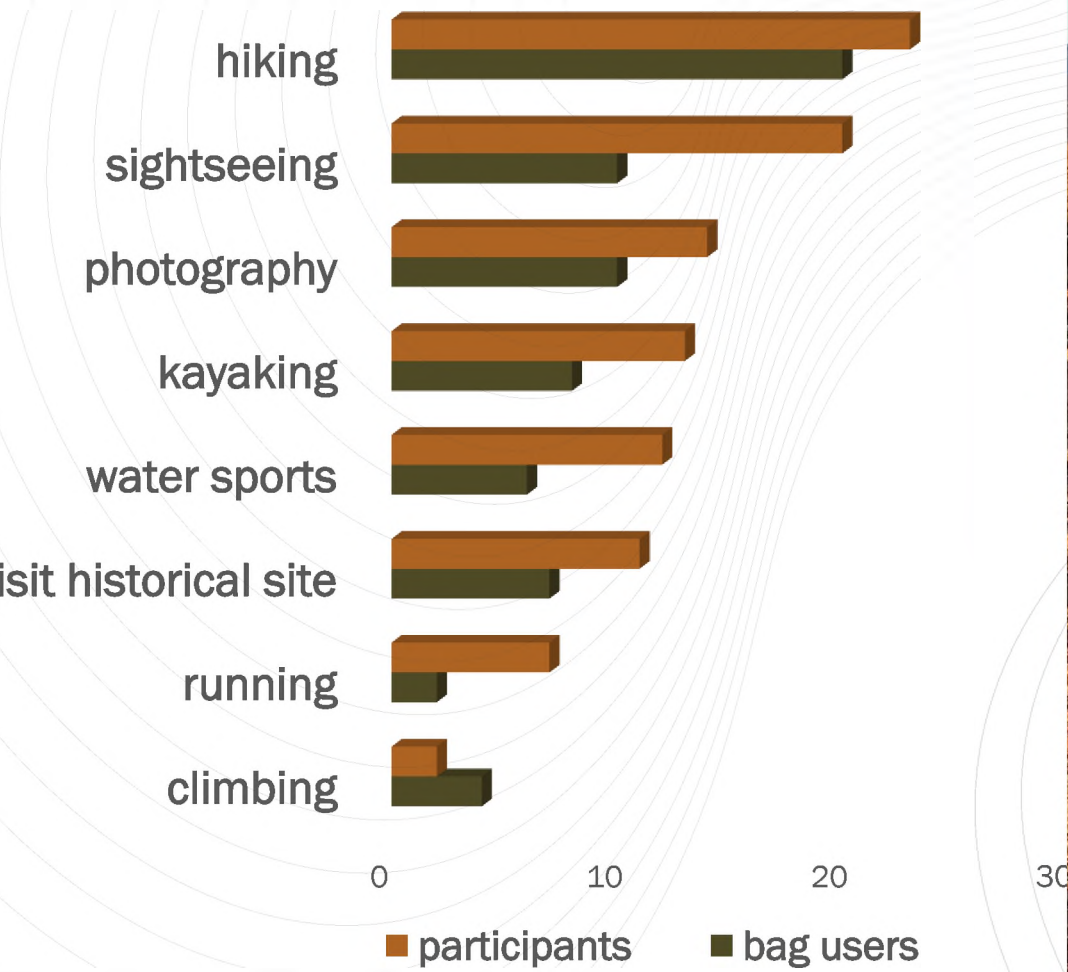
GAZAL MALEKITABRIZ

- **Background** Mechanical Engineering from Shiraz University, Iran.
Thesis Fluid Structure interaction **Industry** Two years as an engineer
- **Why-Purpose** Improve Aesthetic and efficiency through performance testing & implementing technology
- **Postgraduation** I've devoting my time to explore soft good and hard good products, and construction



CONSUMER RESEARCH

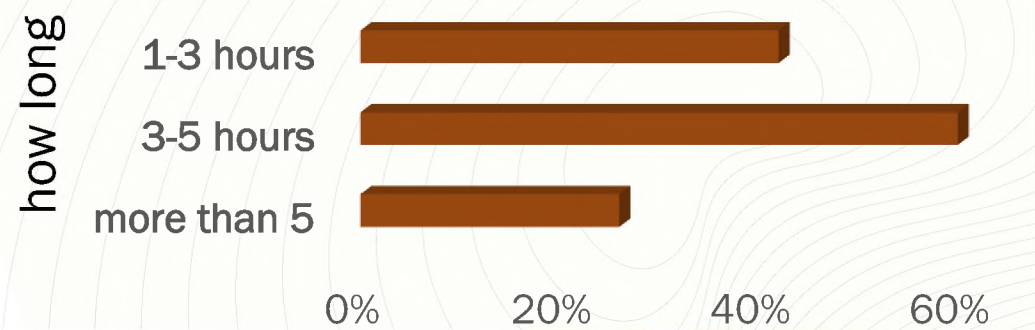
30 Campers & Glampers Surveyed on activities using bags & packs



USER GROUP

50 Campers & Glampers Surveyed,
9 Personal Interviews & 3 Benchmark Demos

Age 41.2% 30–40-year-old



urban hikers and photographers
on daily usage



photographer & nature enthusiasts while hiking

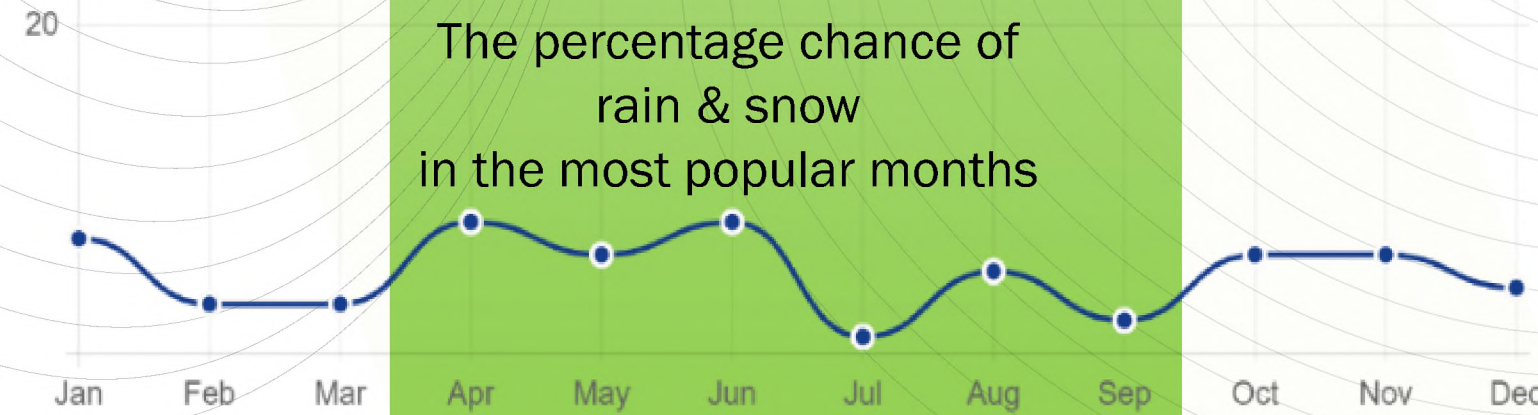
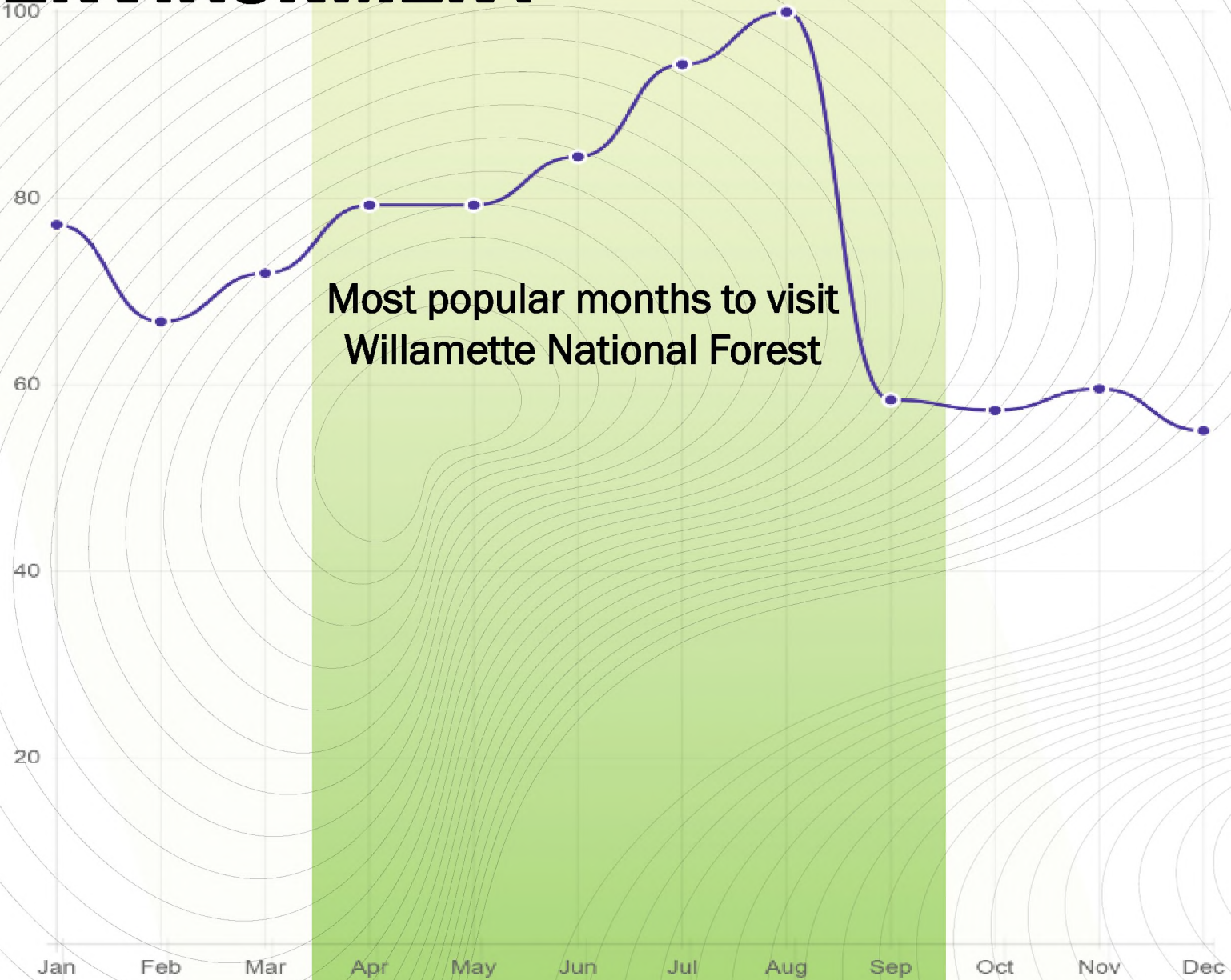


CONSUMER RESEARCH

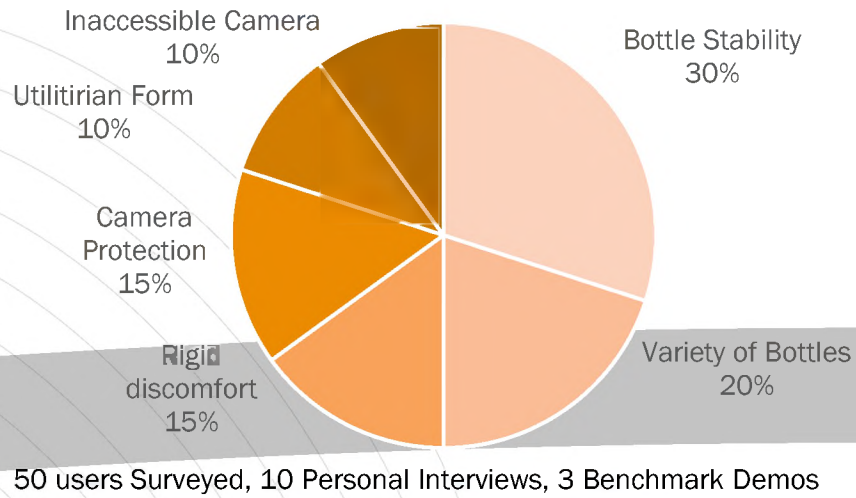
9 responses
20-60-year-old



OUTDOOR HIKING ENVIRONMENT



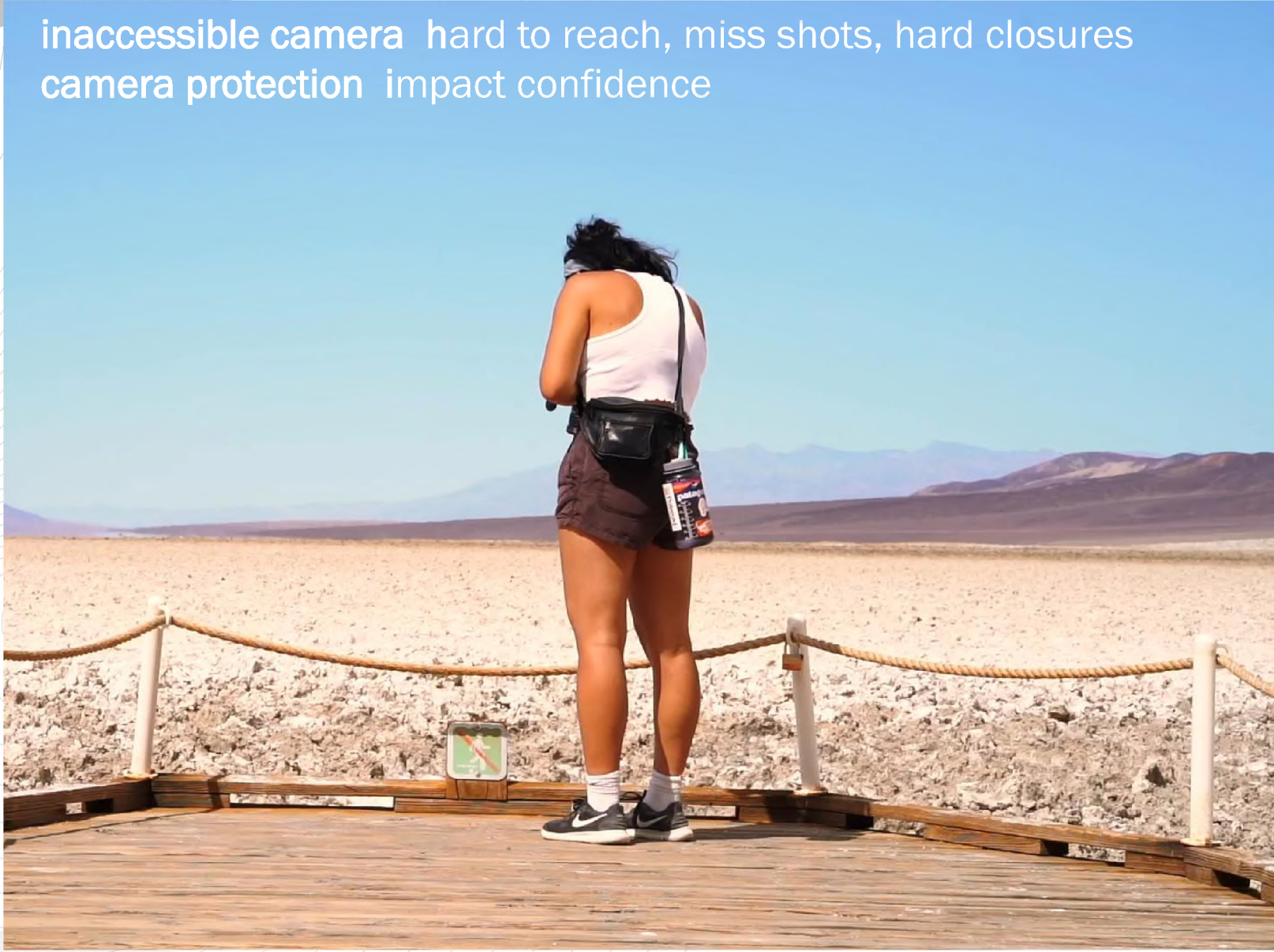
PROBLEMS TO SOLVE



bottle/camera stability
wobbles while moving



inaccessible camera hard to reach, miss shots, hard closures
camera protection impact confidence



PROBLEMS TO SOLVE

Utilitarian form

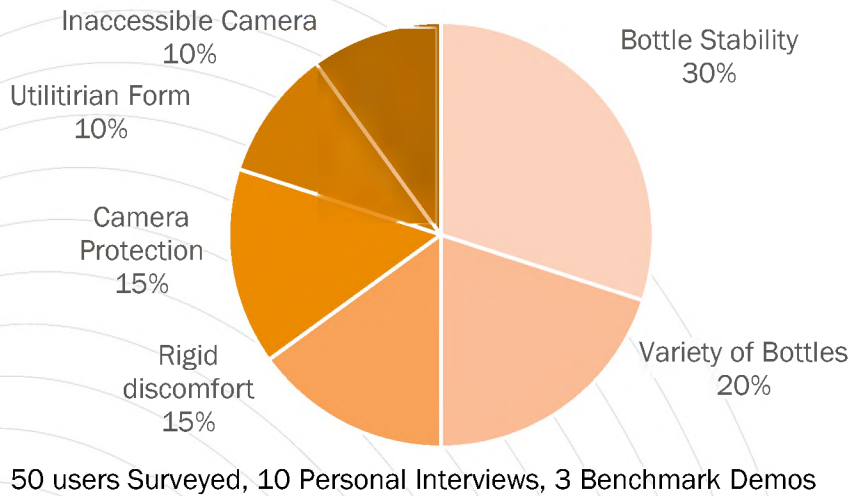
Visible functions, dull colors

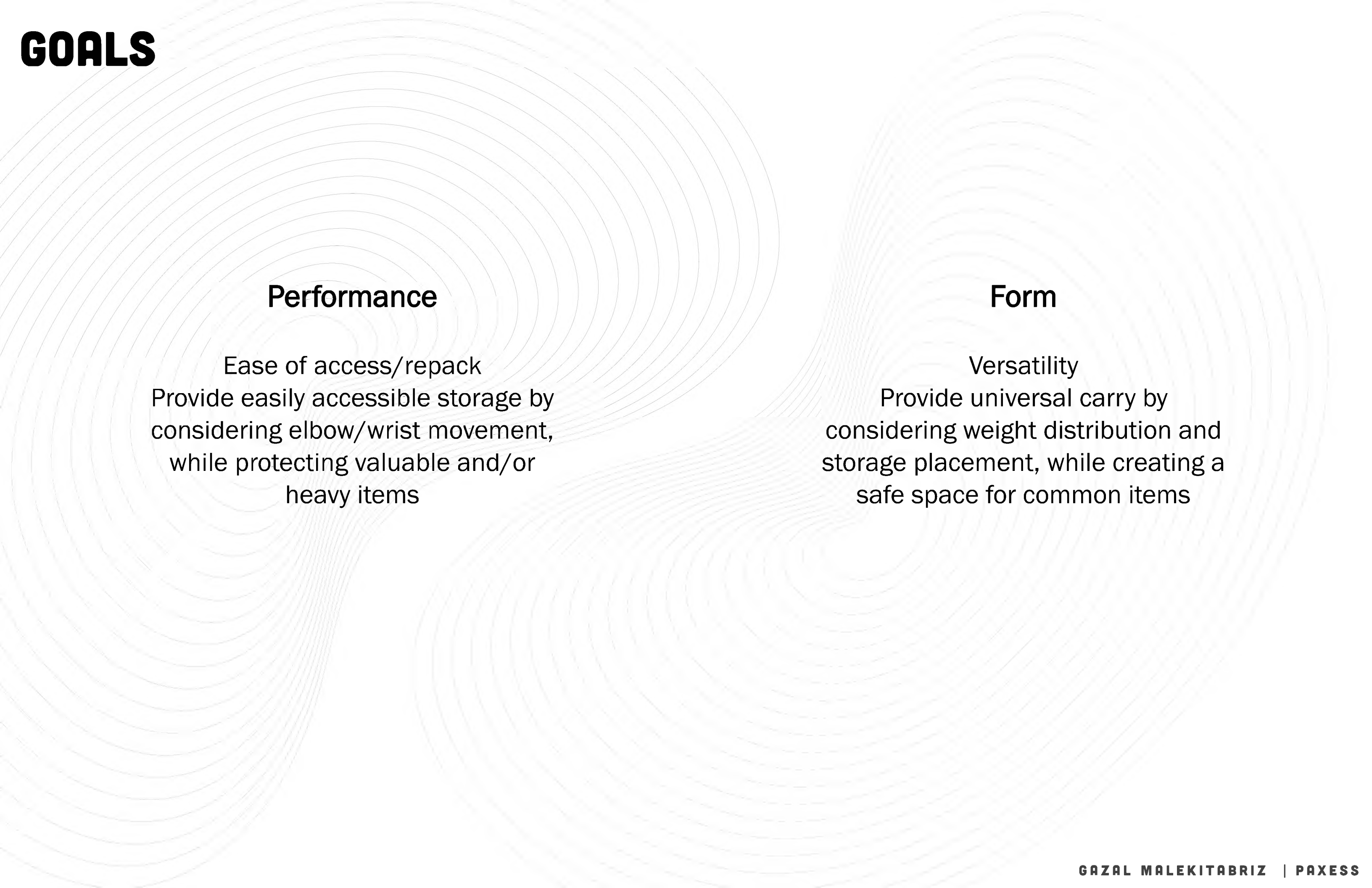
Variety of bottles

Larger is tight, smaller moves

Rigid discomfort

Box like shapes, no body ergonomic





GOALS

Performance

Ease of access/repack
Provide easily accessible storage by considering elbow/wrist movement, while protecting valuable and/or heavy items

Form

Versatility
Provide universal carry by considering weight distribution and storage placement, while creating a safe space for common items

BENCHMARK RESEARCH

Photography - common items to carry



Surveyed 30 photographer enthusiasts

- 1 DSLR-Mirrorless 43%-32%
- 2 Cellphone 100%
- 3 Water Bottle 85%
- 4 Add. battery 48%
- 5 Filter 40%
- Snack & First aid kit

Crossbody Bag

- ❖ Mesh wide shoulder straps
Provide comfortability
- ❖ Weatherproof zippers and materials Protect items
- ❖ Abrasion resistance
Provide durability

Hiking - common items to carry



Surveyed 50 outdoor hikers

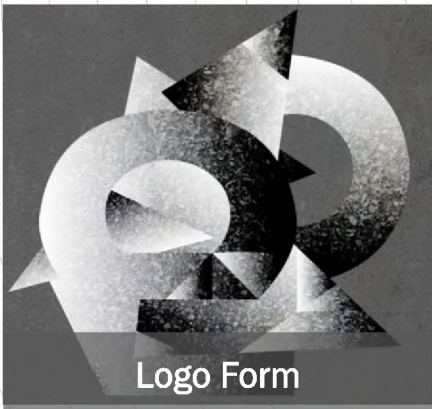
- 1 Cellphone 100%
- 2 Water Bottle 98%
- 3 First Aid Kit 67%
- 4 Snacks 50%
- 5 Whistle 32%
- 6 Compass 27%

Fanny Pack + Water Bottle Holder

- ❖ Anti-fall elastic strings
Keep water bottle stable
- ❖ Two compartments
Phone not being scratched
- ❖ Mesh pad



Accessible Curvature Form



Logo Form



Compression Adaptive Form



Fluid-in-Motion Ergonomic Layers



Internal Feature



Magnetic Click



Interchangeable Straps



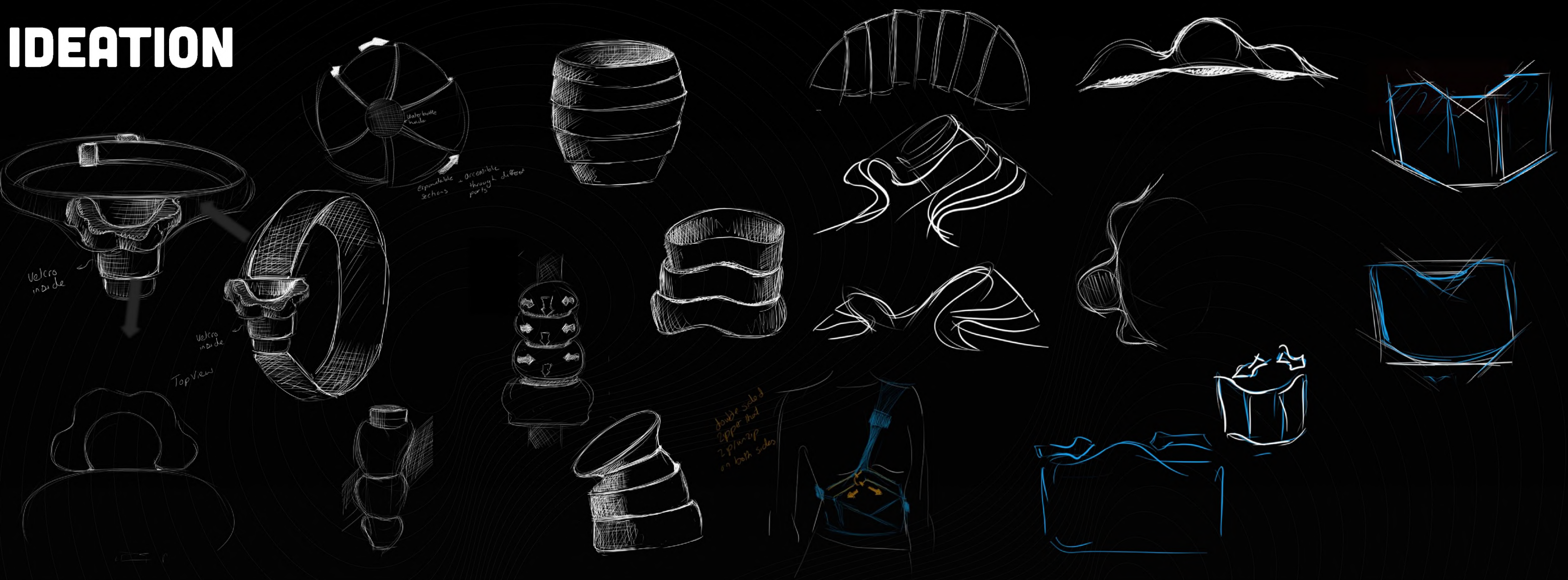
Outer Structure Trim



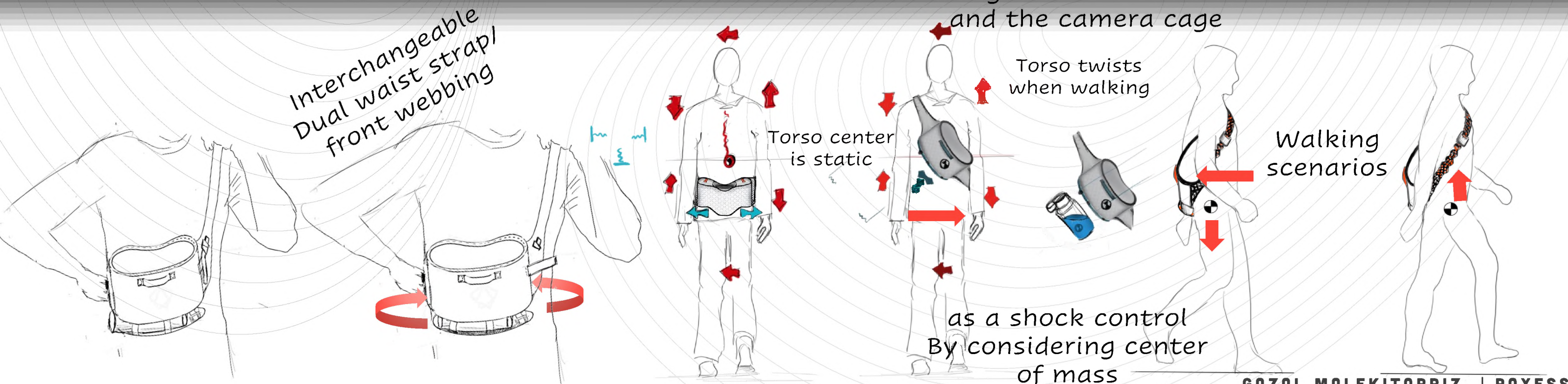
Engraved Reflective

FACE	Vetiver	17-0613 TPX
ACCENT	Vintage Khaki	16-0205 TPX
INTERIOR	Frozen Dew	13-0513 TPX
FACE	Carbon Black	19-4012 TPX
ACCENT	Ochre Yellow	16-1148 TPX
INTERIOR	Ochre	14-1036 TPX

IDEATION



Technologies in the bottle holder and the camera cage



TECHNOLOGIES



paxWRAP

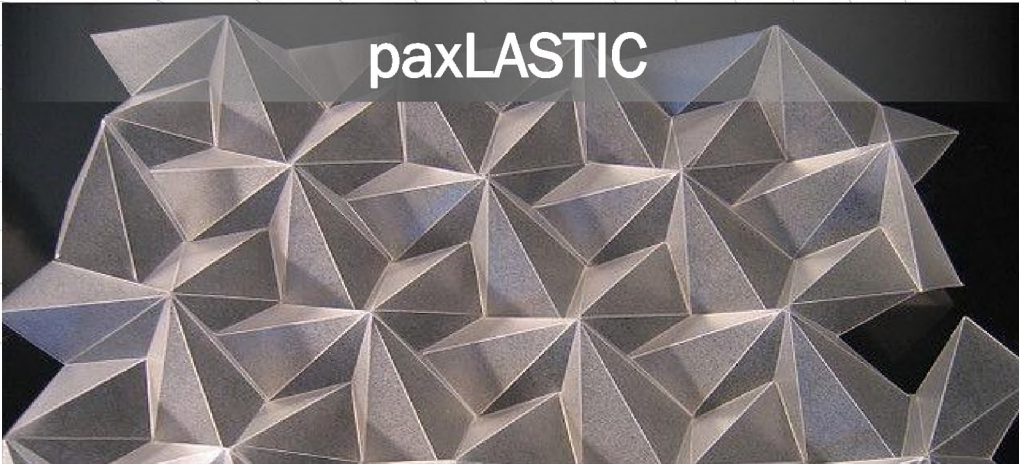


Mechanisms

channel wrapping bottle holder
compressible Straps

Benefits

comfort
impact absorbing



paxLASTIC



Mechanisms

spring push assist while
repacking

Benefits

impact absorption
while hiking



paxBALANCE



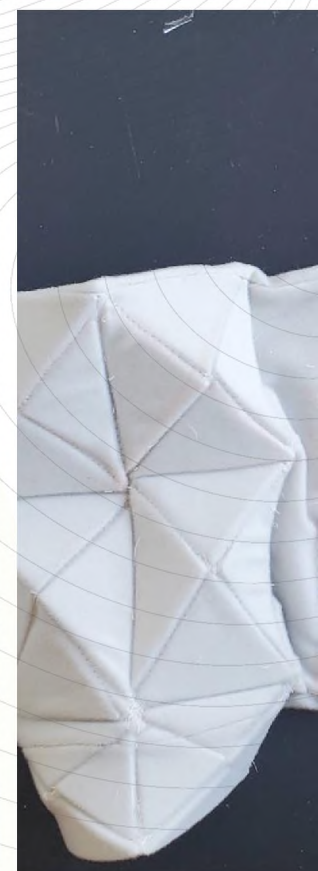
Mechanisms

self adjusting movement mounting
internal

Benefits

stability & balance
vertical position & reduce jarring

PROCESS





PROCESS



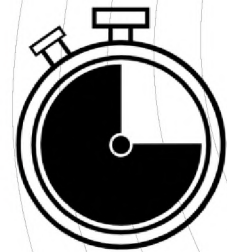


PERFORMANCE TESTING

Access/Repack



Hiking bag



Average timing to access/repack common items being carried by hikers & enthusiast photographers during outdoor hiking

Camera bag



Posture/Marks

Posture comparison
Before
carrying the
pack and
after 45 min.
hike



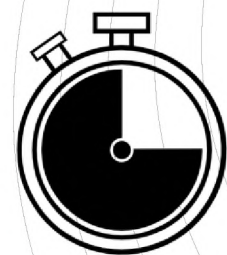
Marks on
body after
45 min. hike



PERFORMANCE TESTING



Hiking bag




Camera bag

33% to 40%
faster than
benchmark

17% faster by
paxLASTIC



Posture
comparison

50%
improvement



No mark on
body

Access/Repack

Posture/Marks

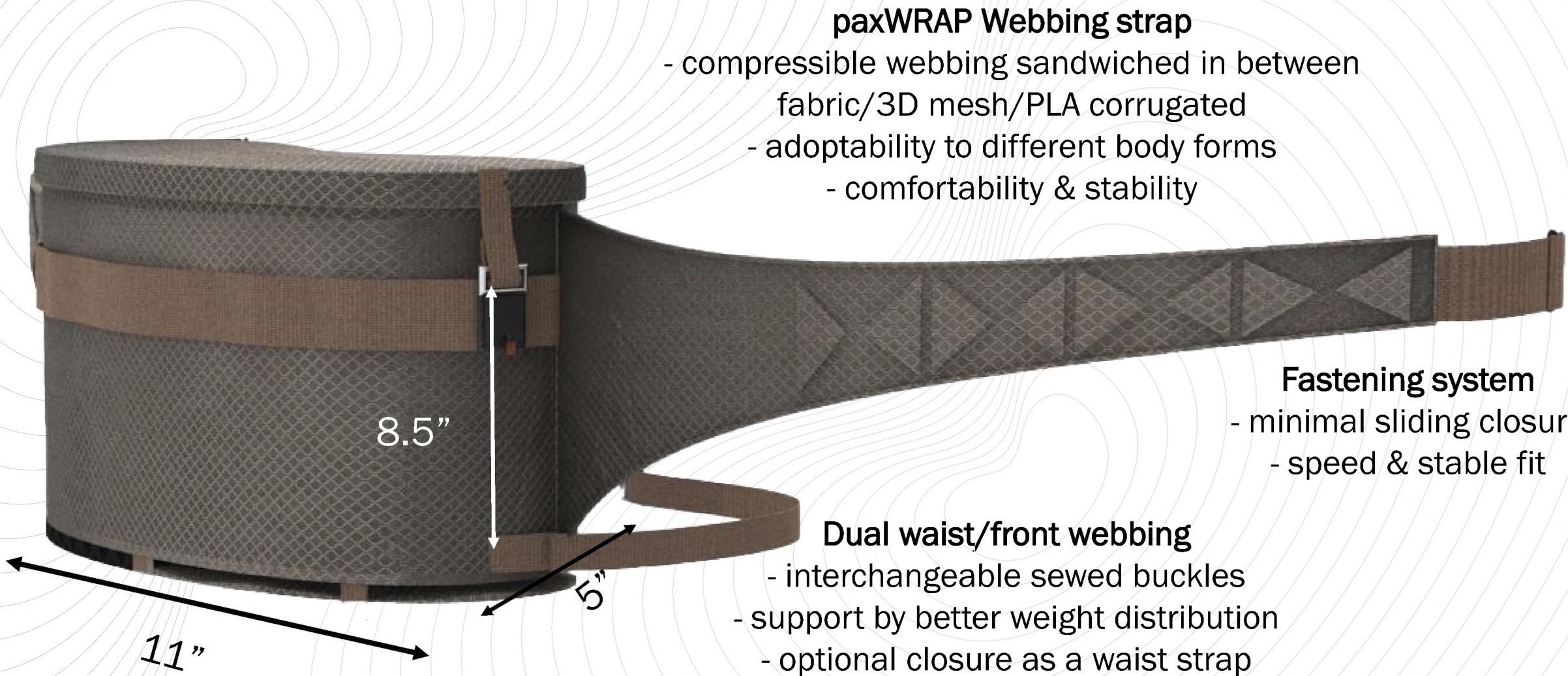


Thank You!

FEATURES & BENEFITS

PAXESS-PIX

360 inner Velcro-compatible with moveable pockets/camera cage
-Symmetrical body-fitting for universal fit with utility functions hidden



Padded handle

- allows hand-bag usage
- optional carriage
- comfortability

paxWRAP Webbing strap

- compressible webbing sandwiched in between fabric/3D mesh/PLA corrugated
- adoptability to different body forms
- comfortability & stability

Fastening system

- minimal sliding closure
- speed & stable fit

Dual waist/front webbing

- interchangeable sewed buckles
- support by better weight distribution
- optional closure as a waist strap

FEATURES & BENEFITS

PAXESS-PIX

360 inner Velcro-compatible with moveable pockets/camera cage
-Symmetrical body-fitting for universal fit with utility functions hidden

flipLID

- magnetic clam closures
- fast multi-angle access

Attachable/detachable Velcro pockets

- customizable to the user needs
- organization

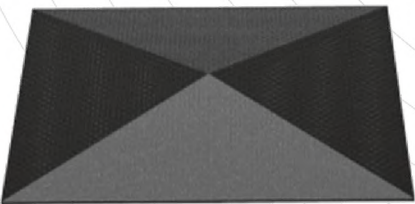


Optional paxLASTIC inner dividers

- additional protection to gear
- adjustability & organization
- Ease of access/repack

paxLASTIC Bottle Holder

- store kinetic energy
- auto assist & protection

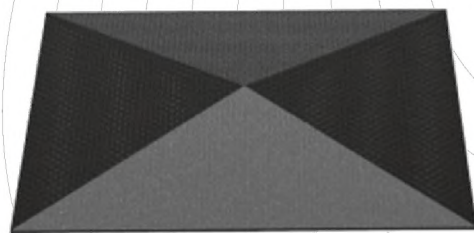


5-sided paxLASTIC cushioning

- protects body/gear

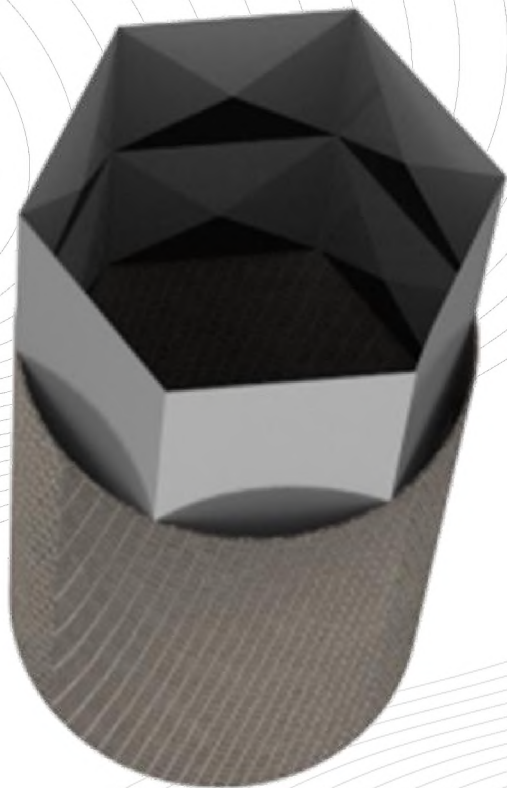
FEATURES & BENEFITS

PAXESS-HIKE



paxLASTIC

- store kinetic energy
- auto assist & protection
- body shock reduction



paxLASTIC

- Attached to each other



paxLASTIC

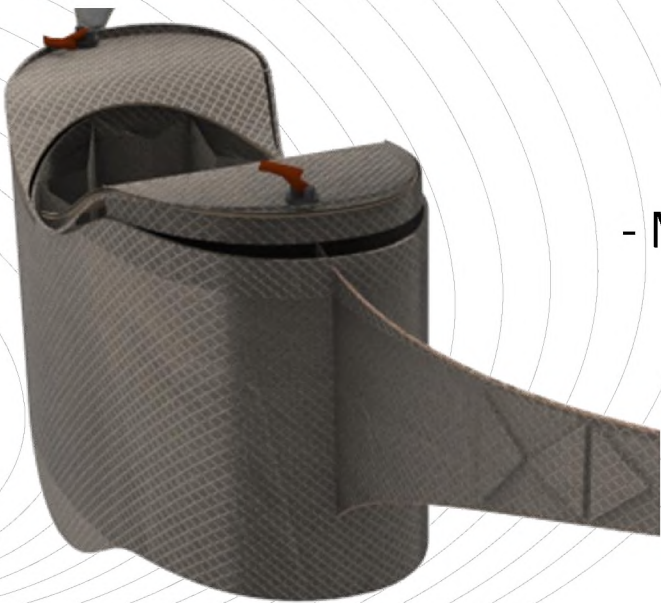
- Attached to the inner section
- Hold gears while reducing body shock

FEATURES & BENEFITS

PAXESS-HIKE

fliplid

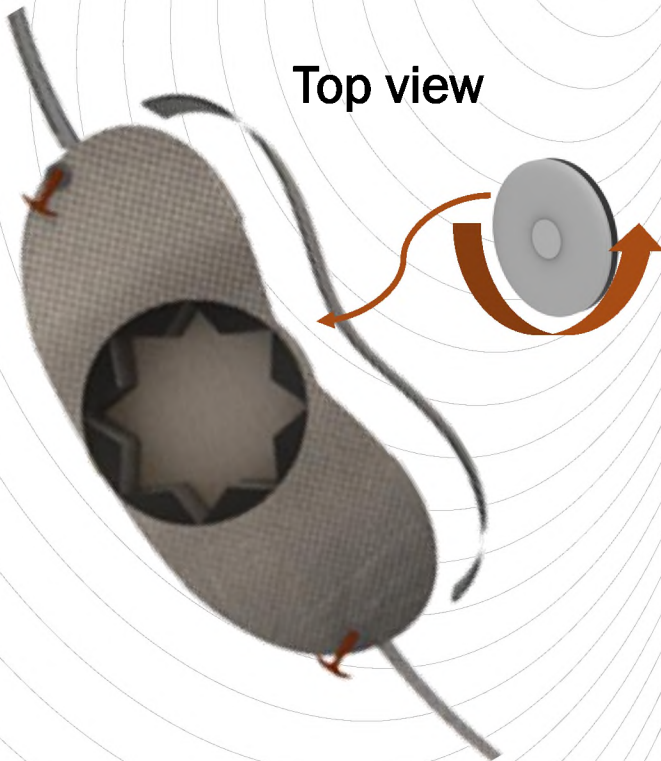
- Magnetic closure with a puller sandwiched between fabrics



Closure

- Magnetic side pocket closure mechanism
- Provide ease of access

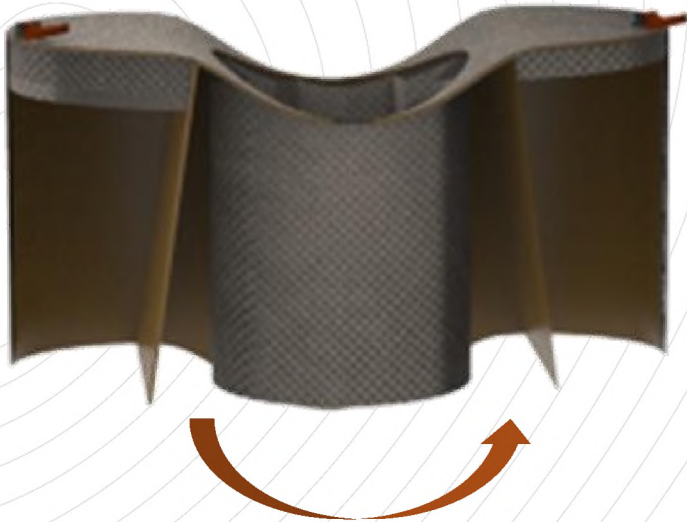
Top view



Front Inner view



Front Inner view



paxBALANCE

- sandwiched between bottle holder & back section
- limited pivot bottle mount
- Stability

divider

- flexible rigid structure
- separates phone/snack/other
- water bottle leakage protection

paxBALANCE

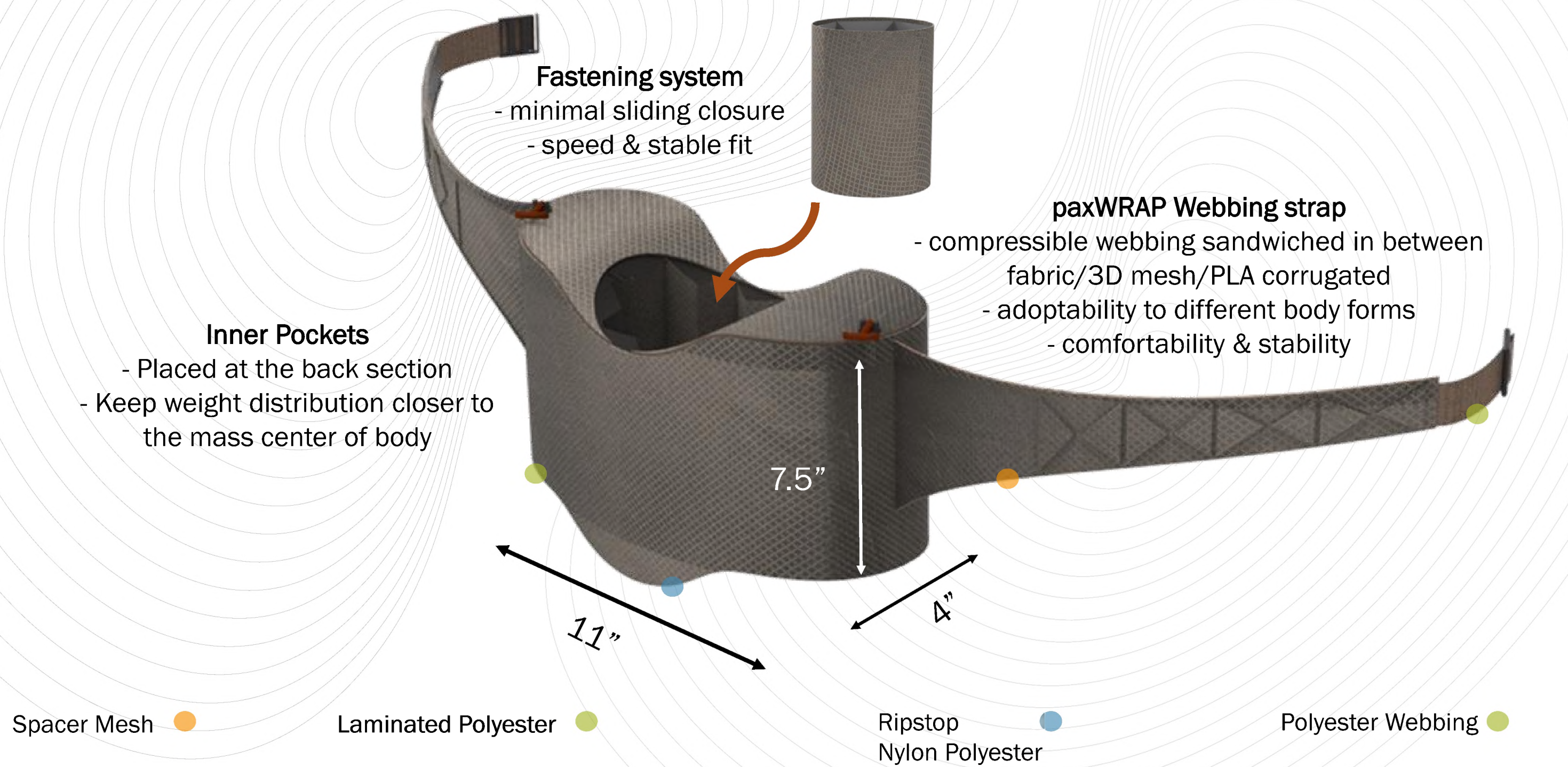
- Two inclined divider provide space for bottle holder to move freely by weight

FEATURES & BENEFITS

PAXESS-HIKE

Two side pockets, one-size-all bottle holder

- Provides left-handed/right-handed usability with utility functions hidden



ATHLETE QUOTES

PAXESS-HIKE

Lauren H.
Athlete

- "The straps are very comfortable giving me confidence and desire to hike more, especially since the water bottle isn't swaying with movement."

Delaney
Athlete

"I love the water bottle as such is stored in a secure, but accessible place without messy bungee cords."

"The bean shape contouring and structure of the bag feels good against the back and more so hips."





ATHLETE QUOTES

PAXESS-PIX

Sam

Photographer/Journalist

“straps are very comfortable, but I prefer to wear it as a fanny pack because the form is very comfortable around the hip.”

Brandy

Athlete/Photographer/Videographer

“The straps provide comfortability during nature hiking, while it could require accessibility to the camera few times in an hour.”

“It is great that we don’t need to deal with waist strap whenever we want to access the camera.”





PASSESS

Thank You!