



OASIS

Final Project Report

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1.0 Research

1.1 Overview

The first overlanding excursion was done in Australia from 1906 to 1910, where Alfred Canning transported livestock over 1500 km. Over the years overlanding has become an experience about adventure, self-reliance, and enjoying the journey. It involves using mechanized vehicles, from motorbikes to trucks, to venture out into nature and survive in the wilderness. Overlanders can go through various unexplored or under-explored terrains like forests, mountains, and/or deserts.

The overlanding experience lends itself well to creating valuable shared experiences. It can be a very social hobby/lifestyle; people come together due to their shared interest in modifying vehicles, off roading, camping, etc. This creates a sense of comradery among overlanders. Social media and online forums are a key part of connecting overlanding communities, not only for sharing stories and advice, but also for planning excursions. It is not uncommon for overlanders to travel in separate rigs, having parties of two or more vehicles. Overlanders can go out in varying group sizes, from 2 travelers to 15 or more. Trips can be simple day trips or multi-day trips where hundreds of km are traveled each day.

Going out in groups does not only make for good company and good memories - there are several reasons to overland in a group setting. There is a mutual benefit when particular vehicles carry extra tools, food, or camping equipment that may be used by everyone in the group. It is also important to go out in groups so that one vehicle does not risk getting stranded. Also, there are different kinds of group overlanding; some overlanders like to bring their family and close friends on trips, where others enjoy going out with other experienced overlanders.

Even though overlanding can be done in groups each vehicle usually has its own stand-alone camping set-up. This makes it difficult for overlanders in multi-rig groups to find rest set-ups that facilitate social connections. How might we get overlanders to more easily connect with one another?

1.2 Product Research

There is a number of existing products that allow overlanders to interact with one another and connect - whether they communicate through online forums, physically convene under an awning, or even with a simple card game. I looked at existing products that are used in ways that get overlanders to interact with one another. Products like spot locators, radios, propane fire pits, lighting elements, awnings, camp tables, and simple games like cards or jenga. Products that stuck out to me were awnings and lighting elements (lanterns, string lights, propane fire pits)

After deciding to design a shade and light solution for group overlanding I did additional research on current products/solutions and technologies used. Most shade solutions seem adequate at a glance since awnings can fit multiple people under them, but they are still limited to only being accessible for a single vehicle. Some awnings even come with walls that come down and create a closed space, isolating one rig from others. There is currently no awning that allows multiple rigs to connect with one another.

For lighting solutions, most products only create enough light for one person as opposed to a group. For example we can look at flashlights, headlamps, and lanterns which only emit about 35 to 100 lumens, which is

only adequate for about one person. Illuminating a large space for a group would require about 300 lumens of light. String lights can accommodate larger spaces and groups of people, but prove to be cumbersome to set up - especially since every campsite will require a different lighting scheme.

2.0 Target User

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My target users would be middle-aged men and women who are outdoors enthusiasts; they enjoy modifying their vehicles; get excited about acquiring new gear; and enjoy the social aspects of overlanding. Both new and experienced overlanders would fit into my target demographic.

Personas: George & Ashley

Age: 40

Live in Arizona

Office Workers

Outdoors Enthusiasts

Enjoy social engagement while overlanding

Go for trips with family and overlanding friends

Are always looking to acquire new gear

Frequently modify their vehicle

Have a strong connection to their vehicle and overlanding gear



3.0 Problem

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Current shade solutions, like awnings, are only meant for one vehicle - this makes it so that each vehicle has its own separate set-up and prevents overlanders from having a shared, protected space for socializing. Also, current lighting solutions like lanterns and headlamps are mostly meant for individual use and do not create enough light to illuminate a space large enough for socializing. Overlanders are currently unable to create adequate camping/rest set-ups for socializing. They need a form of shelter from the elements that provides shade during the day, light at night, and can accommodate groups.

4.0 Opportunity

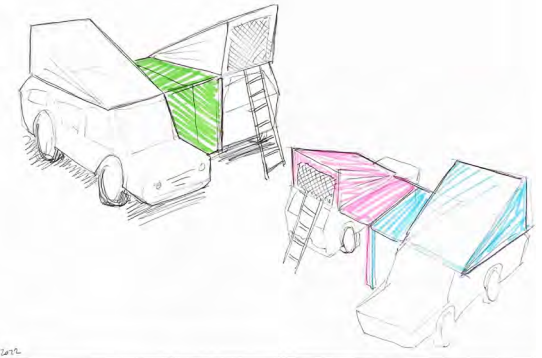
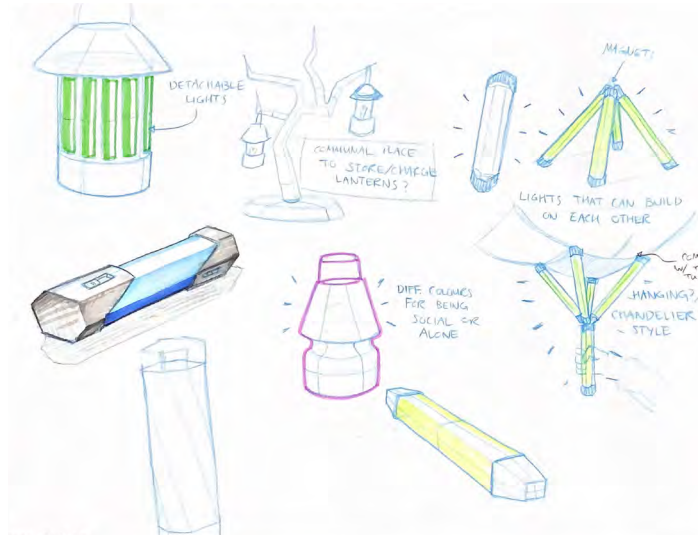
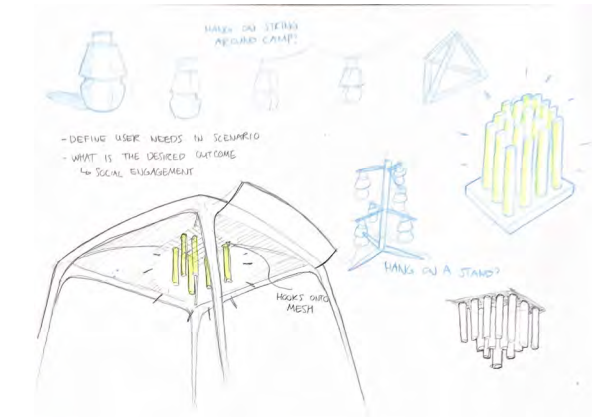
4.0 Opportunity

After conducting interviews with overlanders we found that the social aspect of overlanding was a key factor of the experience and lifestyle. Overlanding is about more than adventure, self-reliance, and mastering a vehicle; part of what makes overlanding so enjoyable is making connections and having shared experiences with people you care about. This sparked a curiosity about how exactly overlanders connect and what products allow them to do so.

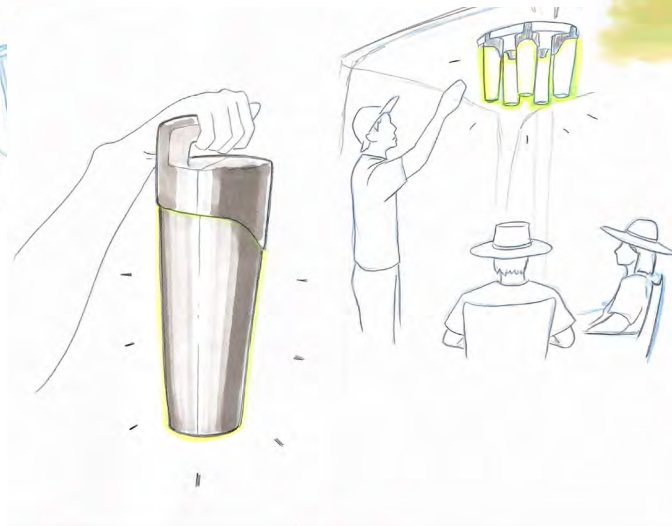
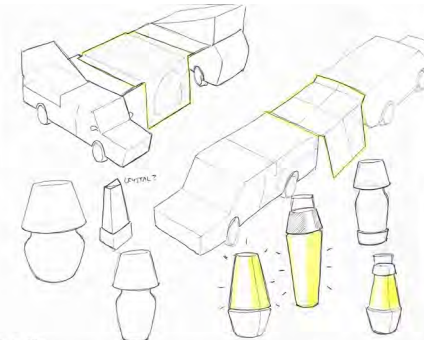
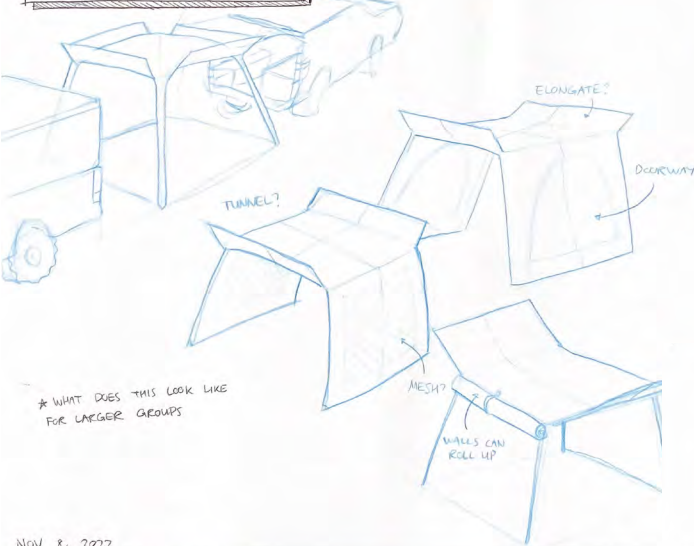
More research on overlanding and the products associated with it showed us that there is a need for an improved shade and light solution for group overlanding. The gap in the market for shade and light solutions for group overlanding presents an opportunity to create a product that allows overlanders to spend quality time together, make stronger connections, and foster community during their excursions.

5.0 Concept Design

5.1 Initial Ideation



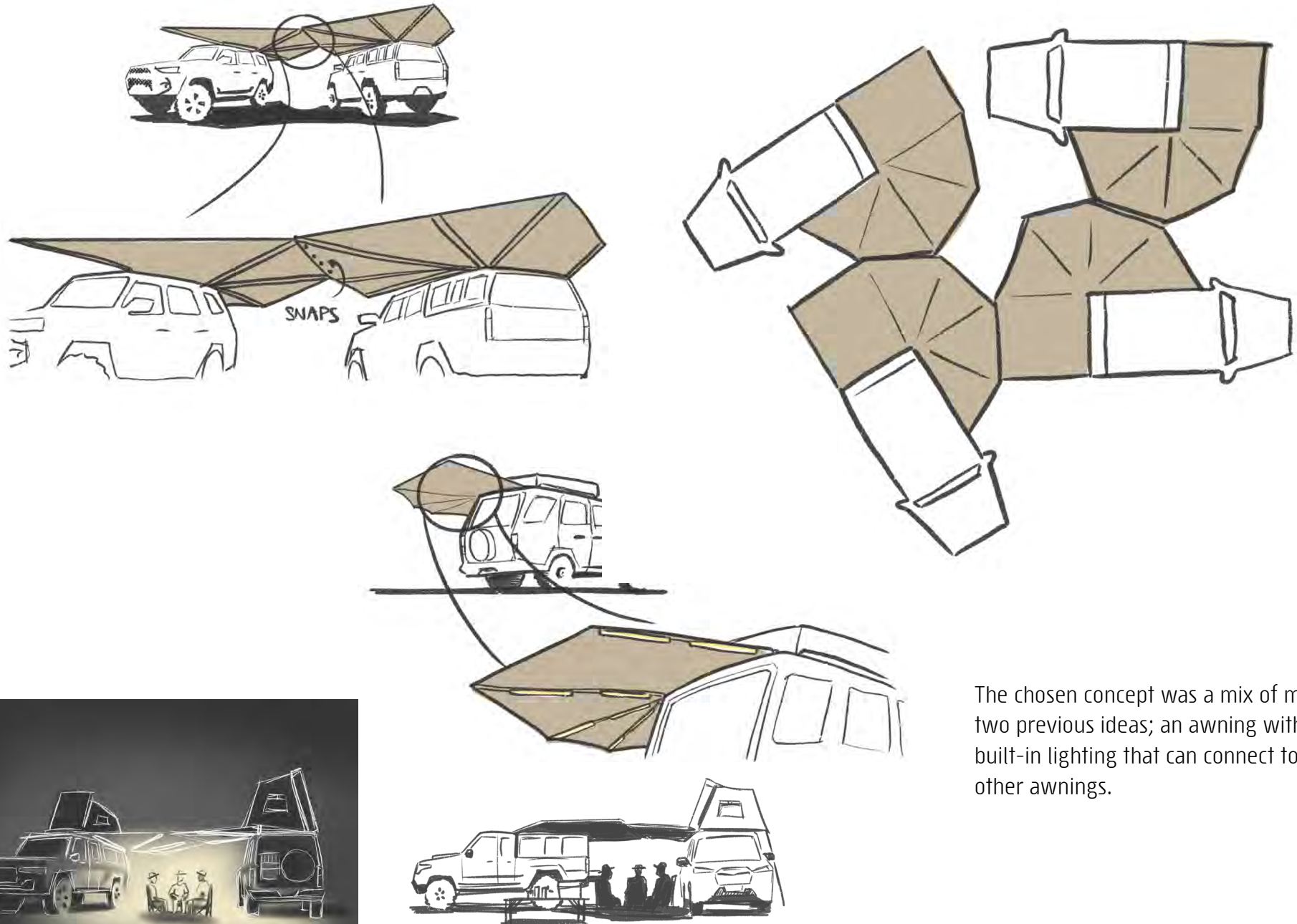
SOCIAL OVERLANDING - BRAINSTORM



I was initially drawn to two main concepts. The first one being lighting system that allows users to connect lights and make a sort of lantern chandelier. The second one was a sort of tarp that could connect the awnings of different vehicles.

NOV 8, 2022

5.2 Chosen Concept



The chosen concept was a mix of my two previous ideas; an awning with built-in lighting that can connect to other awnings.

6.0 Preliminary Design

6.1 Prototypes



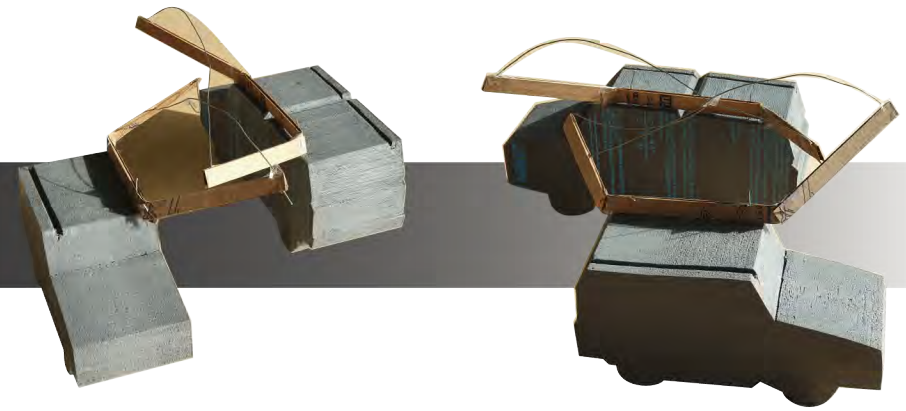
Simple wire and paper mock-ups were made in order to find an interesting shape that still allowed multiple vehicles to connect with one another.

Once that shape was found, a 1/3 scale model was needed to prove that materials could be bent into the correct shape.

Also, there was a need for a strong hinge mechanism that could withstand a lot of torque, so a small prototype of a hirth joint was 3D printed.

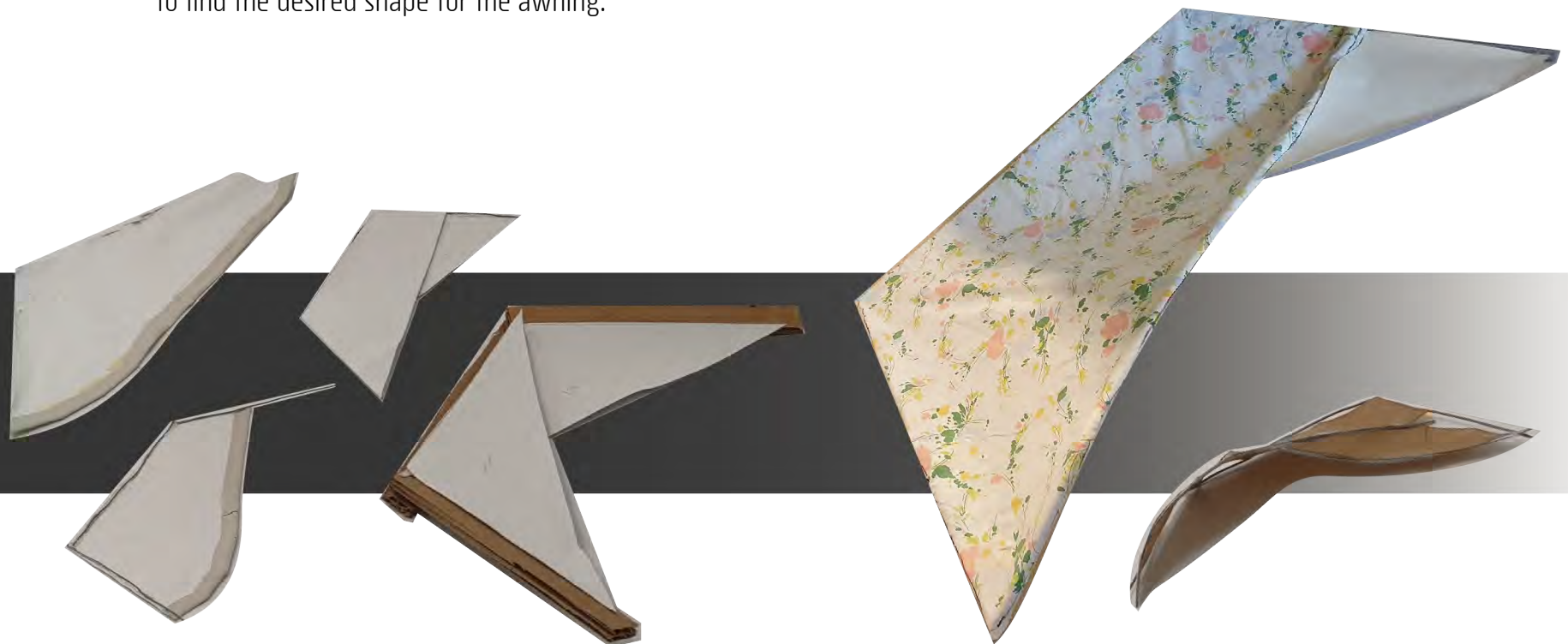


6.1 Prototypes ctd...

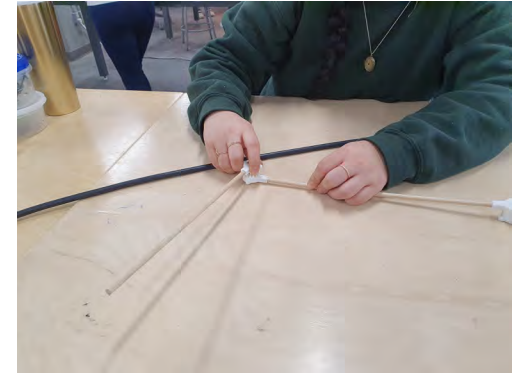


1/18 scale model foam cars were needed to evaluate the awning's ability to connect multiple vehicles.

Several sewing patterns were made in order to find the desired shape for the awning.



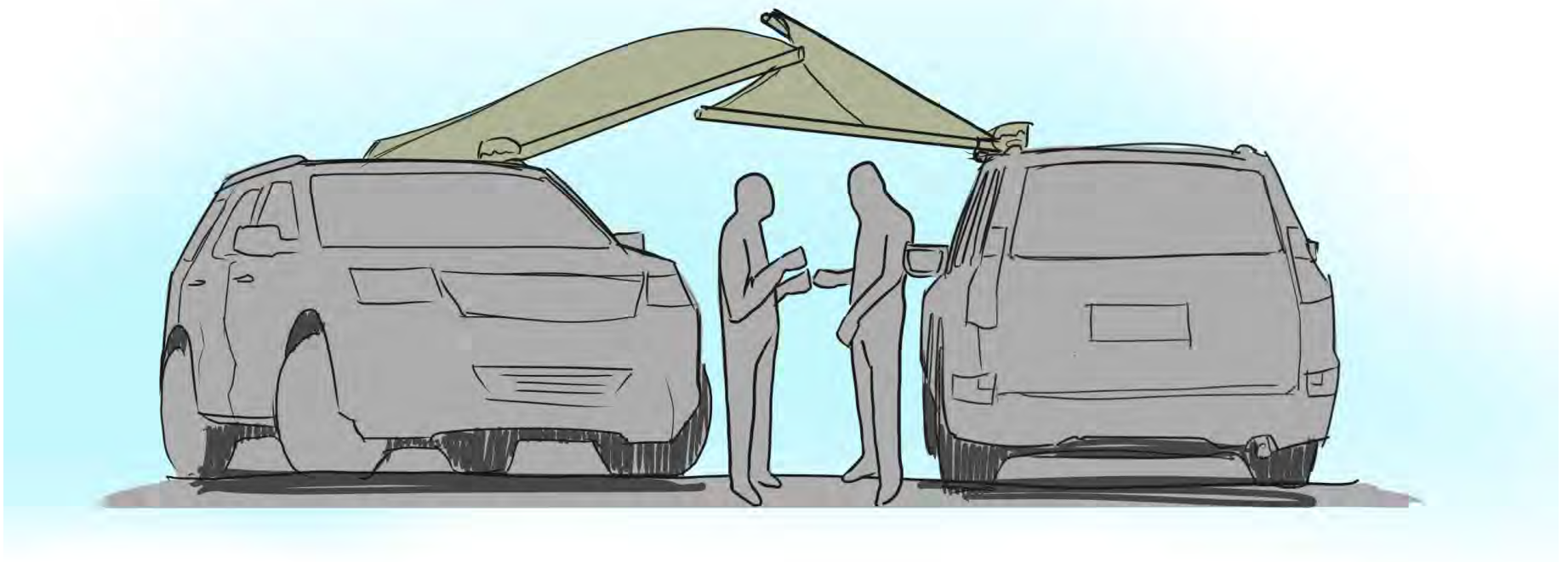
6.2 Testing



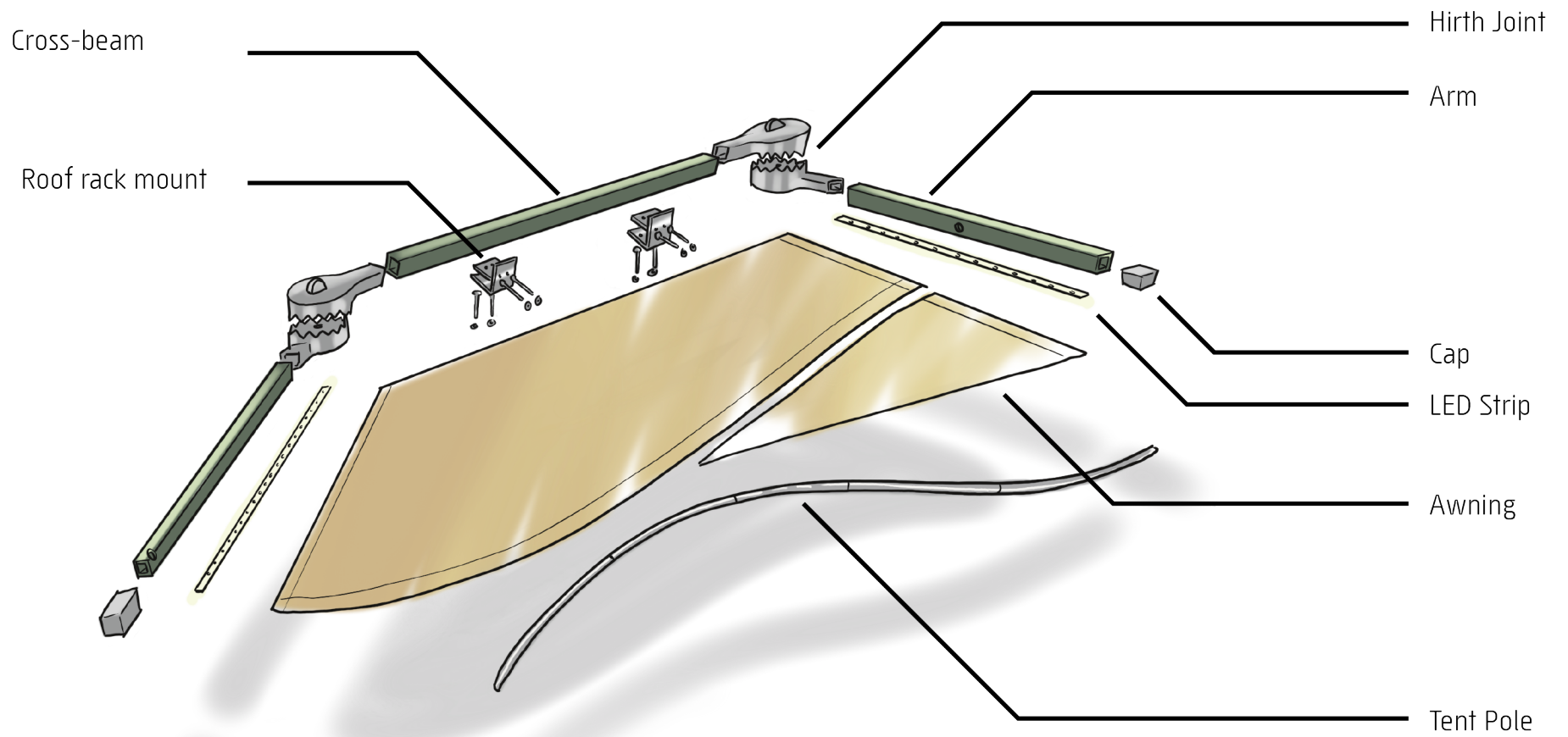
Participants used the 1:18 scale foam models to try different orientations for connecting multiple vehicles with the awnings. Having the cars set up across from each other with the driver's side facing inwards was the most intuitive and effective way of connecting vehicles.

Participants tested the strength of the hirth joint when opening and closing it. It was found that the strength depended on the spring that kept it closed.

6.3 Design Proposal



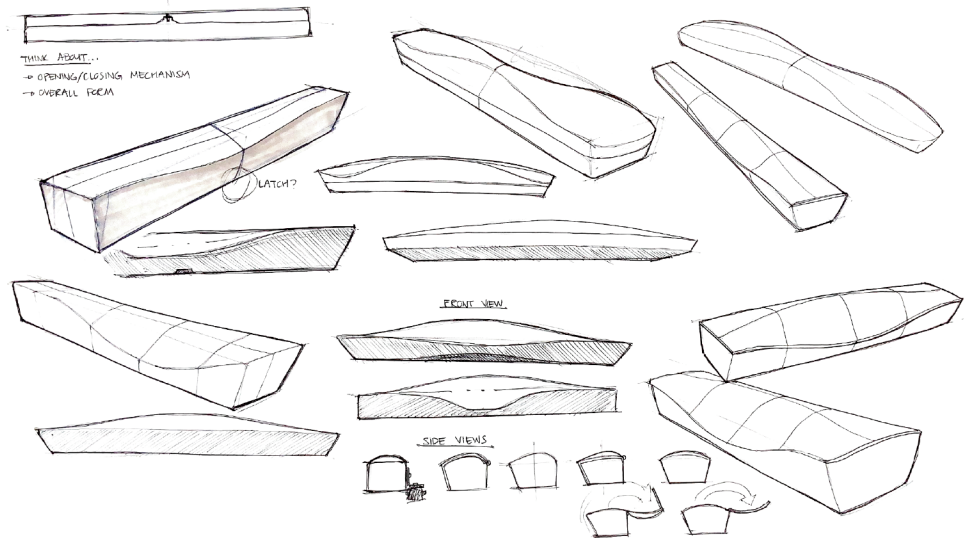
6.3 Design Proposal



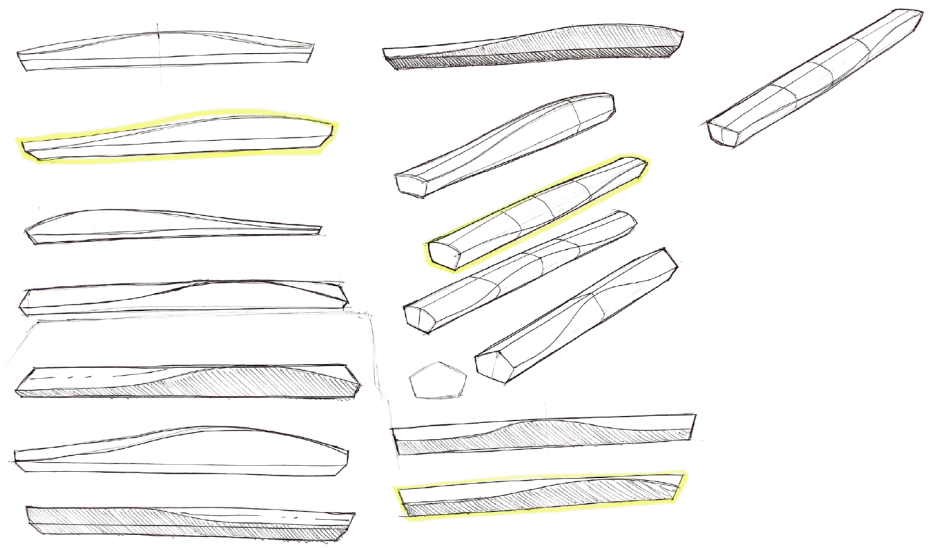
7.0 Definitive Design

7.1 Development of Awning Housing

DEFINITIVE DESIGN - AWNING HOUSING



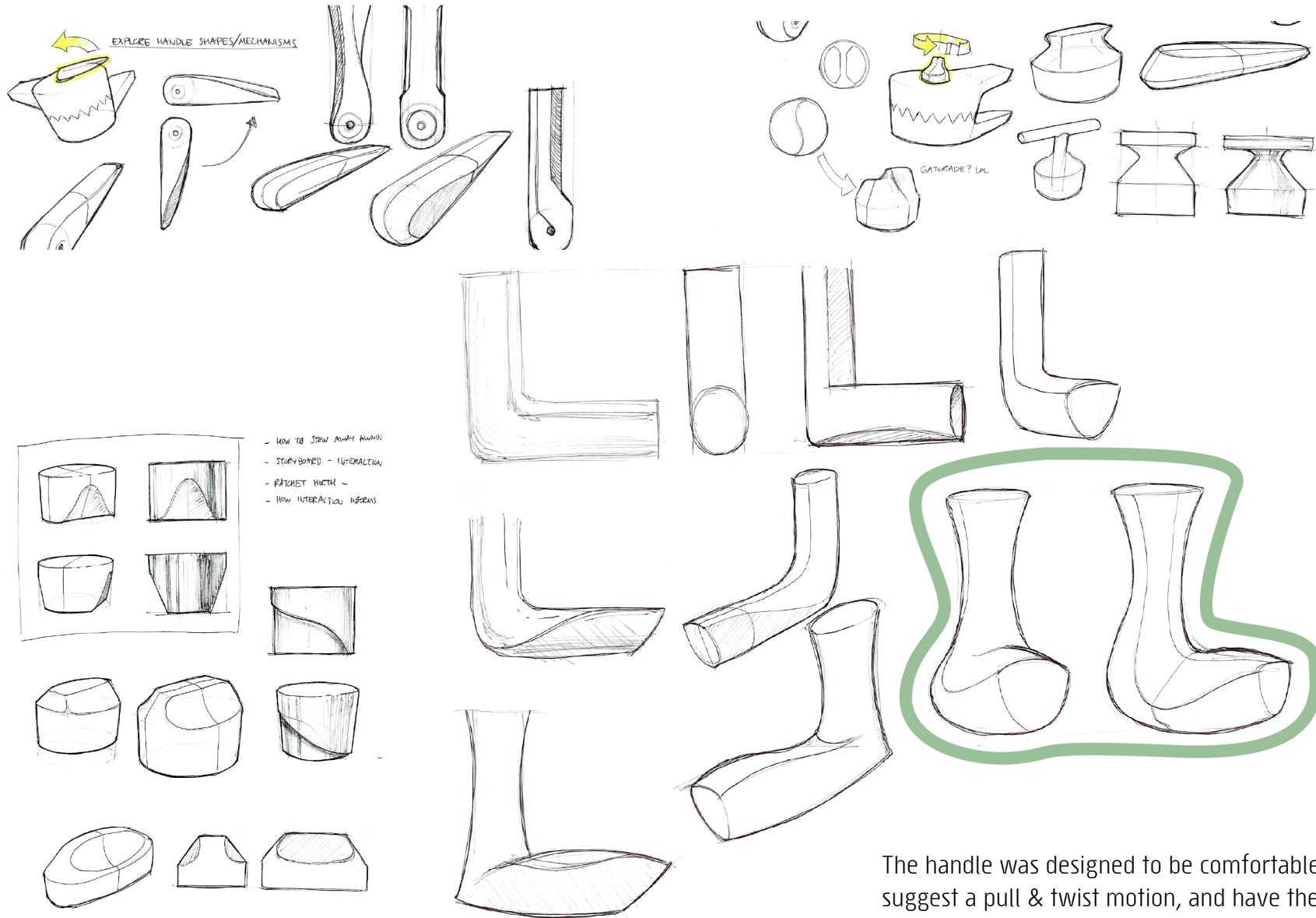
AWNING HOUSING



An aerodynamic shape was developed that had the same visual language as the shape of the awning.

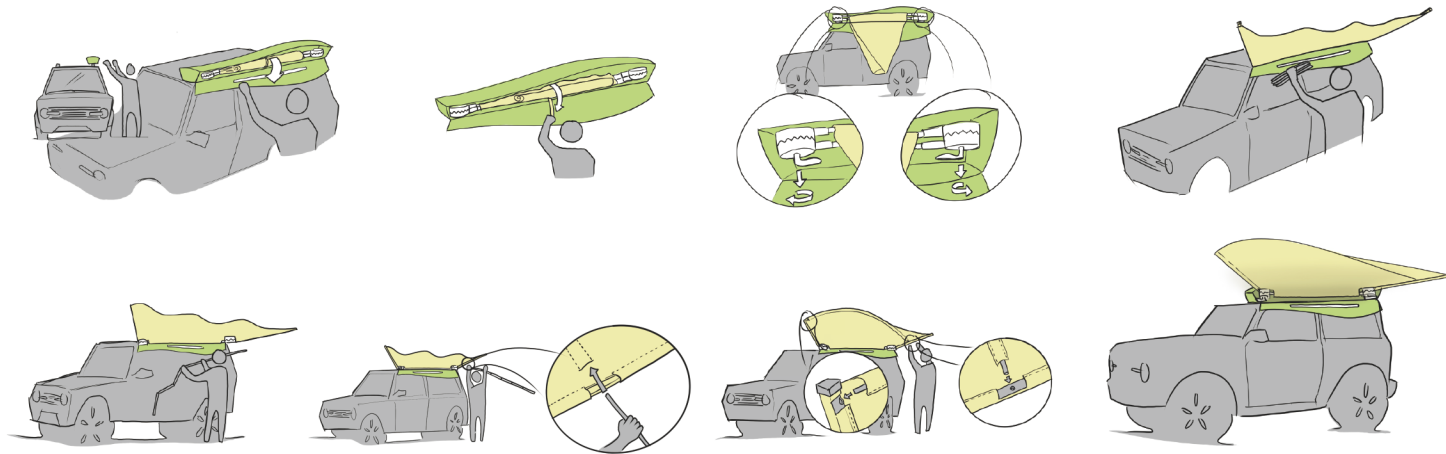


7.2 Development of Hirth Joint Handle



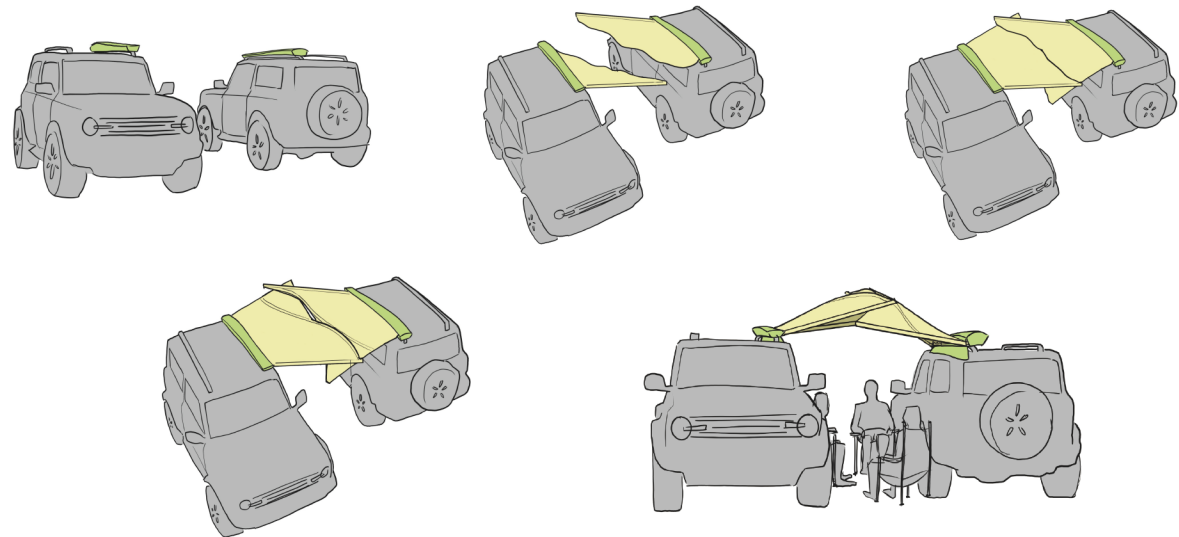
The handle was designed to be comfortable to hold, suggest a pull & twist motion, and have the same visual language as the awning and its housing.

7.3 Interaction Storyboards

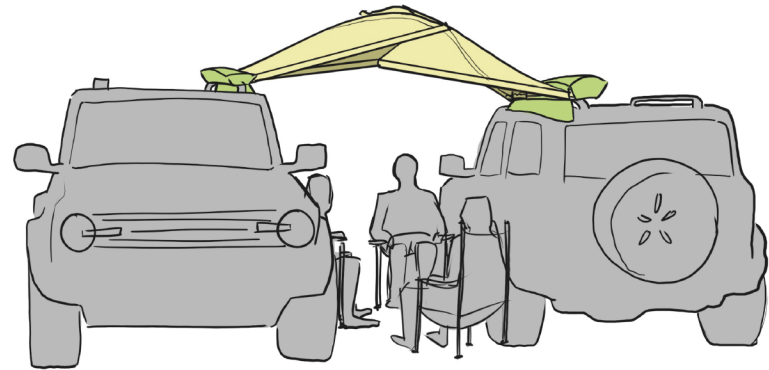


This storyboard shows the operation of setting up the awning.

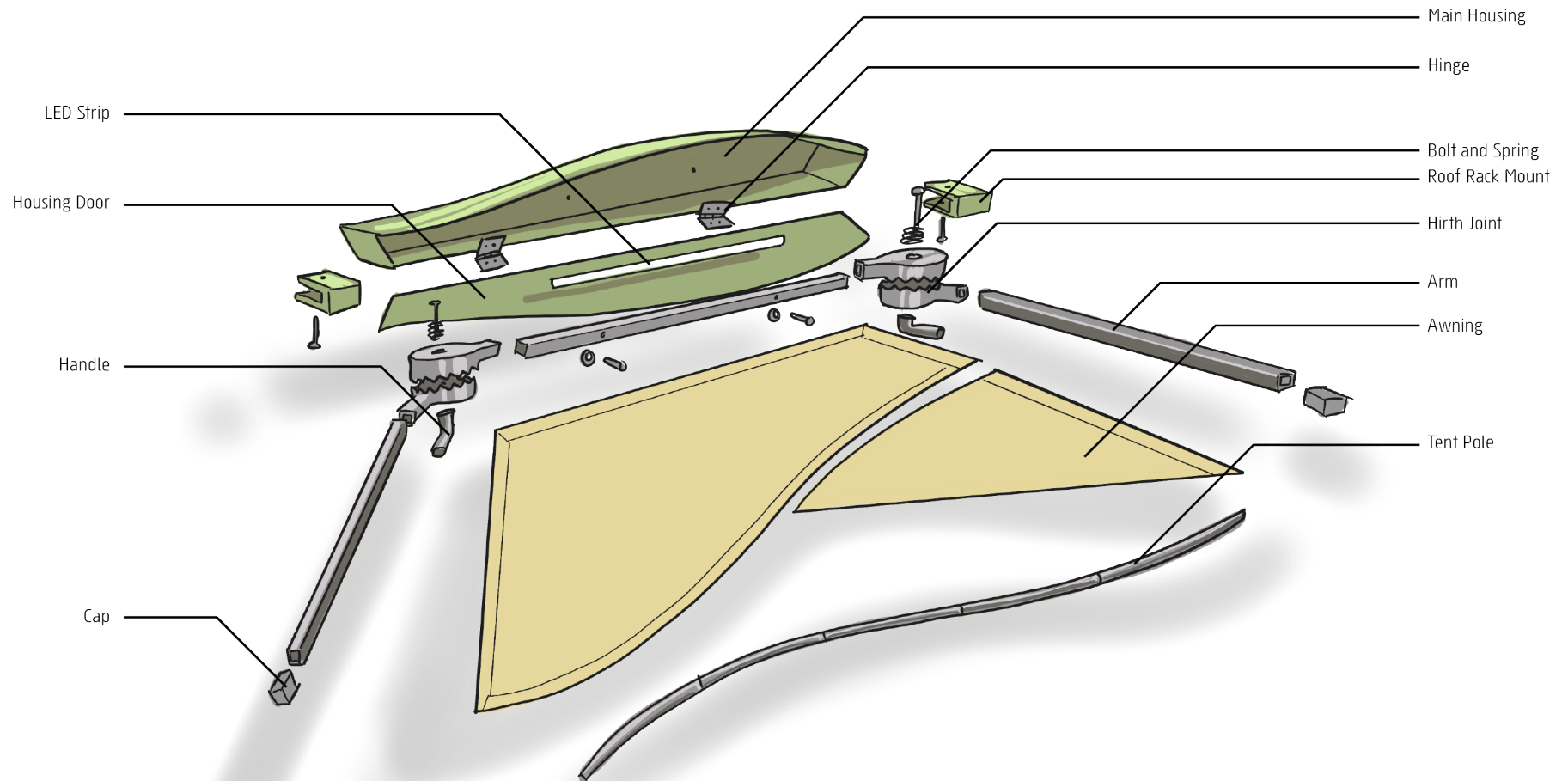
This storyboard shows how to set up the awning when connecting two vehicles.



7.4 Definitive Design



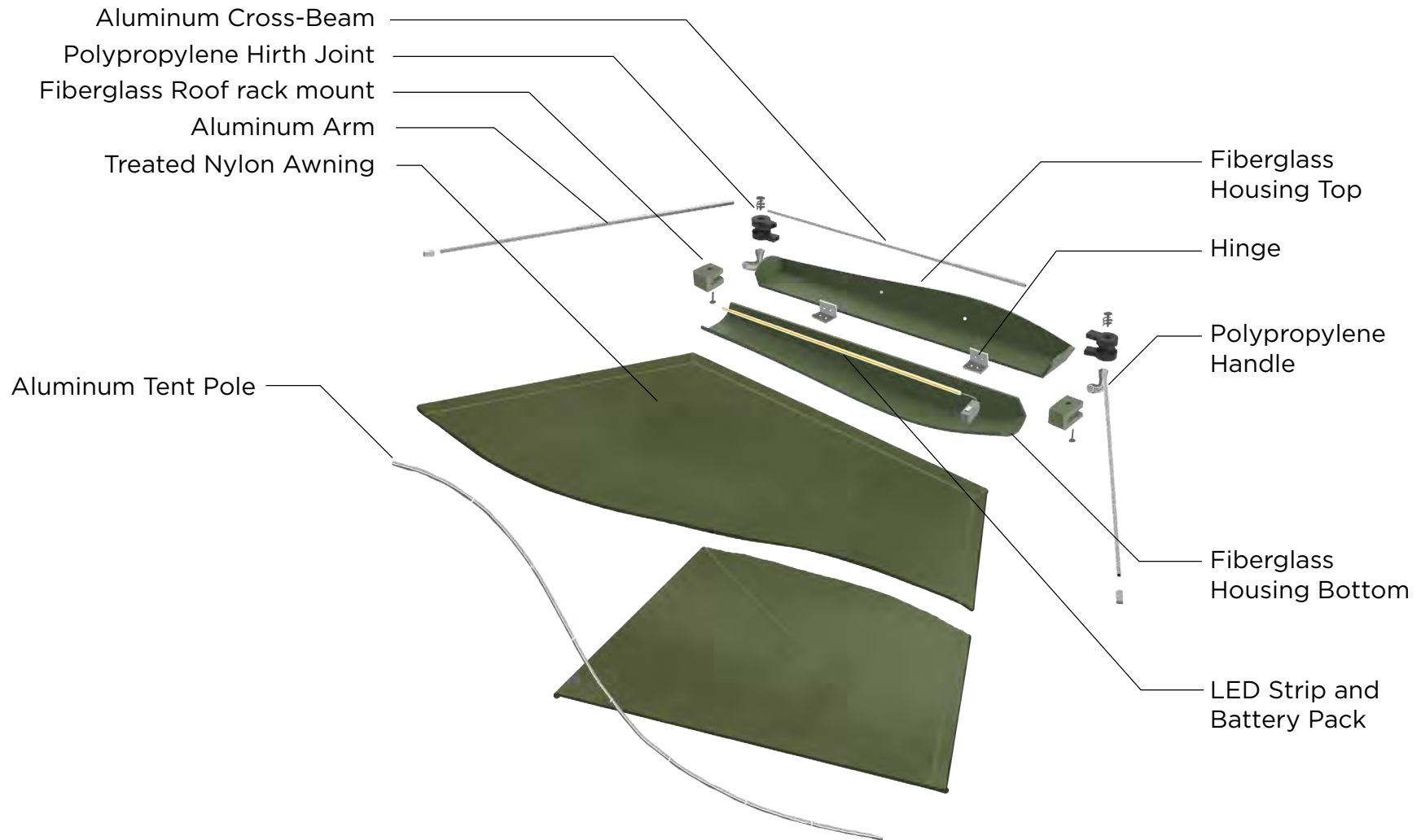
7.4 Definitive Design



This design proposal adds the housing, hirth joint handles, and roof rack mounts to the design. It also changes the location of the LED to the housing's door which acts as a reflector for the light.

8.0 Final Design

8.1 General Assembly



The second piece of the awning was changed so that it would have a folding portion that would attach to other awnings using snaps.

8.2 Final Model



Two 1/18 scale models were built using sewing and 3d printing techniques. These looks-like models were made to demonstrate how two vehicles could be connected.

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