

Industrial Design Process Book



Arca

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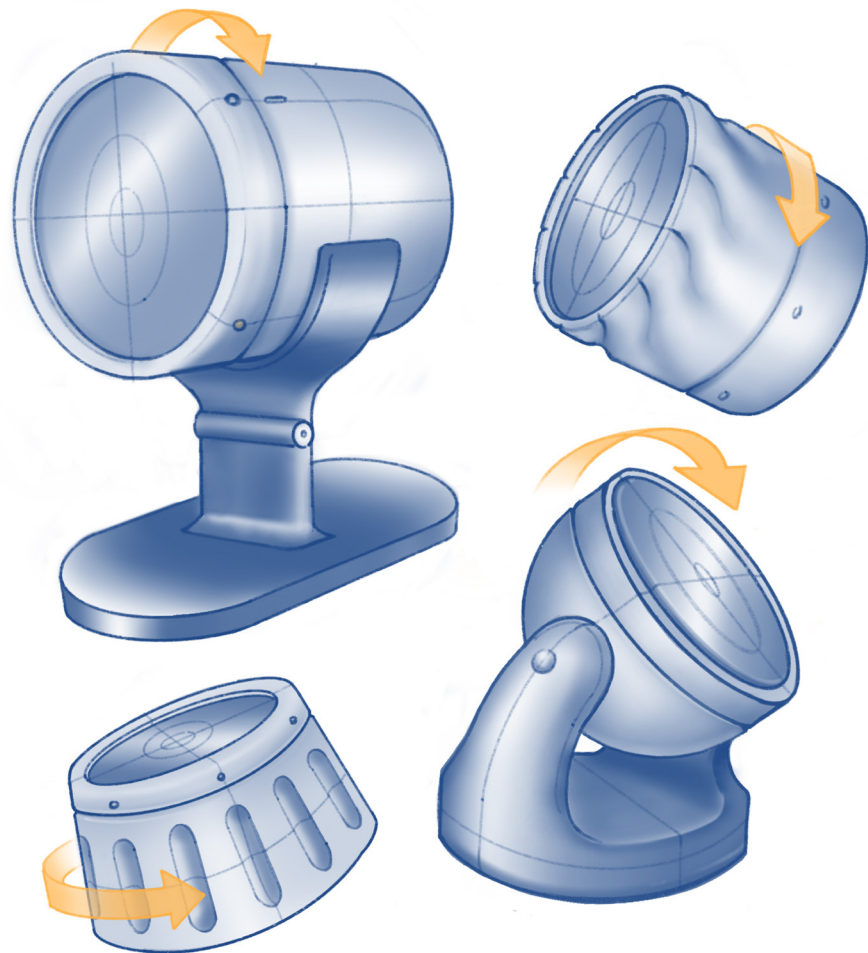
✕ An overview of the industrial design process and physical camera design for Arca; an inclusive, privacy-sensitive smart home security system.

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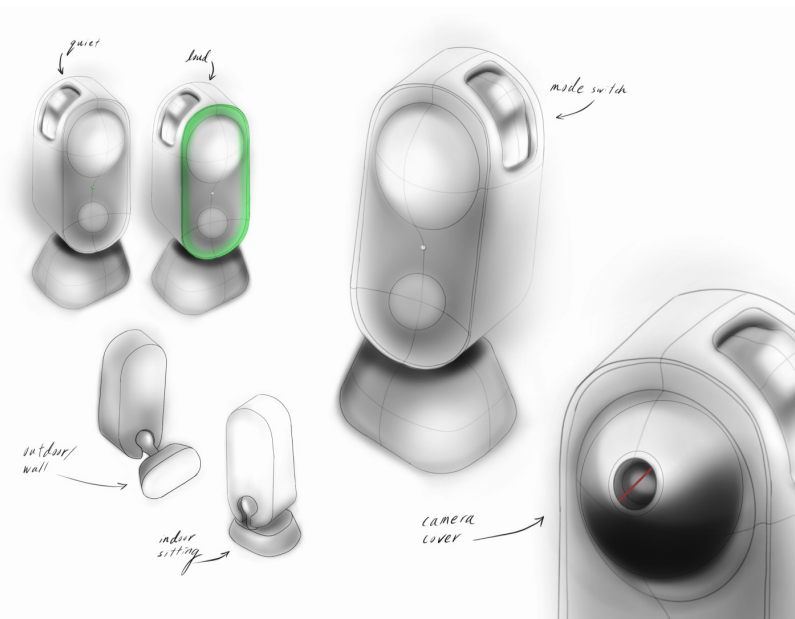
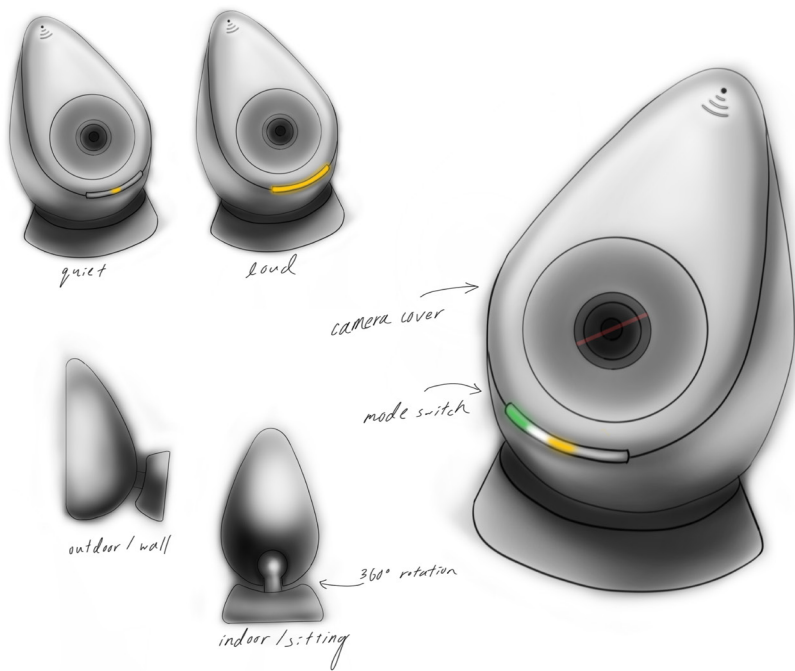
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× Preliminary Form
Exploration Sketches

Displayed on the opposite page is an example of the initial design concept that the team explored. At the top, you can see sketches of rounded forms, along with the placement of lights and microphones, to conceptualize the overall form and functionality.

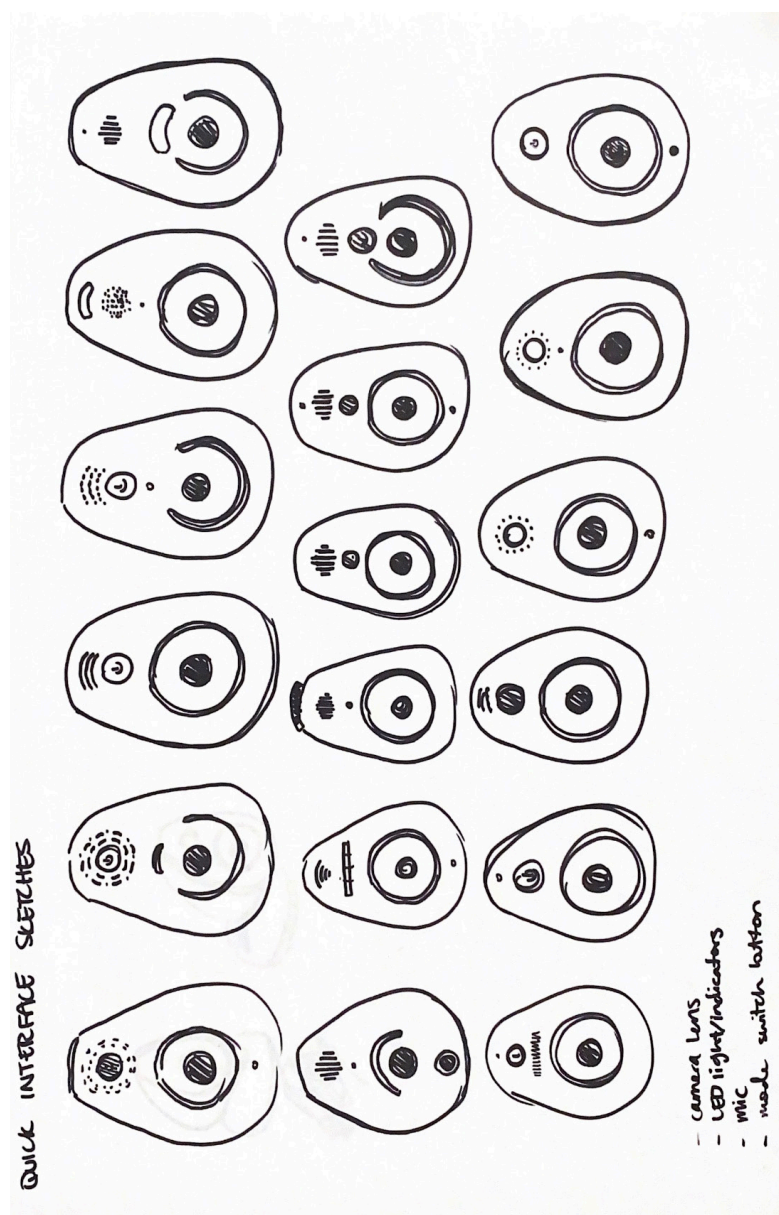
Towards the bottom is a sketch displaying camera rotation for an optimal range of viewpoints.



✕ Preliminary Form Exploration Sketches

P.04

At the same time, the team explored other forms for the down-selection process. On the top, the same rounded form is shown but with indicator lights on the edge. At the bottom, another form was considered; however, the camera and microphone did not conform to the shape.



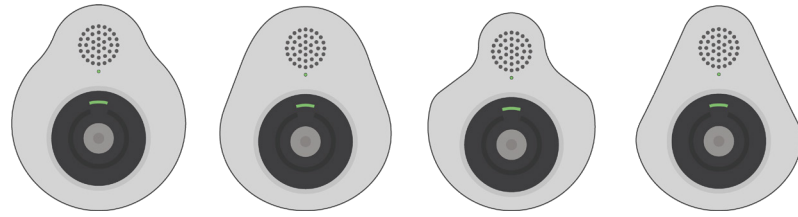
✕ Rapid Camera Face Ideation

P.05

During the initial discussions about the camera face, the team engaged in rapid sketching sessions. These iterations pinpoint the optimal placement for the indicator lights, the microphone, and the camera lens.

Considering the user's perspective, the team found that the indicator lights were more effective when they are in close proximity to the parts they signify.

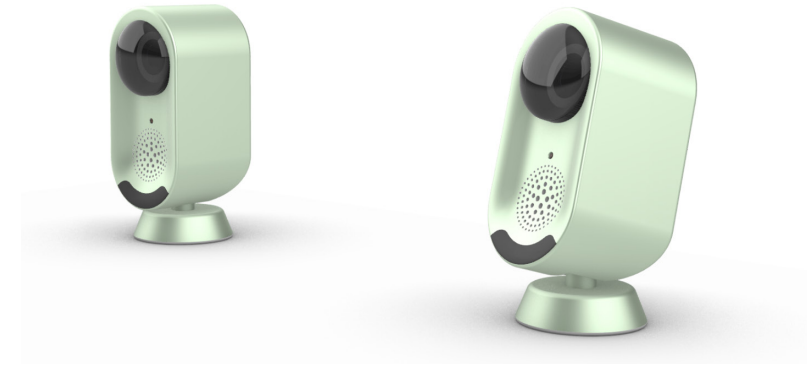
This rapid sketching approach enabled the team to prioritize intuitive visual cues.



✕ Refined Camera Face Exploration

The team explored more unconventional designs for the camera face, experimenting with angular shapes, rounded shapes, and other forms.

P.06



✕ 3D Modeling of Concepts

Arca has two bases: one for tabletops and one for walls, they use magnets and hinges to enhance camera position flexibility.

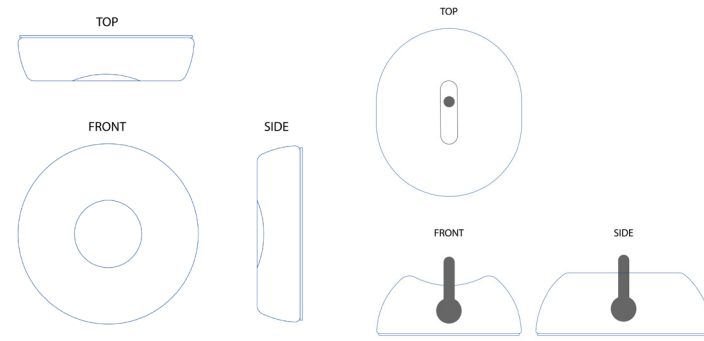
P.07



✕ Refinement of Chosen Design Concept

P.08

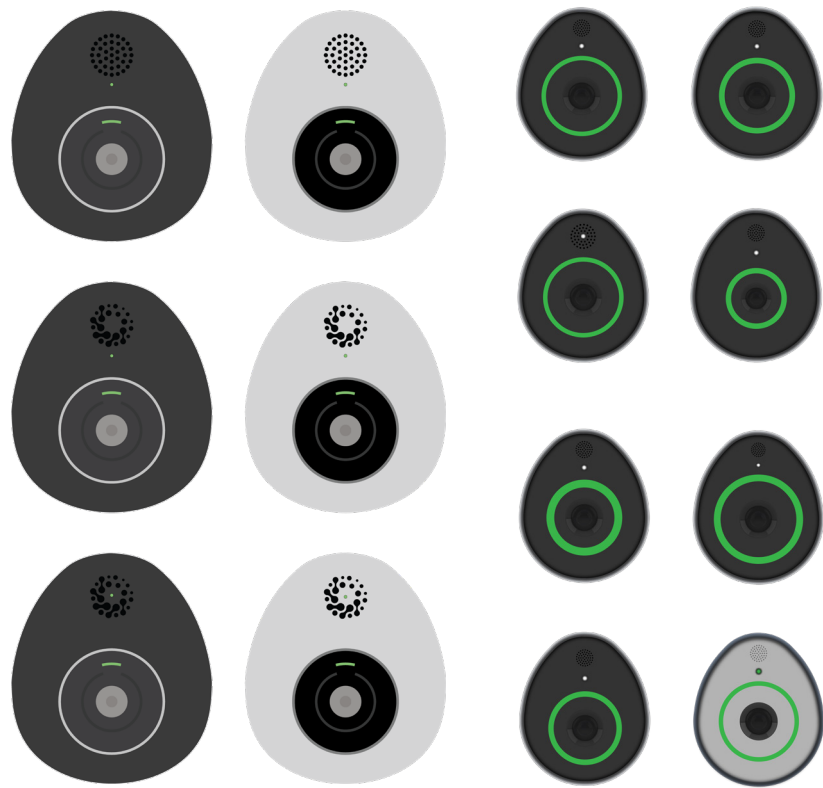
After rounds of form exploration, the team chose a more compacted and rounded shape for the camera face. The visibility of the camera and microphone emphasizes transparency.



✕ Camera Base

P.09

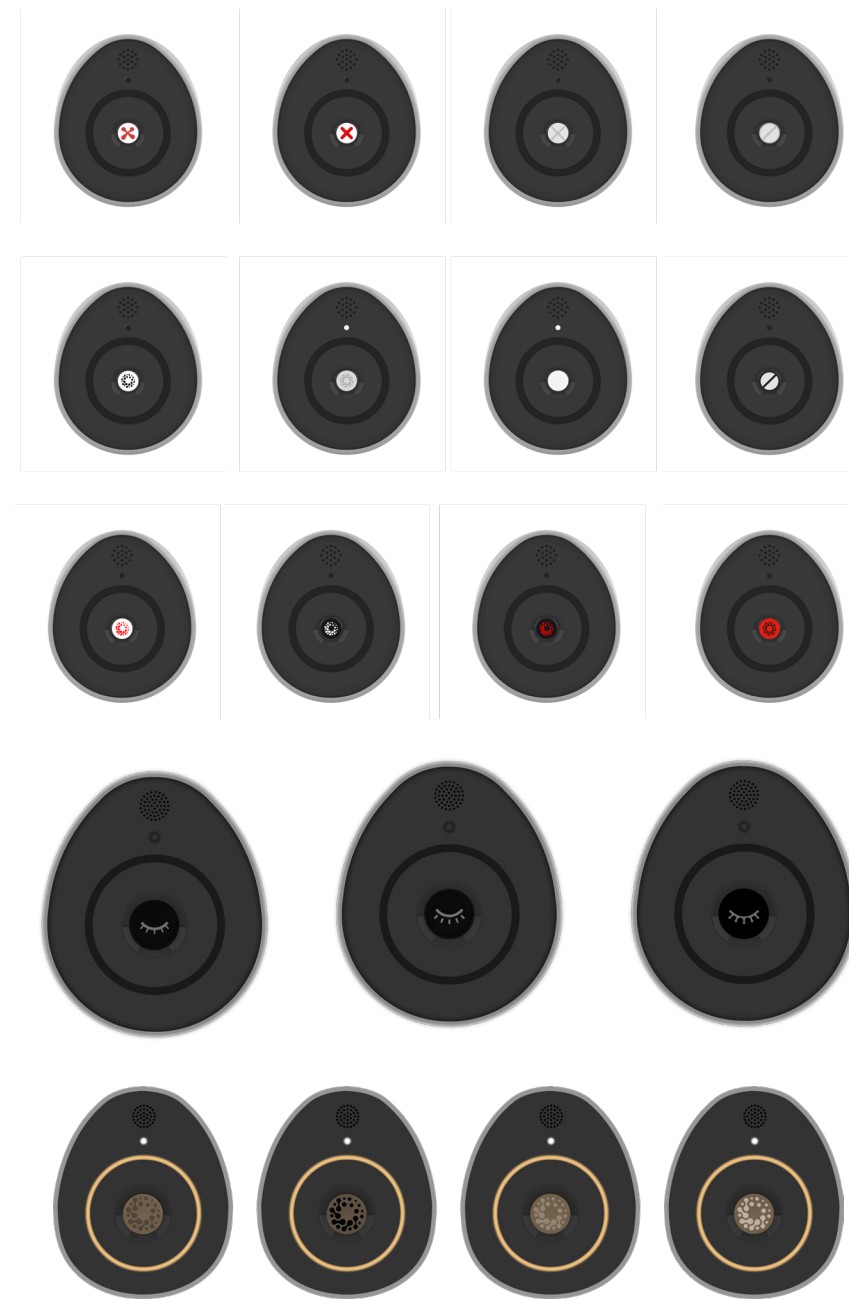
As seen above, the team sketched orthographic views to assess the compatibility of the base with the camera body.



✕ Camera Face Layout

P:10

For the camera face, the team generated a final round of iterations refining the light ring, camera face color, and lens placement. The final version was selected with an emphasis on comfort and visibility.



✕ Lens Cover Ideation

P:11

For the lens cover, the team explored options involving patterns on the tinted lens, visuals for the microphone grating, and true off lens cover.

In the end, the design prioritized simplicity and user-friendliness.



✕ Final Renders and Indicator Lights

Arca uses indicator lights to inform users on the camera and audio modes, as well as lens covers that either partially-mask, or entirely prevent the camera from gathering video information.

In strong privacy mode (upper left corner), both video and audio viewing are disabled. However, the camera will still notify the user about detected events.

P:12



✕ Medium Privacy Mode

In medium privacy mode, a privacy mask is placed over the camera, blurring the video feed. Additionally, muffled audios discourage users from accessing recordings to protect privacy.

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