# 06

## IDENTITY & CMF


Live Your Own Life
LIVO

# MOOD BOARD

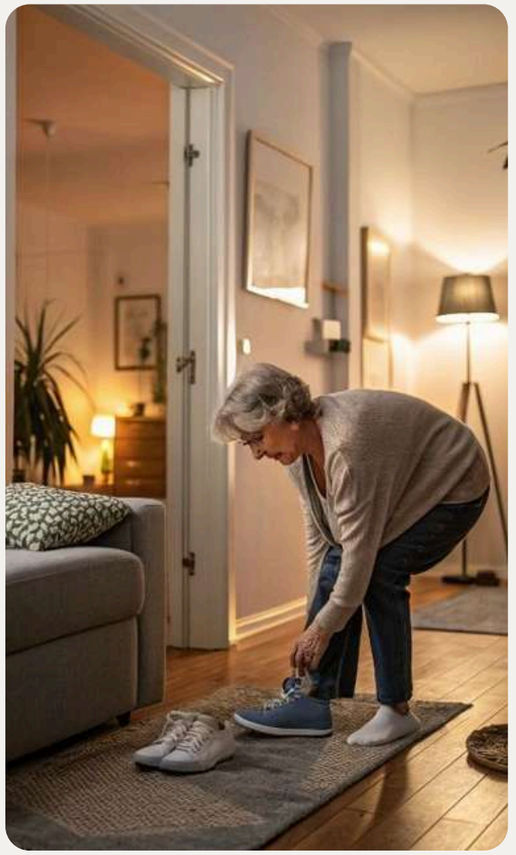







Live Your Own Life

LIVO













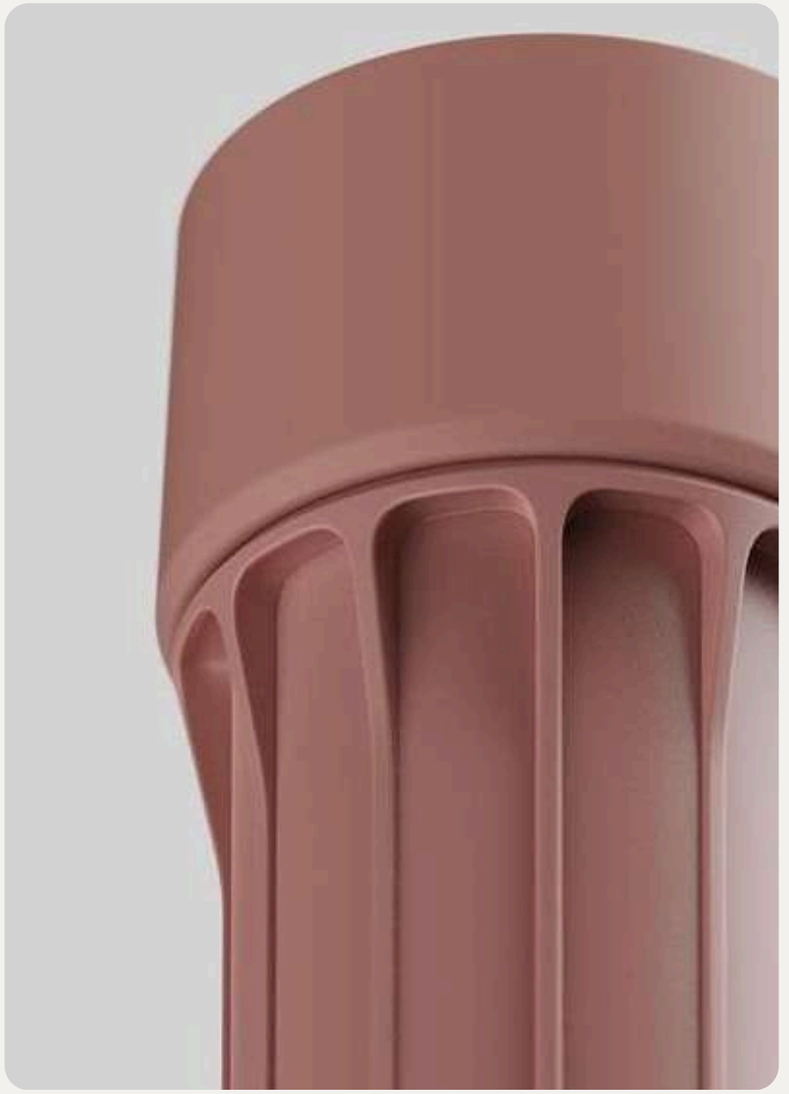
# CMF BOARD

WEEK 12



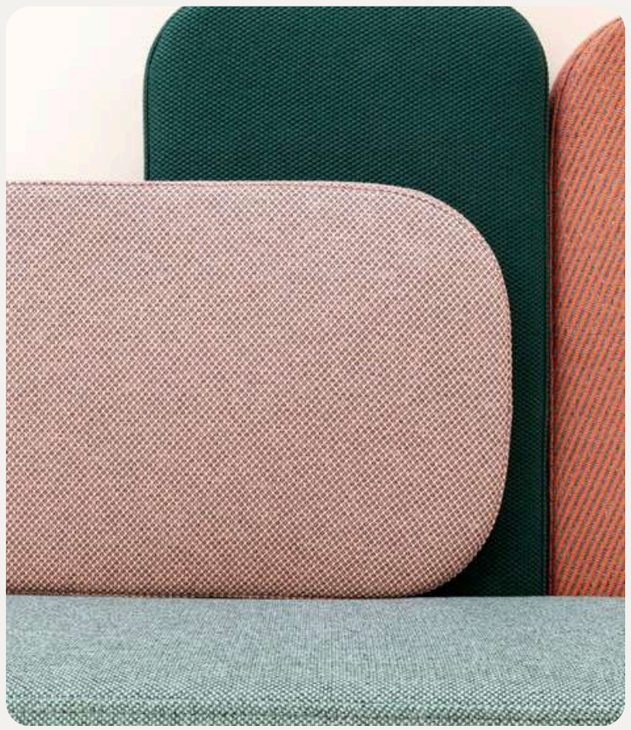






Live Your Own Life

LIVO








**A warm, tactile CMF direction that makes LIVO feel like an everyday lifestyle product rather than a medical aid**

# CMF RESEARCH



## Aesthetic Direction

LIVO made to feel like an everyday accessory that users are comfortable taking outside. Research on older adults' wearable technology suggests that appearance, perceived material quality and associations with ageing can influence acceptance (Li et al., 2020).

### Soft transitions

Rounded connections create a consistent form





### Visual & Weight lightness

Open space and restrained covers reduce visual bulk







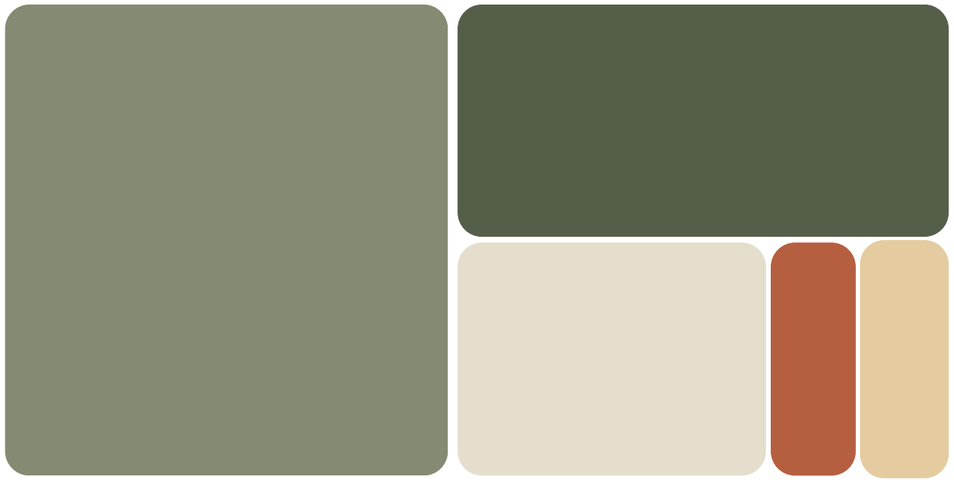
# CMF RESEARCH



## Initial Colour Exploration

A common warm grey frame keeps the colour range consistent. Burgundy and terracotta connect with LiVO’s brand identity, while sage green and dusty blue offer alternative expressions.

| Colour | Role | Intended expression |
|---|---|---|
| **Warm grey** | Common frame and covers | Neutral and understated |
| **Terracotta** | Core accent | Warm and expressive |
| **Sage green** | Core accent | Muted and subtle |
| **Dusty blue** | Optional accent | Cool and restrained |

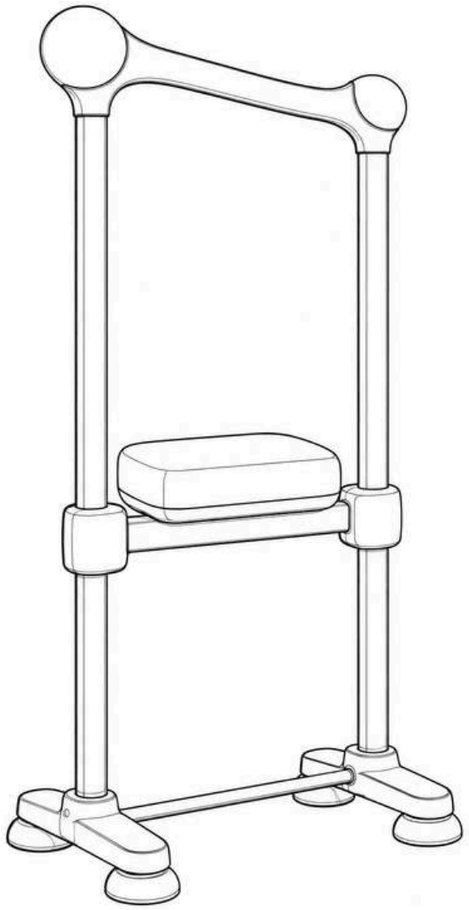


Accent colours are repeated on the grip and knee pad to connect the contact areas visually

# HERO SKETCH



## FINAL DESIGN COLOR OPTION



An olive and sand palette gives LiVO a familiar, everyday appearance. Matte surfaces and soft contact areas create visual consistency, while small terracotta accents express the brand identity

1
#858A72
#555E49
#E5DECD

2
#918372
#B7AC9C
#695949

3
#705548
#49372D
#B55F40

4
#829BA2
#45616D
#E7E5DC

# CMF RESEARCH



## Contact Materials

Contact materials are selected according to their role. The handle needs a comfortable grip, while the knee pad needs cushioning and a cover designed to limit slipping

| Part | Proposed material | Reason for selection |
|---|---|---|
| **Grip and palm support** | Soft-touch Rubber | Softer contact surface over a rigid structure |
| **Knee pad core** | High-resilience PU foam | Cushioning with recovery after compression |
| **Knee pad cover** | High-friction PU-coated stretch fabric | A stretchable cover with a specified low-slip surface |





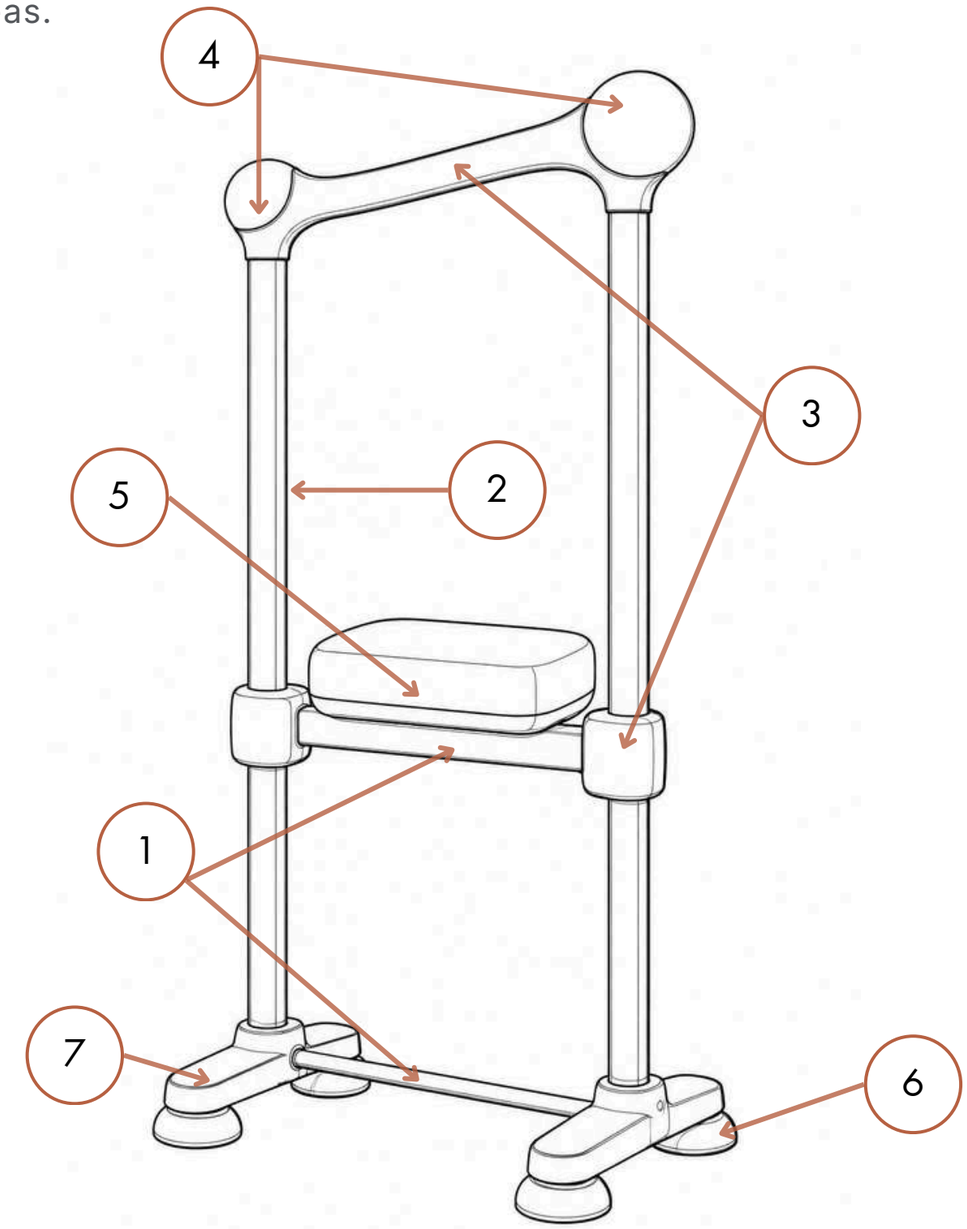
# CMF RESEARCH

WEEK 12

## Proposed CMF Application

The proposed CMF combines an aluminium structure, matte covers and softer contact surfaces. Coordinated colour variations distinguish the structural frame, external housings and user-contact areas.

| No. | Component | Material | Finish |
|---|---|---|---|
| 1 | Crossbars & knee-pad support | Aluminium 6061 | Fine-textured powder coating |
| 2 | Main poles | Aluminium 6061 | Anodised finish |
| 3 | Handle body & slider housings | ABS | Fine matte texture |
| 4 | Grip | TPE | Fine textured surface |
| 5 | Knee cushion | PU foam with polyester stretch-fabric cover | Soft textile surface |
| 6 | Ground-contact domes | TPU | Matte textured surface |
| 7 | Base frames | ABS | Fine matte texture |

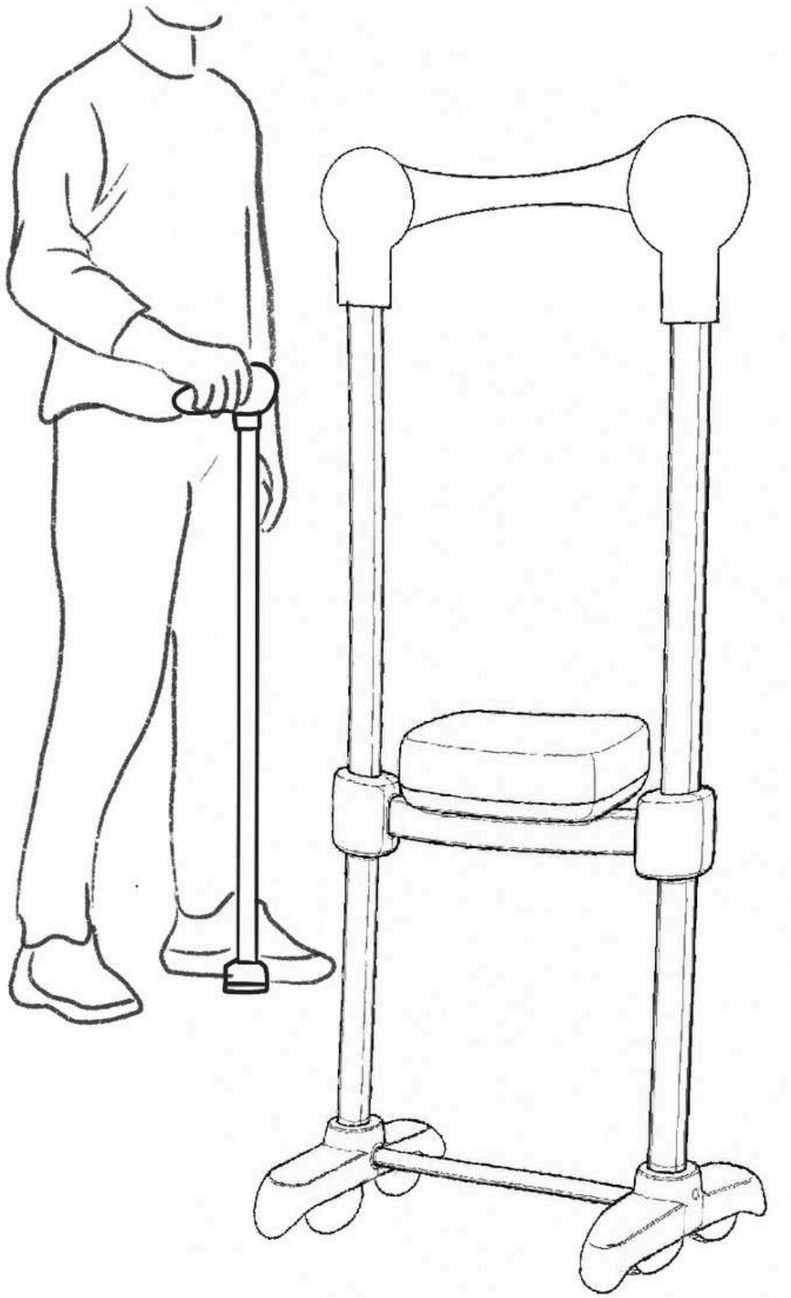


# 07

## DIMENSIONS & ASSEMBLY

# ERGONOMIC CONSIDERATIONS





## 01
### HEIGHT REFERENCE

Cane guidance uses wrist-level grips and a slight elbow bend as a fitting reference (MedlinePlus, 2025)

## 02
### HAND POSITION

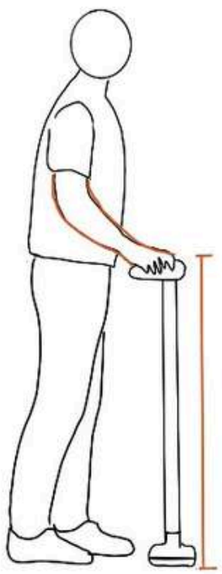
General hand-tool guidance recommends neutral wrists and 30–50 mm cylindrical or oval power grips (CCOHS, 2023). This is a reference, not validation of a spherical handle

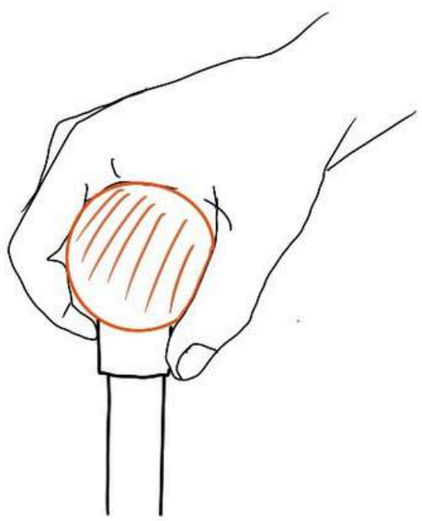
## 03
### DESIGN CHOICES

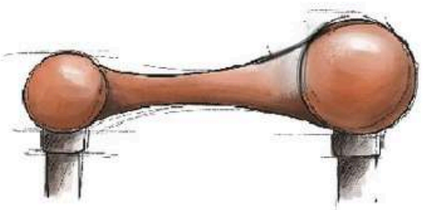
Rounded ends: Ø30 / Ø40

Pole connection spacing: approximately 200 mm.

Different contact areas were explored within a compact form

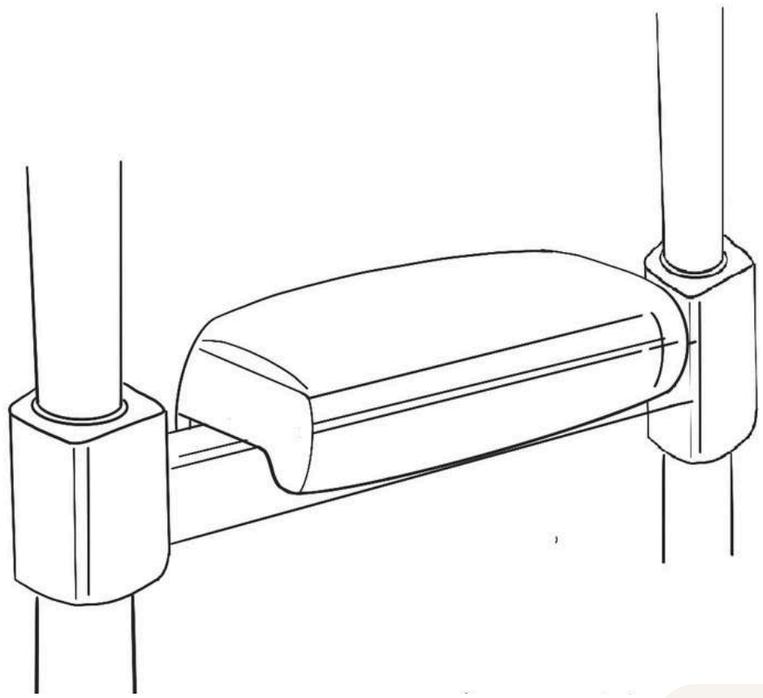


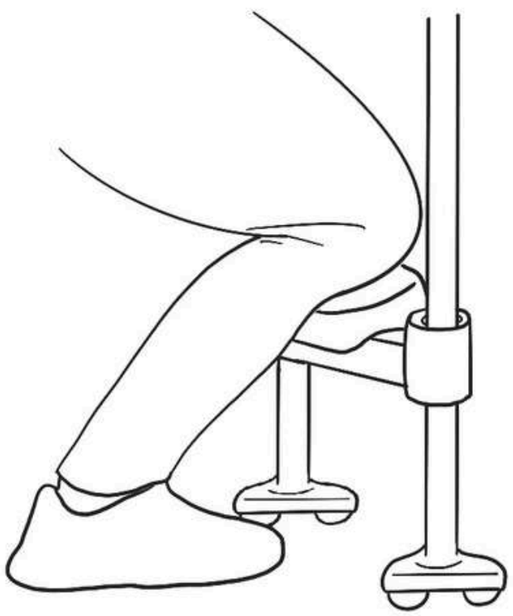




# ERGONOMIC CONSIDERATIONS







## 01

### CONTACT PRESSURE

Kneeling research highlights the need to spread contact pressure over a larger area (Porter et al., 2010). This informed the padded support concept; pressure distribution remains untested.

## 02

### SINGLE KNEE SUPPORT

A single pad was chosen to leave the other foot on the floor and keep the product compact. The pad sits centrally above the crossbar.

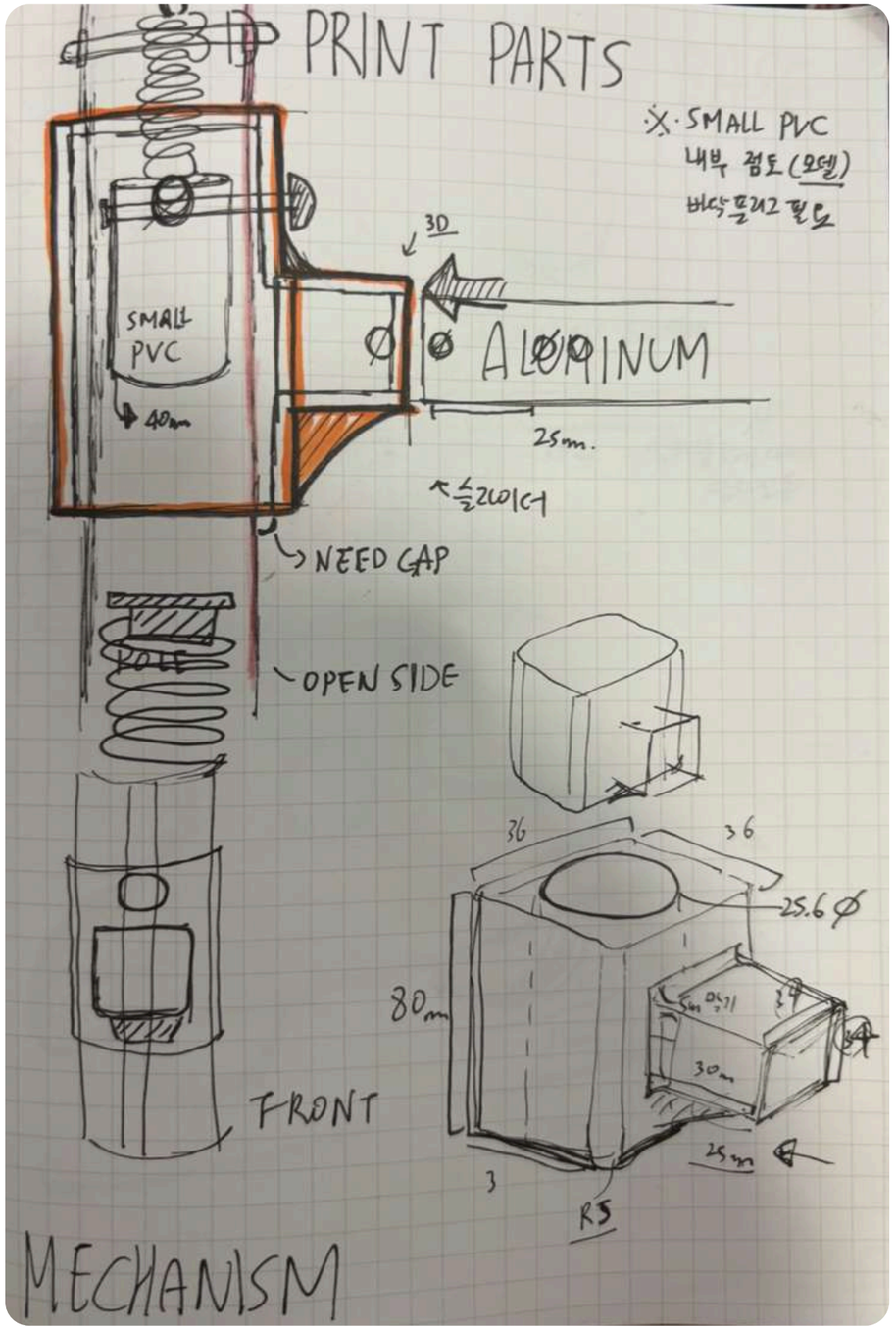
## 03

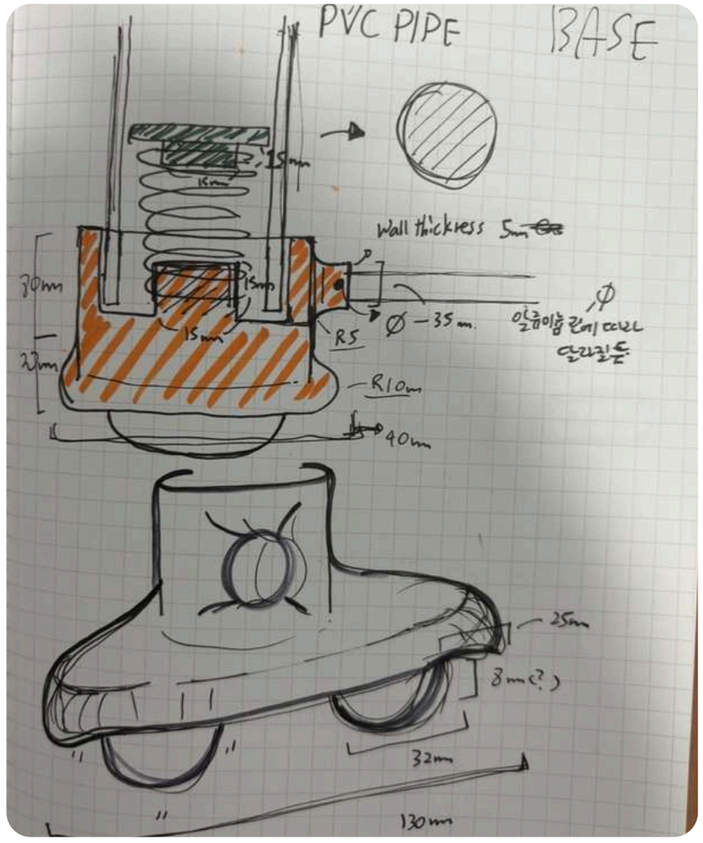
### INITIAL MOVEMENT

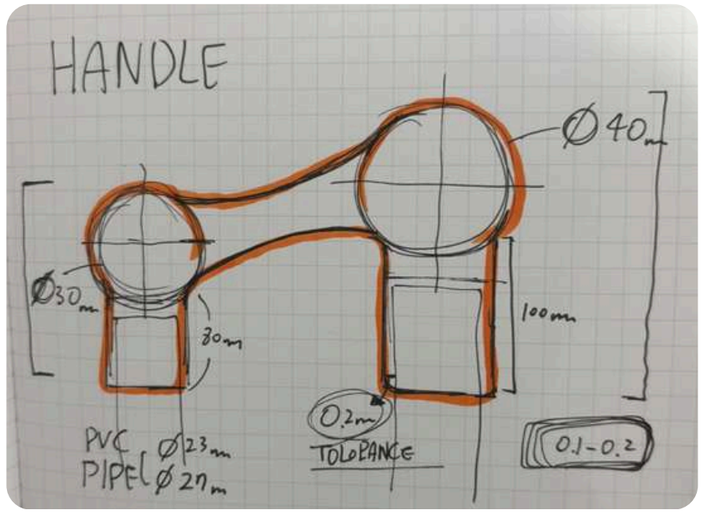
Support-frame height: approximately 430 mm down to 80 mm above the floor. These are prototype targets, not validated ergonomic limits.

# PARTS SIZE






Dimensions were refined through physical prototyping, component fitting and movement testing

# 3D MODELIING : HANDLE

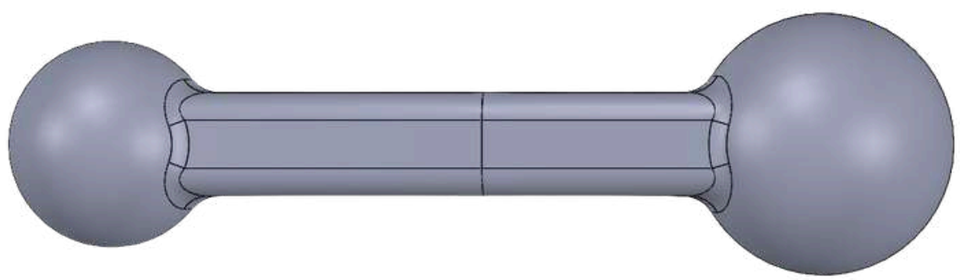




PERSPECTIVE VIEW



FRONT VIEW



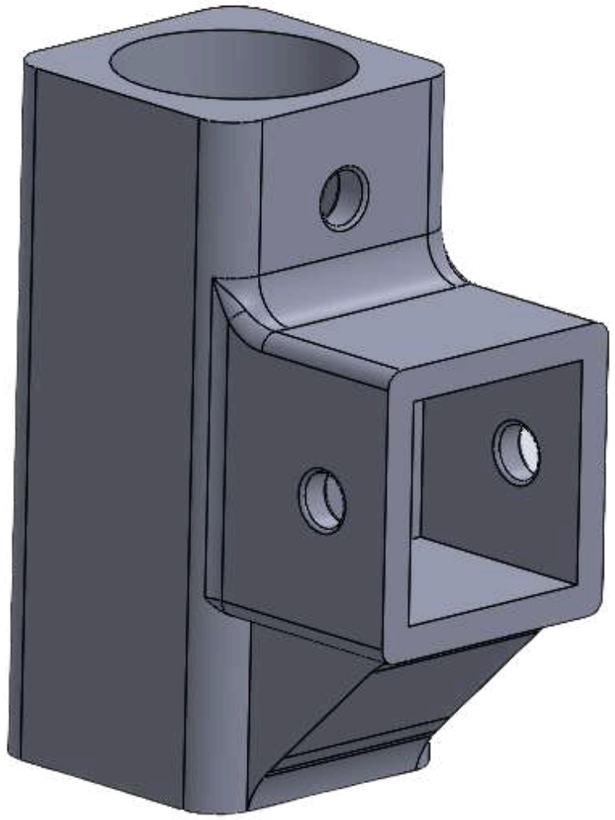
TOP VIEW

# 3D MODELIING : POLE & SLIDER

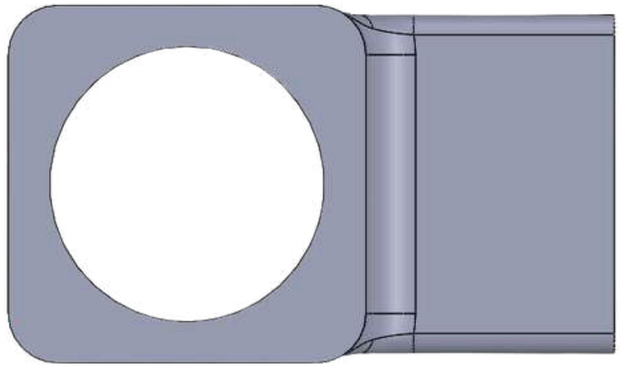




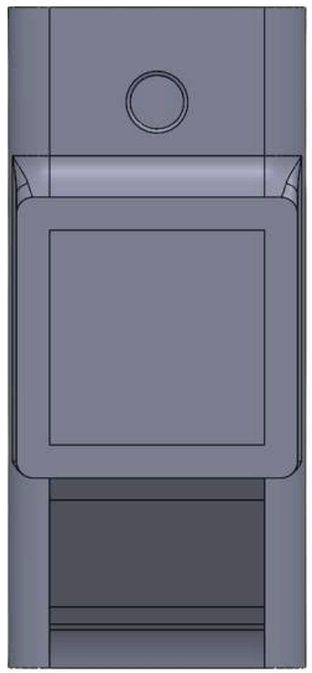
PERSPECTIVE VIEW



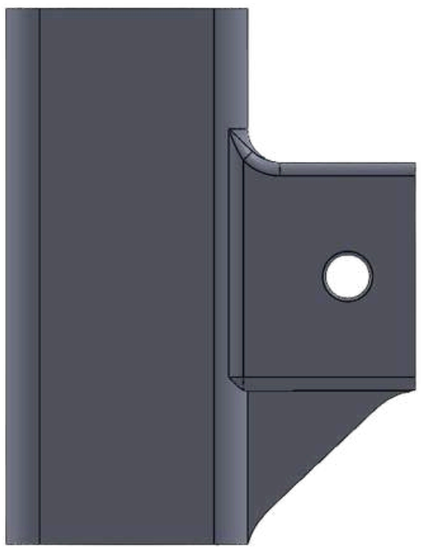
PERSPECTIVE VIEW



TOP VIEW



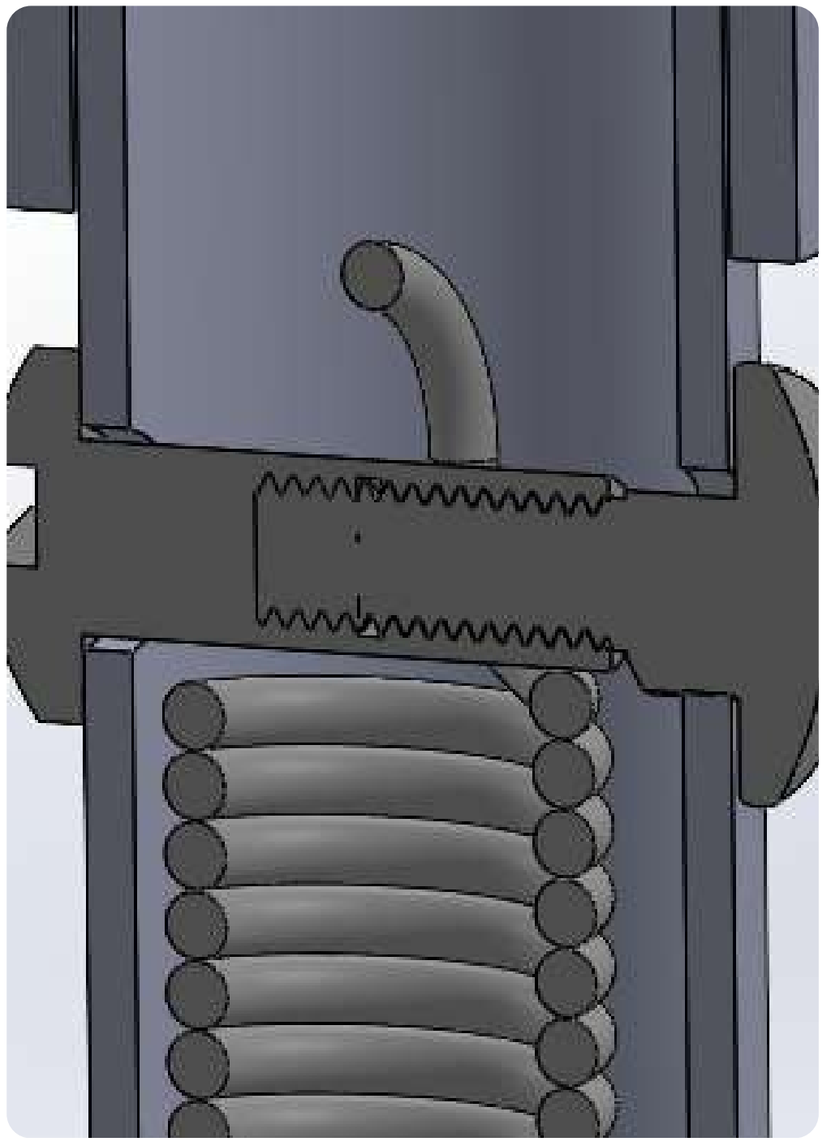
FRONT VIEW

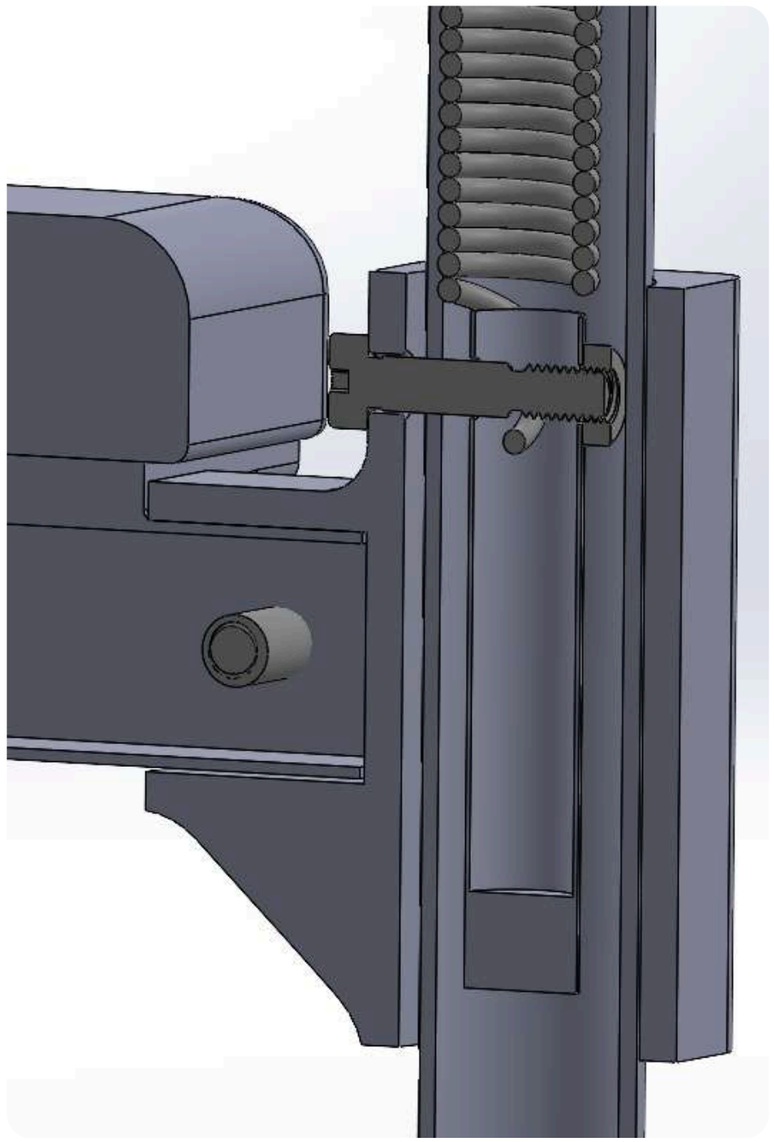


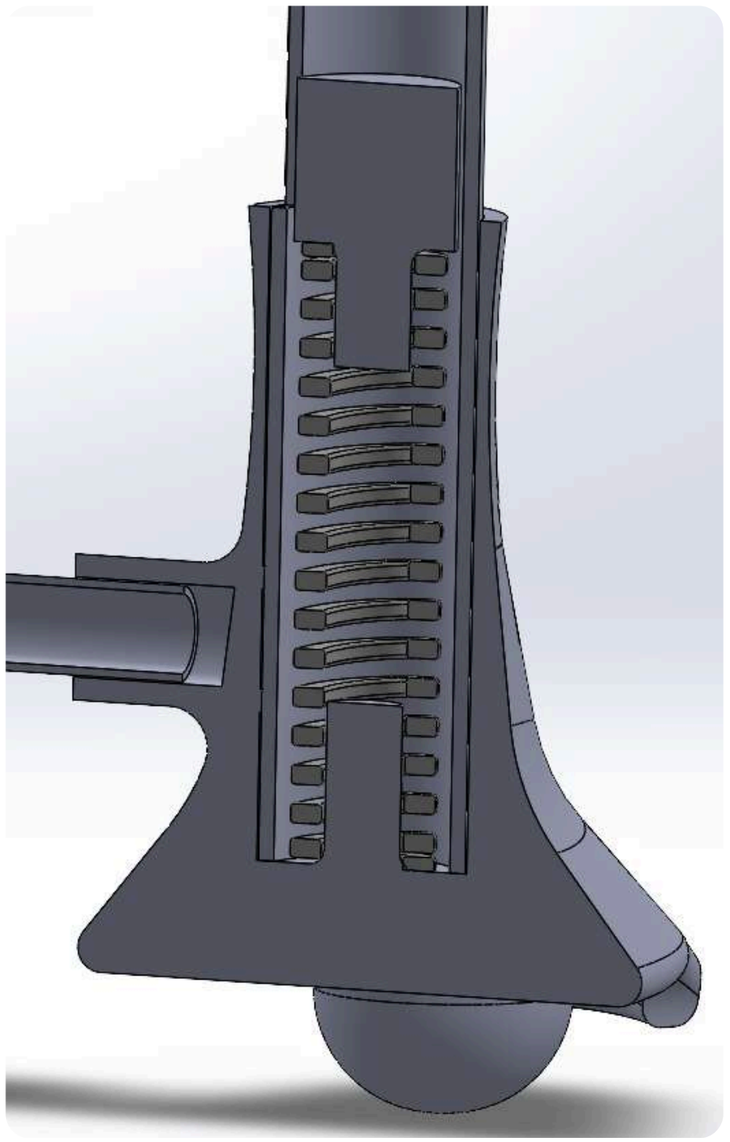
SIDE VIEW

# 3D MODELIING : SECTION VIEW



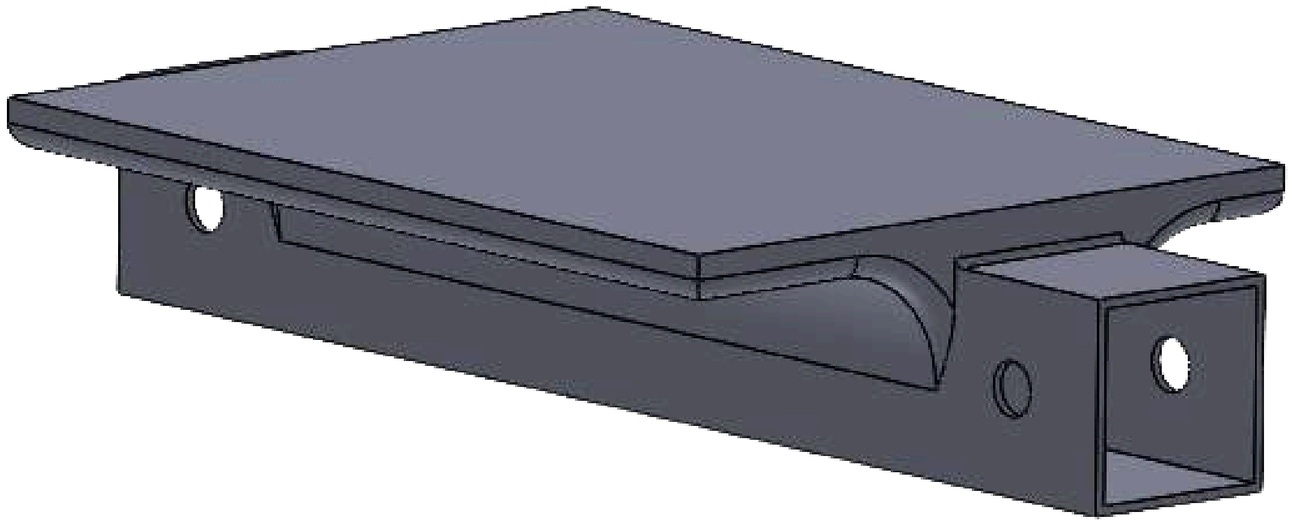






# 3D MODELIING : KNEE PAD PLATE

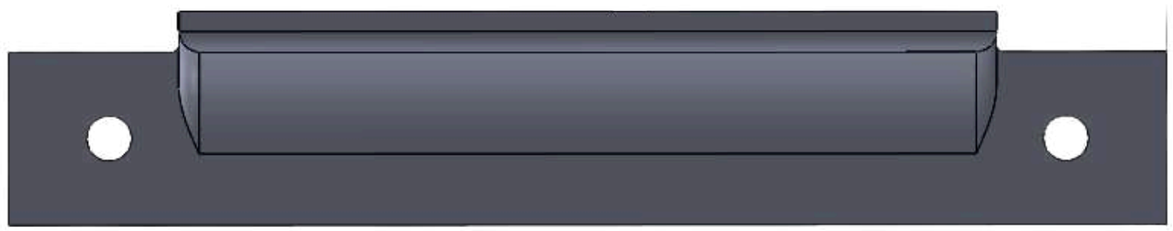




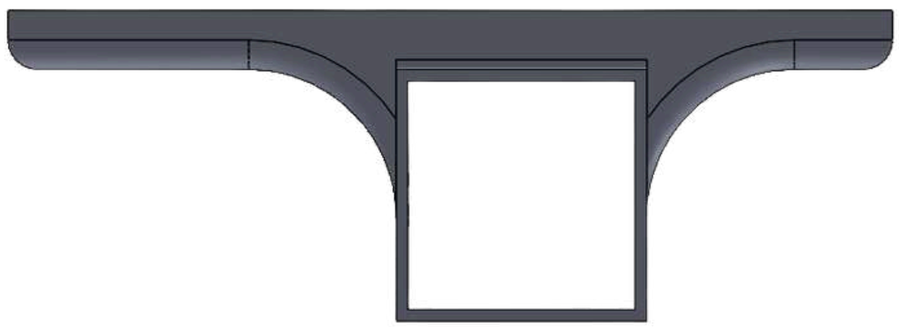
PERSPECTIVE VIEW



TOP VIEW



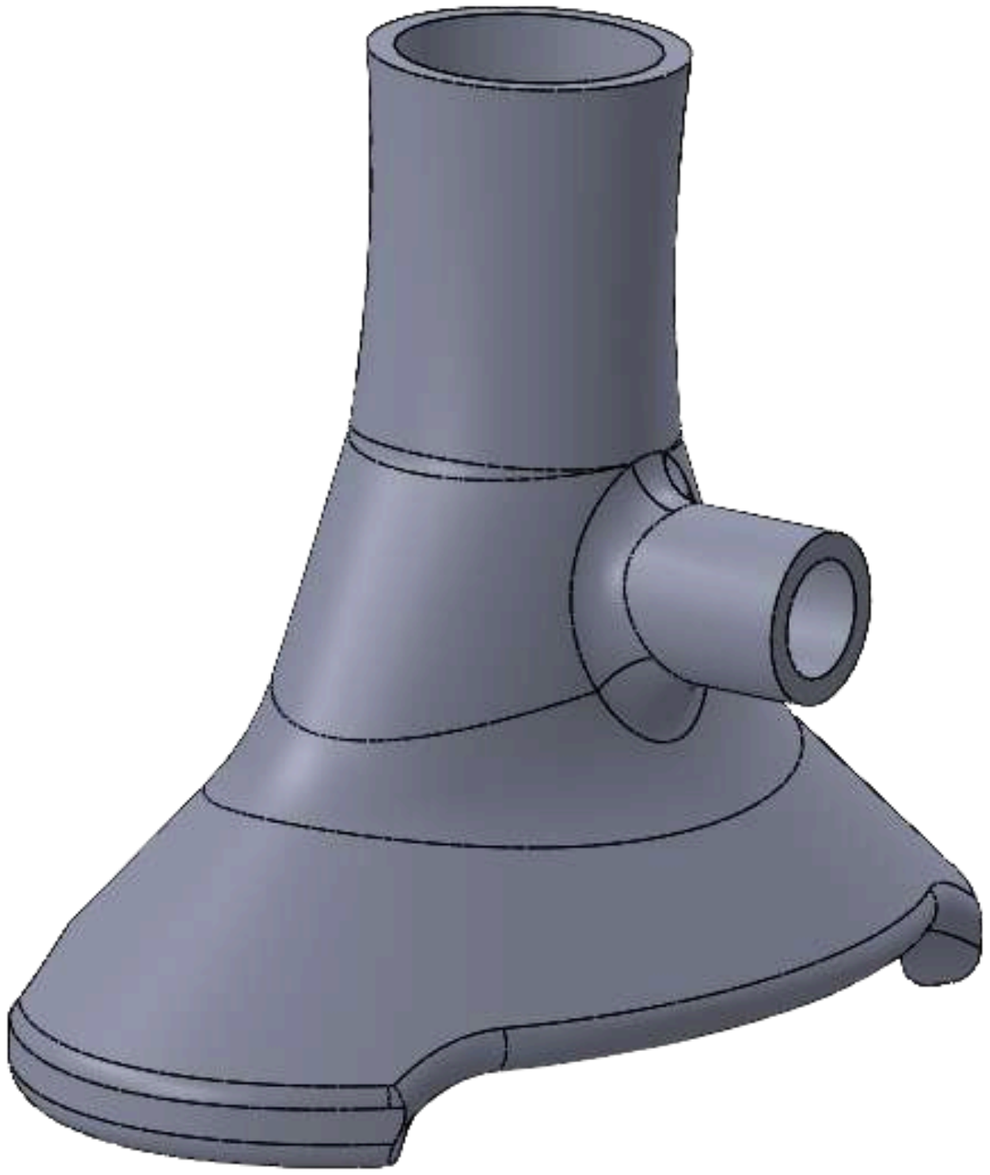
FRONT VIEW



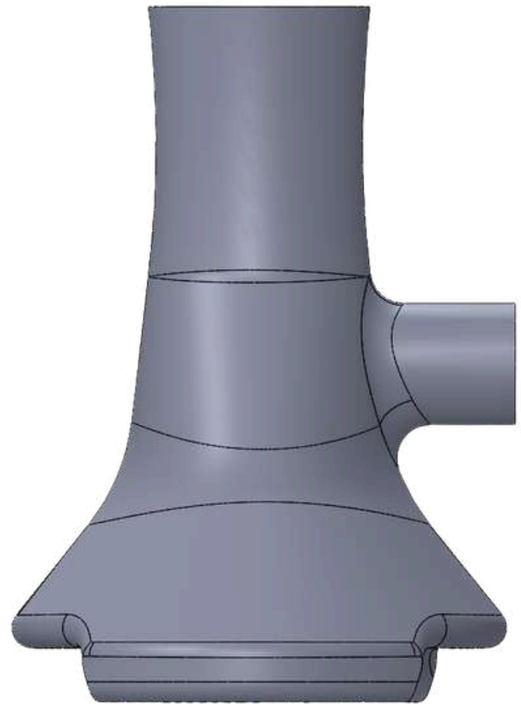
SIDE VIEW

# 3D MODELIING : BASE

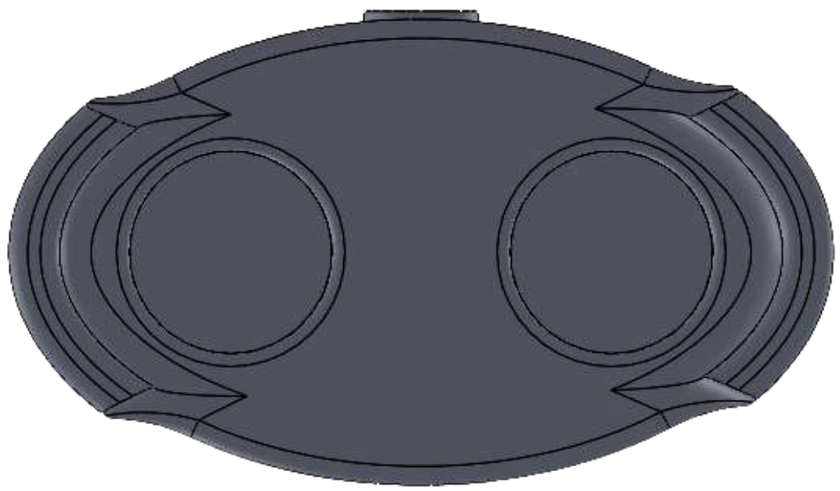
WEEK 12



PERSPECTIVE VIEW



FRONT VIEW



BOTTOM VIEW

# 3D PRINTED ASSEMBLY : HUMAN SCALE







## ASSEMBLY FINDINGS

All requested 3D-printed parts were received and assembled to check the overall form and fit. The remaining parts fitted together well, but the assembly felt slightly too wide and heavy.

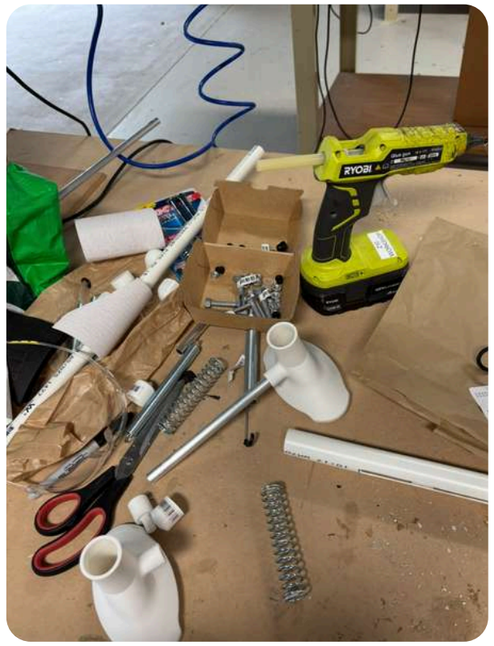
## PLANNED REFINEMENTS

Adjust the handle size and reduce the knee pad width by 10 mm, while maintaining enough space to support the knee.

Raise the gripping area slightly and reshape it to follow the hand’s contours.
Reduce the rigid parts’ infill from 60% to 20% to reduce weight. The revised parts will need another strength check.

# PHYSICAL MODEL PROCESS










## ASSEMBLY & MOVEMENT TEST

These photos document the assembly of the spring supports, pole guides and slider connections. The parts fitted together successfully, and the central platform moved smoothly along both poles during testing.





# PHYSICAL MODEL PROCESS







## TWIN-POLE MOVEMENT TEST

The crossbar connects the two sliders, allowing the knee support to move as one assembly. In this test, the platform travelled smoothly along both poles, confirming that the twin-pole layout could guide the movement without the sliders moving independently.

# PHYSICAL MODEL PROCESS







## CURRENT PROTOTYPE STATUS

The prototype is still unpainted and remains in progress. At this stage, the sliding platform moved smoothly along both poles, and the mechanism operated as intended during movement testing. This test confirmed the movement of the assembly; the final finish and remaining refinements are still to be completed.

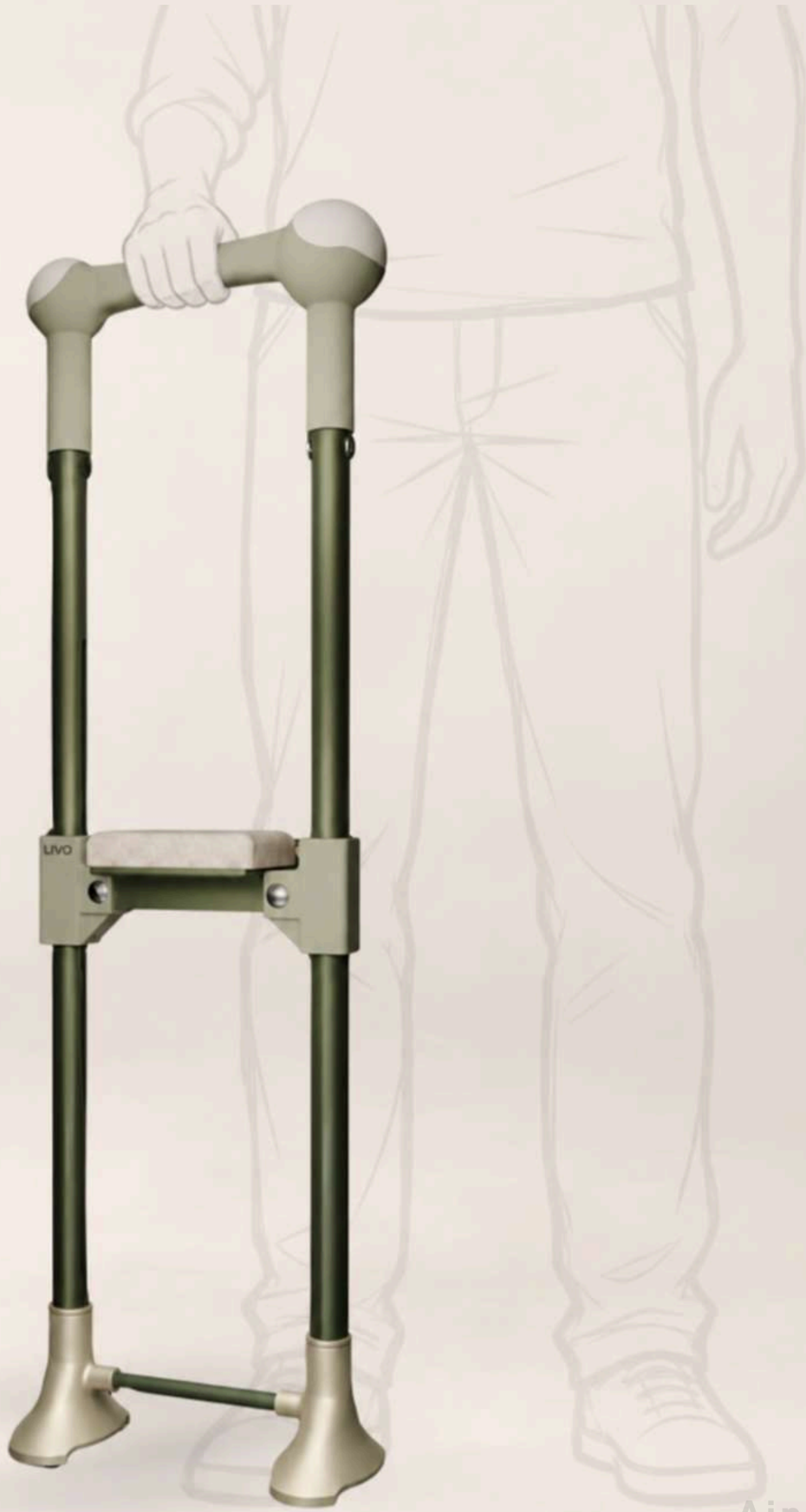
# 08

## FINAL DESIGN & VISUALISATION

LIVO

# HERO RENDER

FINAL VISUALISATION




SOFT OLIVE

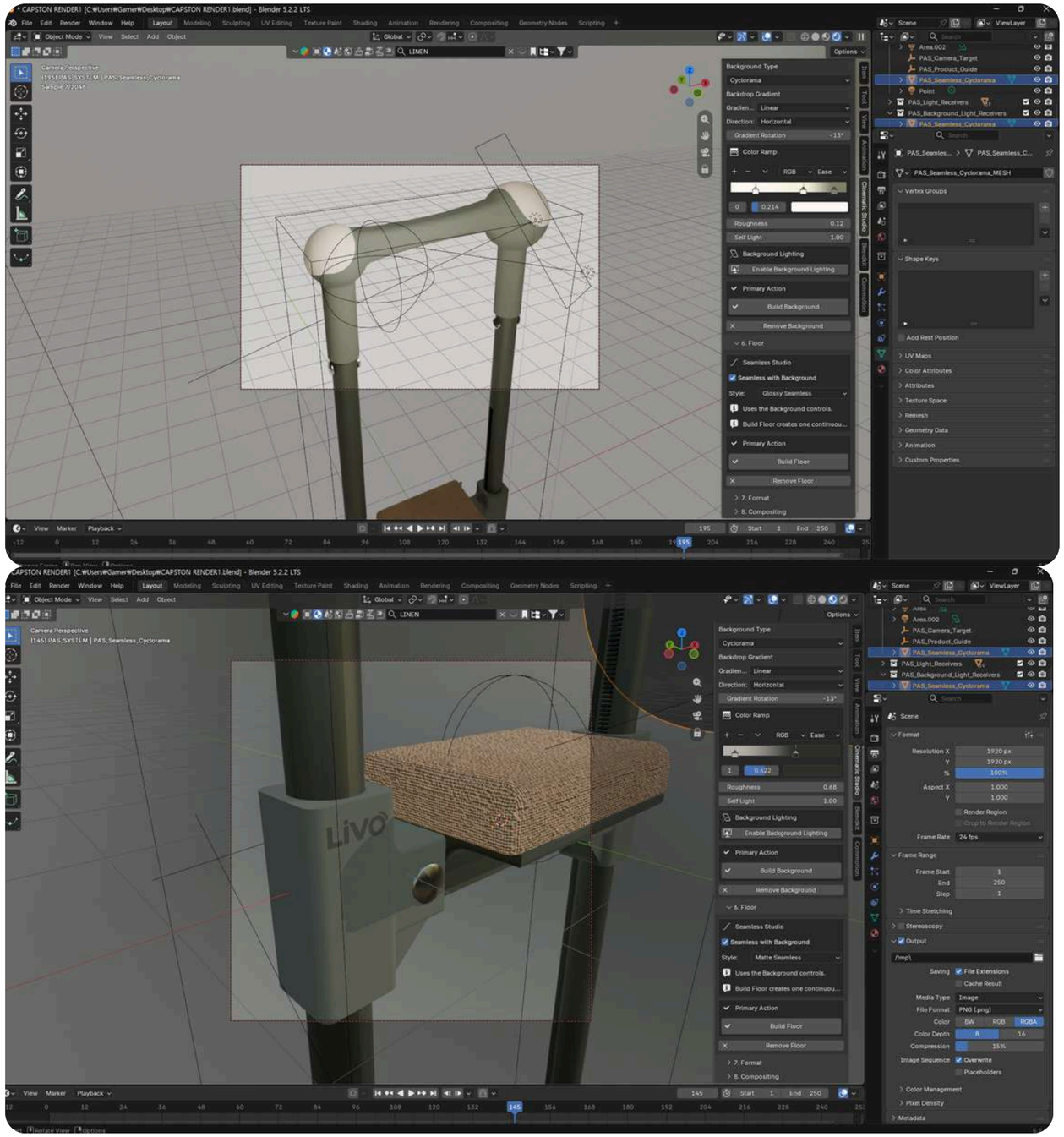

TONAL TAUPE

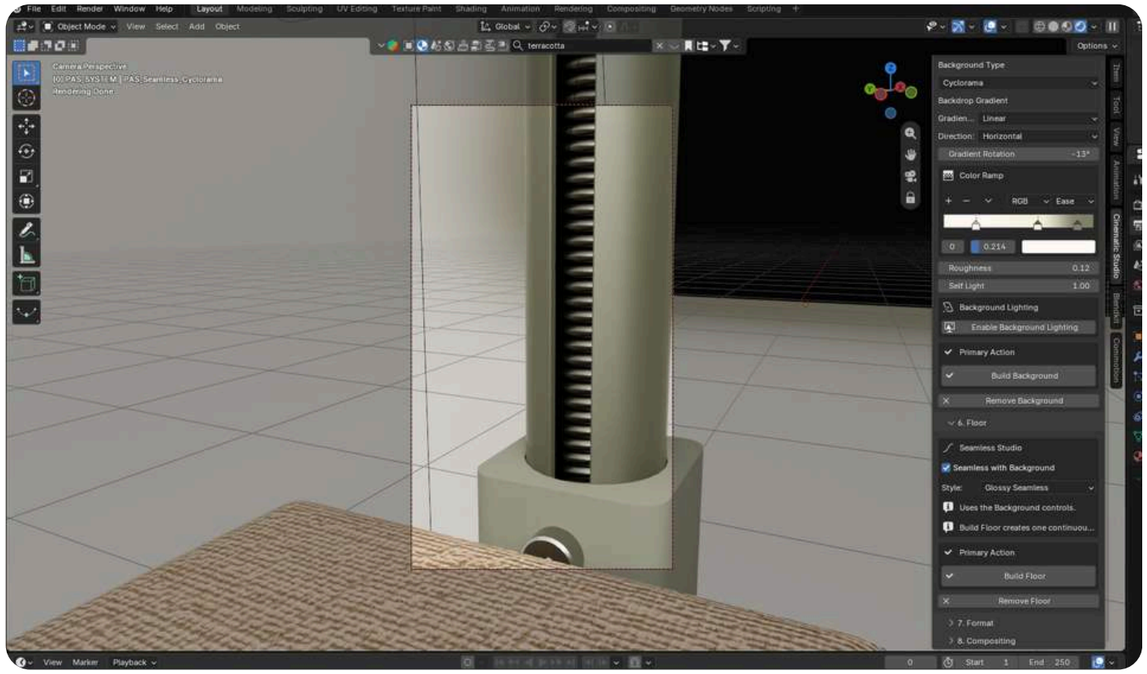

WARM TERRACOTTA


MIST BLUE

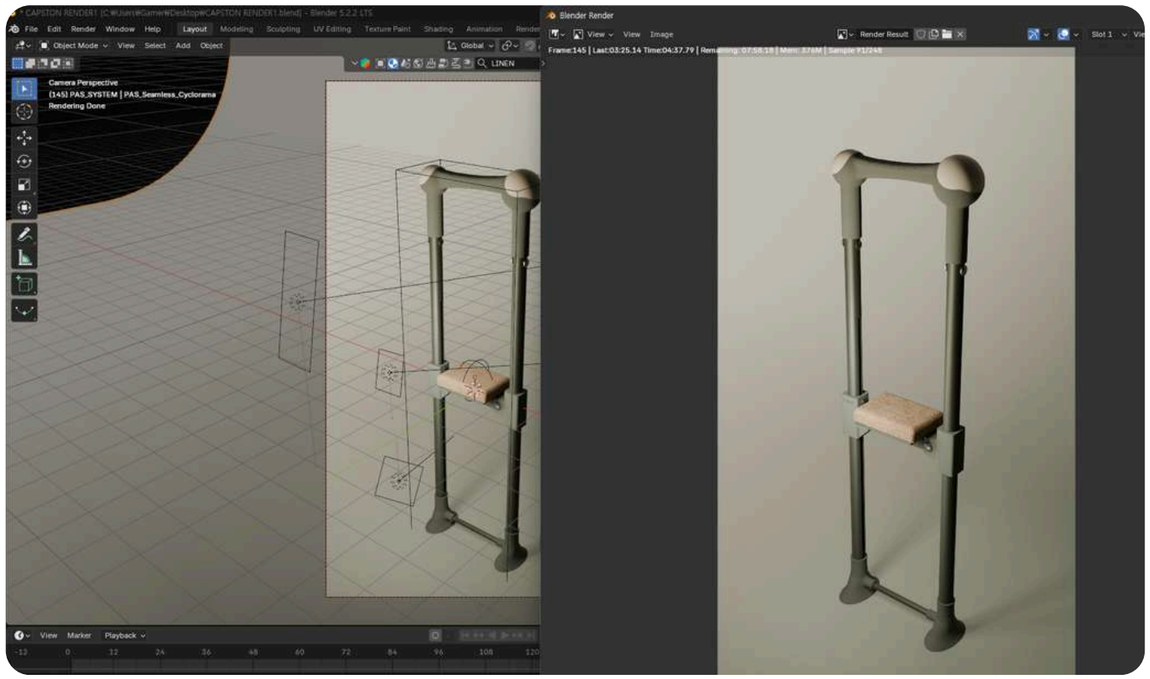
# VIEWPORT VIEW











# CMF & DETAIL VIEWS



## HANDLE DETAIL RENDER





# CMF & DETAIL VIEWS



## CUSHION







# CMF & DETAIL VIEWS



## LOGO & SLIDER






# CMF & DETAIL VIEWS



## SLIDER & RAIL





# CMF & DETAIL VIEWS



BASE

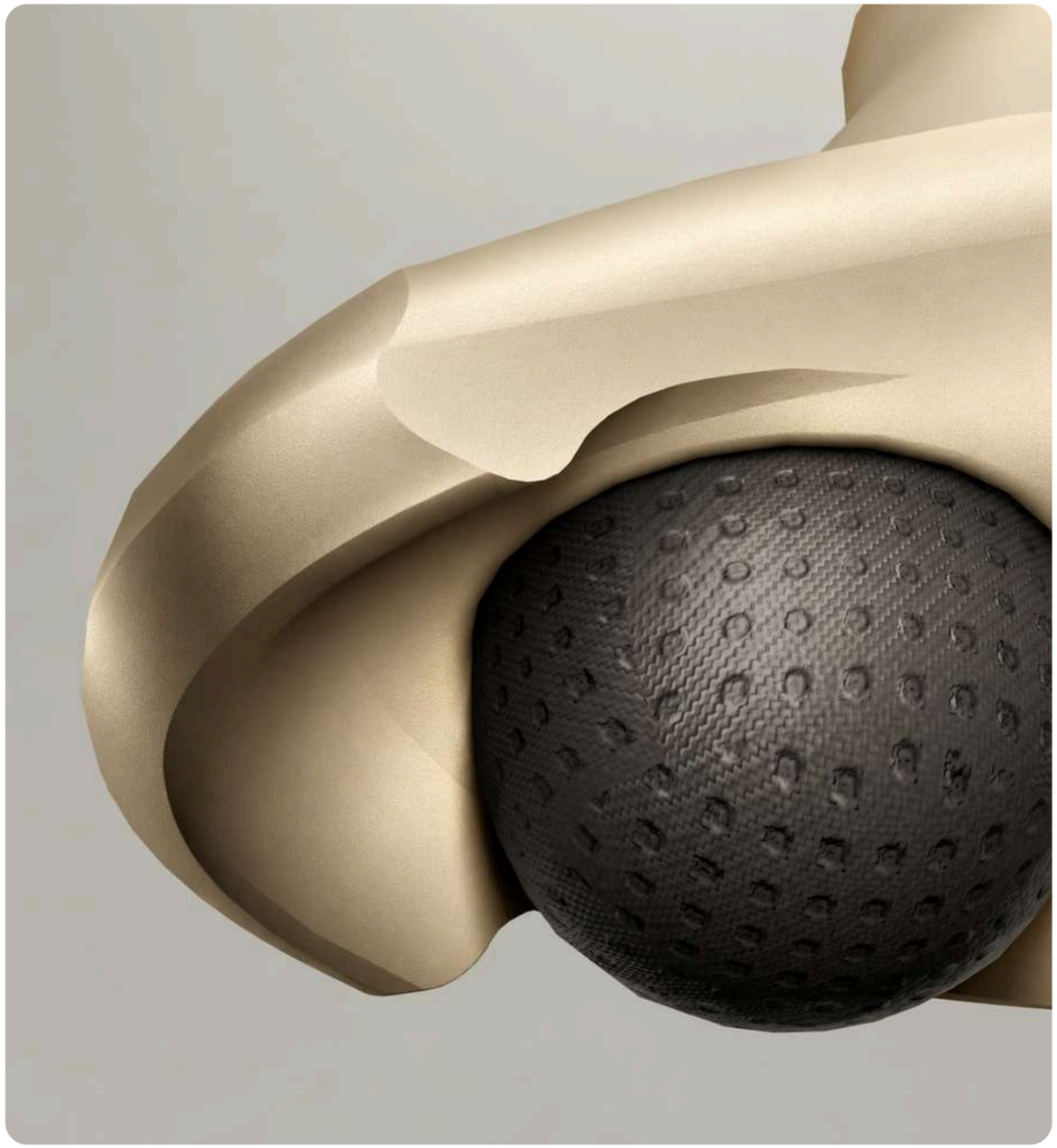


# CMF & DETAIL VIEWS



BASE





# TRANSPERENT VIEW










# TRANSPERENT VIEW



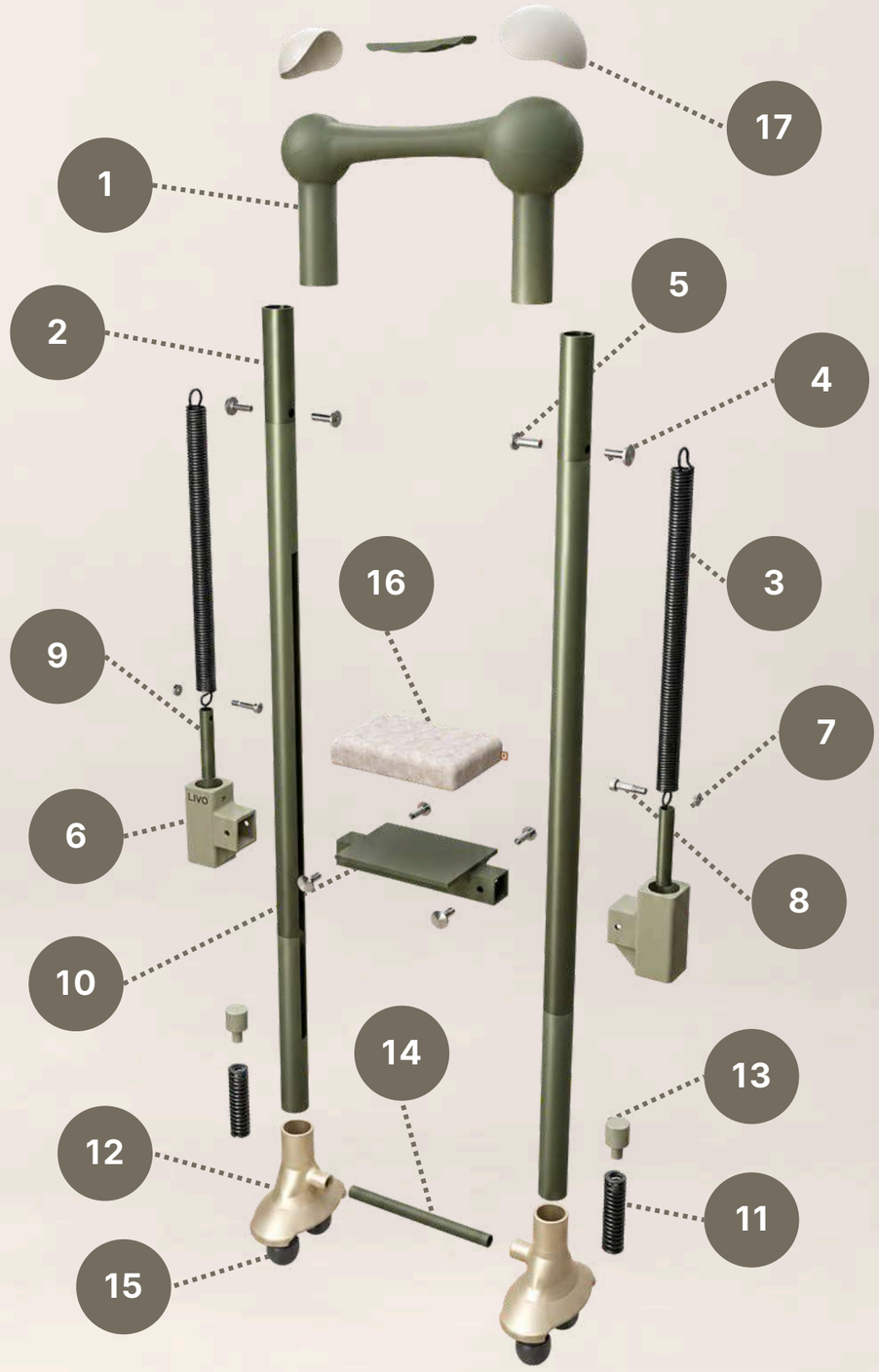




# EXPLODED RENDER



| ITEM NO. | PART NUMBER | DESCRIPTION | MATERIAL | FINISH |
|---|---|---|---|---|
| 1 | Handle | Closed loop handle with unequal rounded ends | ABS | Fine matte texture |
| 2 | POLE | Slotted vertical guide tubes | Aluminium 6061 | Satin anodised; smooth sliding surfaces |
| 3 | EXTENSION SPRING | Extension springs with loop ends to assist the platform's return | Spring steel | Corrosion-resistant finish |
| 4 | Domed-Head BOLT | Head diameter approximately 16 mm; grade TBC | Stainless steel | |
| 5 | Headed Pin | Head diameter approximately 14 mm | Stainless steel | |
| 6 | SLIDER | External sliders that travel along the poles and connect to the crossbar | ABS | Fine matte texture |
| 7 | M6 Thin Hex Nut | Hex nut, 10 mm across flats and approximately 3.2 mm thick | Stainless steel | |
| 8 | M6 Shoulder Bolt | 14 mm smooth shoulder, M6 threaded end | Stainless steel | |
| 9 | INSIDE PVC | Internal sleeves or blocks linked to the external sliders | PVC | |
| 10 | ALUMINIUM SQUARE | Connects the two slider housings and supports the knee platform | Aluminium 6061 square tube | Fine-textured powder coat |
| 11 | Lower Compression Springs | Provide support near the lower end of the platform's travel | Spring steel, specification TBC | Corrosion-resistant finish, TBC |
| 12 | BASE | Support the poles and house | ABS | Fine matte texture |
| 13 | COMPRESSION SPRING TOP | Locating seats fitted over the lower compression springs | ABS | Fine matte texture; internal component |
| 14 | BOTTOM POLE | Stable for bottom base | Aluminium 6061 | Fine-textured powder coat |
| 15 | BASE_BALL | Compressible pads at the floor-contact points | TPU | Matte texture |
| 16 | CUSHION | Padded knee-contact surface | PU foam with polyester stretch-fabric cover | Sand textile surface |
| 17 | GRIP SURFACE | Soft contact surfaces on the small and large handle ends | RUBBER | Fine texture, Sand |



# CONTEXT RENDER







# USE SEQUENCE











TOP VIEW

FRONT VIEW

# HOW IT WORKS



POSITION → LOWER → ACCESS → RISE





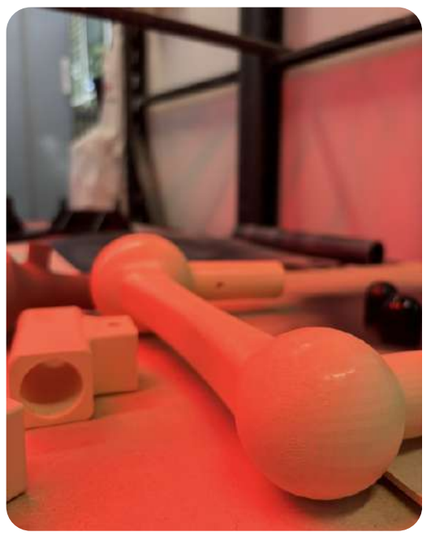
# PHYSICAL MODEL _PAINTING









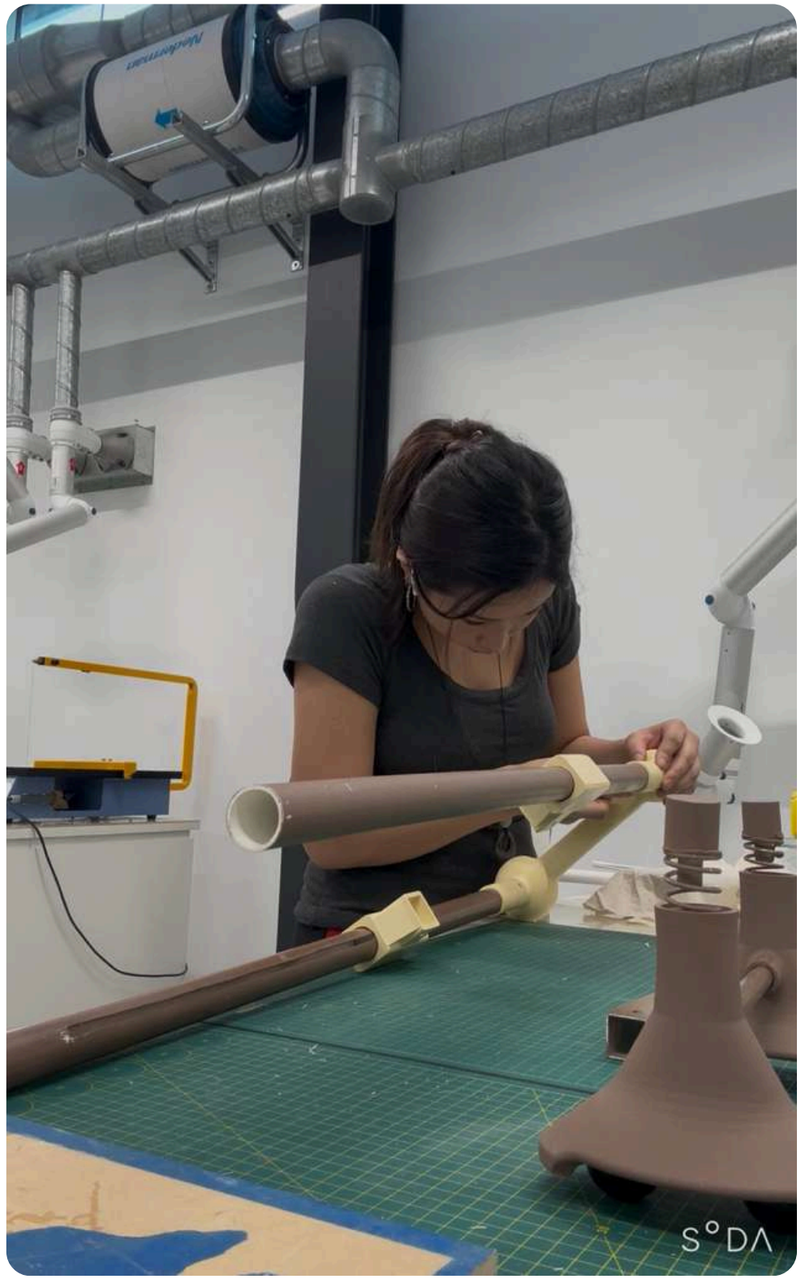







# PHYSICAL MODEL _ASSEMBLY











The painted components were assembled onto the dual-rail frame. Particular attention was given to component alignment, connections and the positioning of the knee platform

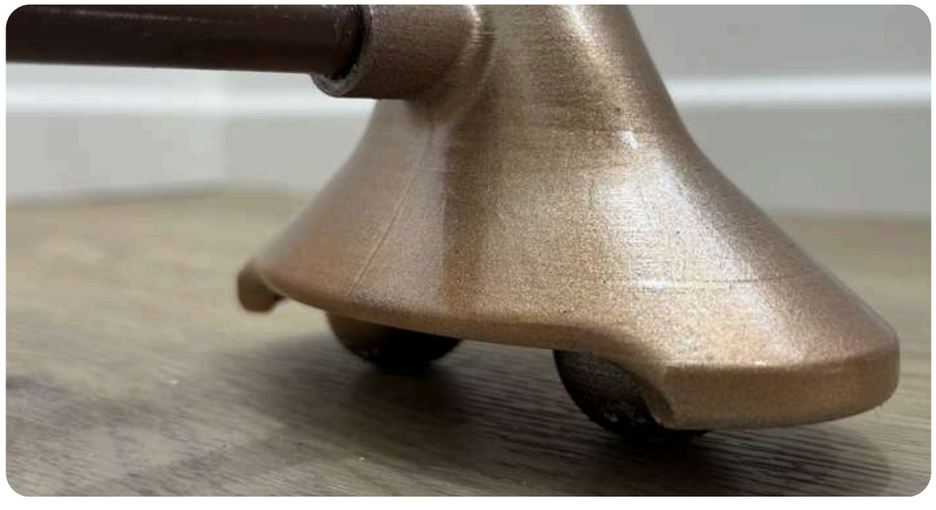
# PHYSICAL MODEL _FINAL OUTCOME











The completed model brings together the dual-rail structure, integrated knee platform, rounded handle and wide base. The physical outcome demonstrates the final form, proportions and CMF

# PHYSICAL MODEL _CONTEXT PHOTO







The final physical model was photographed in a home environment to demonstrate how LiVO could fit naturally into everyday living spaces

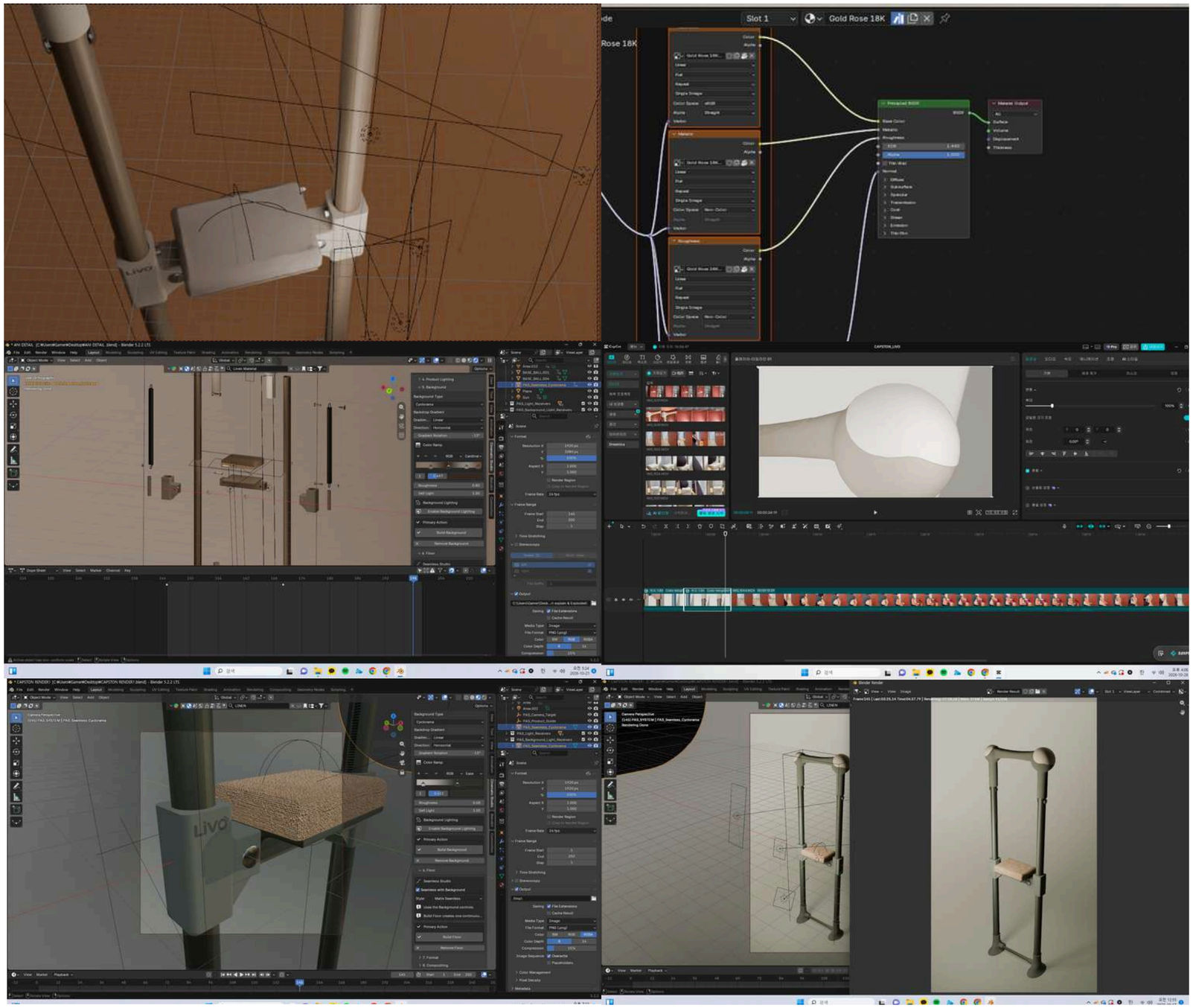
# FILMING CINARIO



| Time | Scene | Footage | Purpose |
|---|---|---|---|
| 00:00–00:05 | A spring bounces into frame, compresses and jumps upward. | AI-generated animation | Capture attention and introduce the theme of spring-assisted movement. |
| 00:05–00:11 | An upward camera movement reveals LiVO, followed by the product name. | Blender animation | Connect the spring’s movement to the product reveal. |
| 00:11–00:23 | A user approaches a low cabinet and lowers their body to reach an item. | Live action | Establish the everyday context and movement challenge. |
| 00:23–00:33 | LiVO is shown in the home, and the user picks it up. | Live action | Introduce the physical product and its scale. |
| 00:33–01:05 | The user positions LiVO, holds the handle, places a knee on the pad, lowers, retrieves an item and rises. | Live action | Demonstrate the complete use sequence. |
| 01:05–01:25 | Close-ups of platform movement transition into internal spring and guide views. | Live action + Blender | Connect the user interaction with the internal arrangement. |
| 01:25–01:41 | The base tilts during movement and changes floor contact under load. | Live action + Blender | Explain the intended behaviour of the base. |
| 01:41–01:56 | Close-ups show the handle, cushion and pad connection. | Live action + Blender | Highlight contact surfaces and product details. |
| 01:56–02:09 | Exploded components come together into the assembled product. | Blender animation | Explain the product’s construction. |
| 02:09–02:25 | Four colour options are presented, followed by physical material details. | Blender + live action | Communicate colour and material choices. |
| 02:25–02:38 | The user finishes the task and places LiVO beside the cabinet. | Live action | Return the product to its everyday setting. |
| 02:38–02:45 | A final product view appears with the LiVO logo and closing message. | Blender or live action | Leave a clear final impression. |

# BLENDER ANIMATION PROCESS






The final CAD model was imported into Blender, where materials, lighting and camera movements were adjusted to create a product animation. Keyframes were used to demonstrate the knee platform movement, internal mechanism and four colour variations. The animation was rendered as PNG sequences for final video editing

# FINAL EVALUATION & NEXT STEPS



## What the prototype demonstrated

The full-scale prototype demonstrated component fit, guided knee-platform movement and spring return during development trials. Connecting the two sliders allowed the platform to move as one assembly. The TPU comparison also informed the selection of a more compressible foot for further development

## Next development priorities

| Focus | Next step |
|---|---|
| **Spring response** | Measure force throughout the platform’s travel and assess whether damping is needed. |
| **Structural performance** | Test connections, repeated loading and off-centre loading under controlled conditions. |
| **Ground contact** | Assess foot compression, grip and stability on different floor surfaces. |
| **User fit and portability** | Evaluate handle height, knee placement, carrying weight and low-storage access with intended users after initial safety checks. |