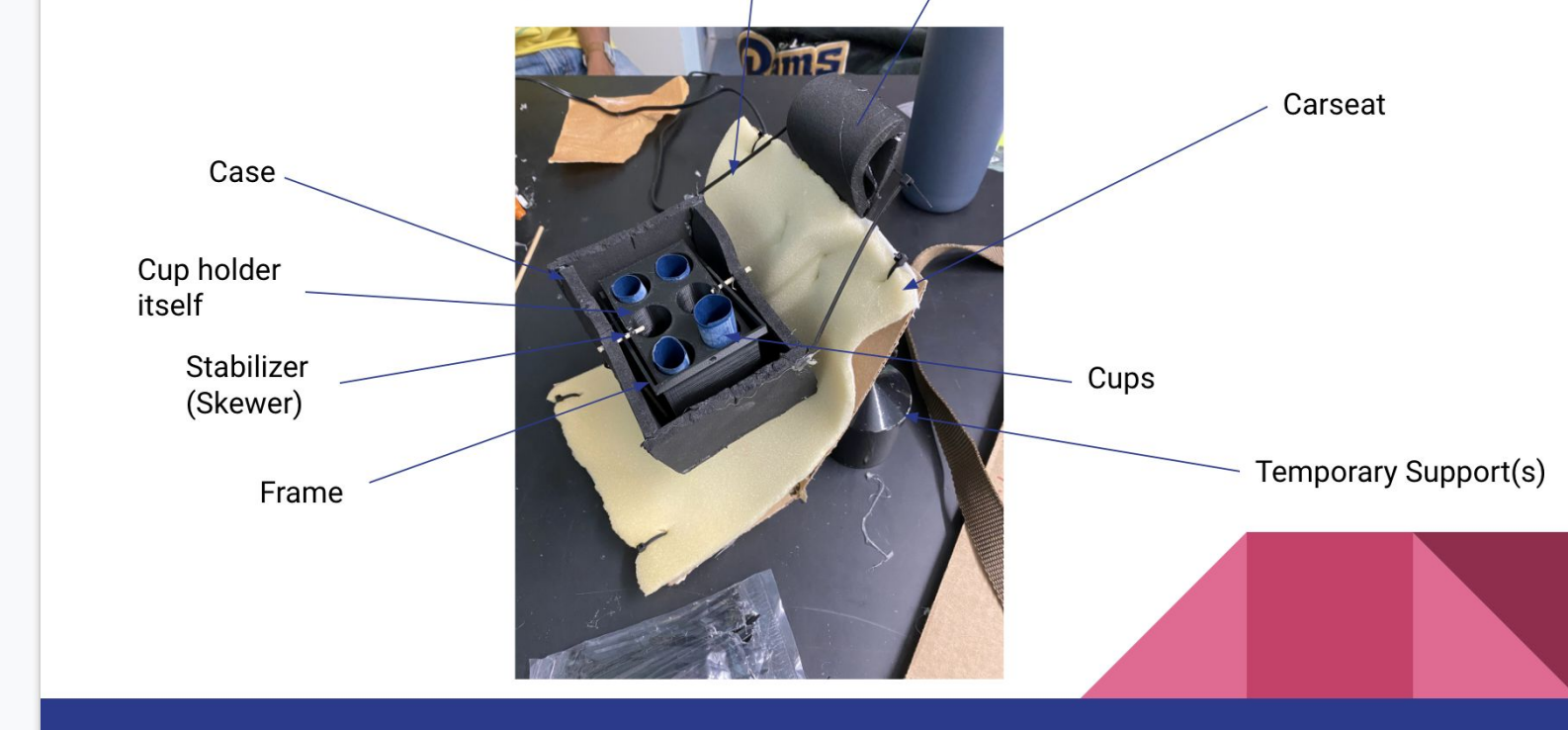


# The Cup Cart

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Full Scale Prototype



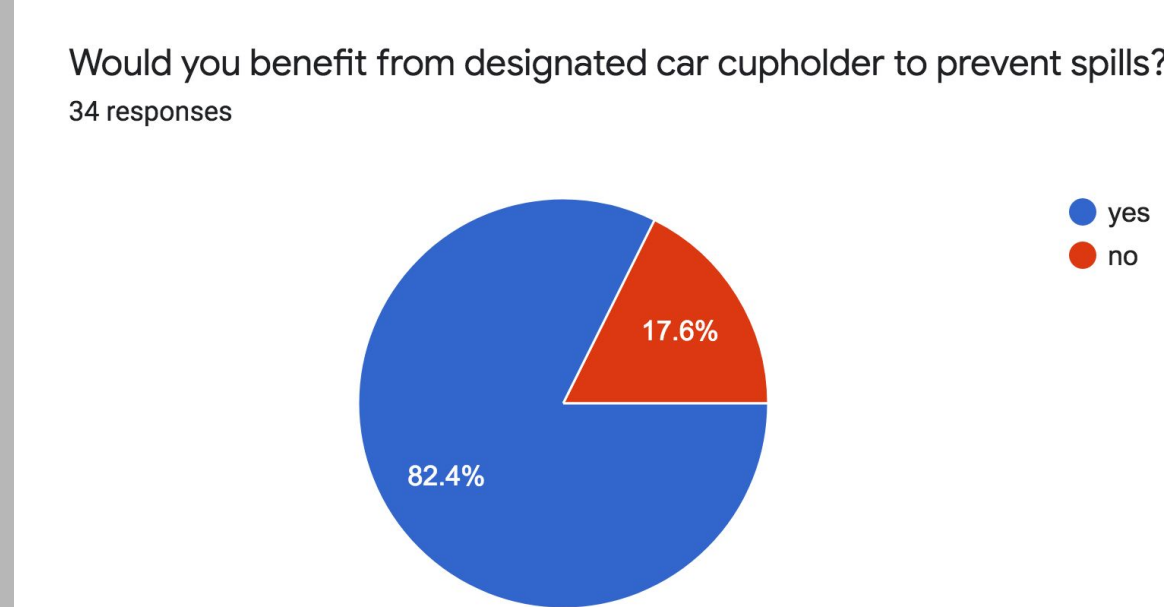
## Problem Statement

With the growing food delivery market, there are more occurrences of drinks spilling in cars before they have been delivered. Not only does it make a mess, but also cost the driver and company both money and time.

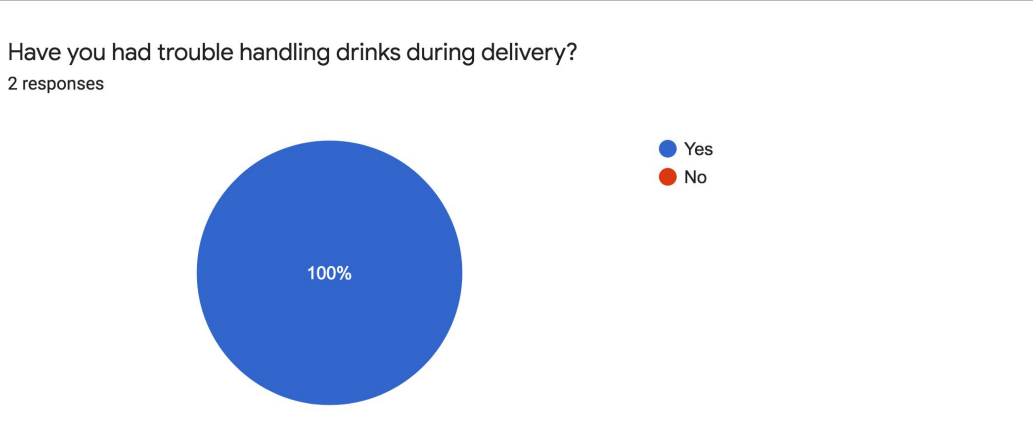


## Justification

Over 80% of respondents from the general public said they would benefit from a designated cup holder meant to prevent spills, and when surveying an actual DoorDash driver, they too said they would benefit from one.

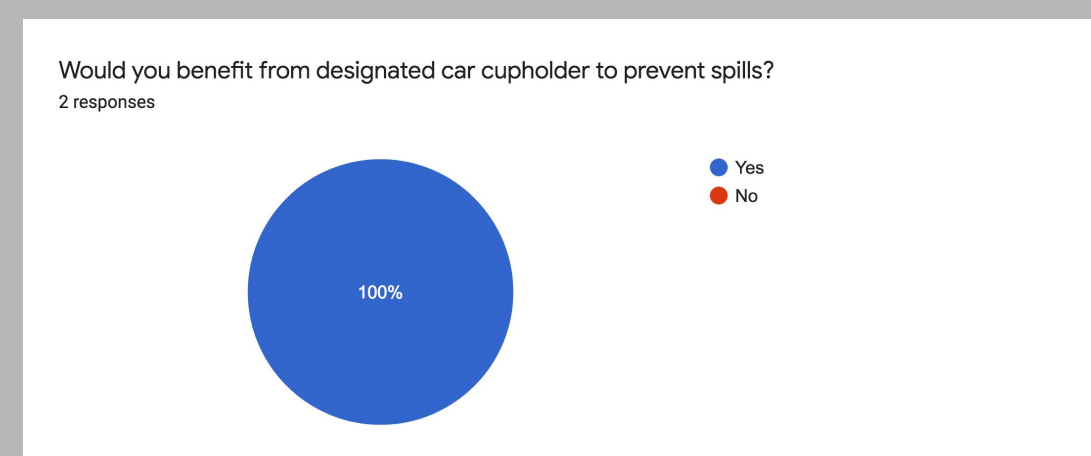


A few people from food delivery sector took our survey



How big and heavy would you want it to be?  
1 response

Light and small



- Resendes, Stephanie. "26 Online Ordering Statistics Every Restaurateur Should Know in 2020." Restaurant Insider, Restaurant Insider, 11 June 2021, upsolve.com/restaurant-insider/online-ordering-statistics/.
- Hotel Tech Report. "50 Online Ordering & Food Delivery Statistics That Will Blow Your Mind." Hotel Tech Report, 26 Oct. 2021, hoteltechreport.com/news/online-ordering-food-delivery-statistics/.
- EntreCourier, Author. "Best Drink Carriers GrubHub Doordash UberEats." EntreCourier, 24 Jan. 2021, entrecourier.com/delivery/delivery-strategies/delivery-tools/best-drink-carriers-grubhub-doordash-uber-eats/.

## Design Criteria

Solutions & Designs	Criteria	1	2	3	4	5	6	7	8	9	10
Cardboard cup holder (the actual)	10	8	5	10	6	6	8	7			
Cardboard cup holder (the actual)	9	4	7	9	7	6	7	7			
Cardboard cup holder (the actual)	8	2	9	8	7	4	3	3			
Cardboard cup holder (the actual)	10	3	9	4	9	9	8	5			
Cardboard cup holder (the actual)	8	4	10	5	10	3	1	9			
Cardboard cup holder (the actual)	8	6	10	6	10	10	2				
Cardboard cup holder (the actual)	8	5	5	7	9	7	9	9			
Cardboard cup holder (the actual)	8	2	4	6	3	1	4	9			

All products used in our comparison were picked by how common they are and whether or not they attempt to solve a similar issue to us.

From our table, we can conclude that the cardboard cup holder will likely remain the most common solution for the average consumer, but that there will be a market for our product in the food delivery industry, as the product is specialized for deliveries and possibly the everyday driver.

## Similar Solutions



Cardboard cup holders can be very unstable with the turbulence caused by start-and-stop acceleration or sharp turns seen on residential streets.



DoorDash delivery bags are thin and flimsy, and have not interior structural support to keep its contents upright and still.



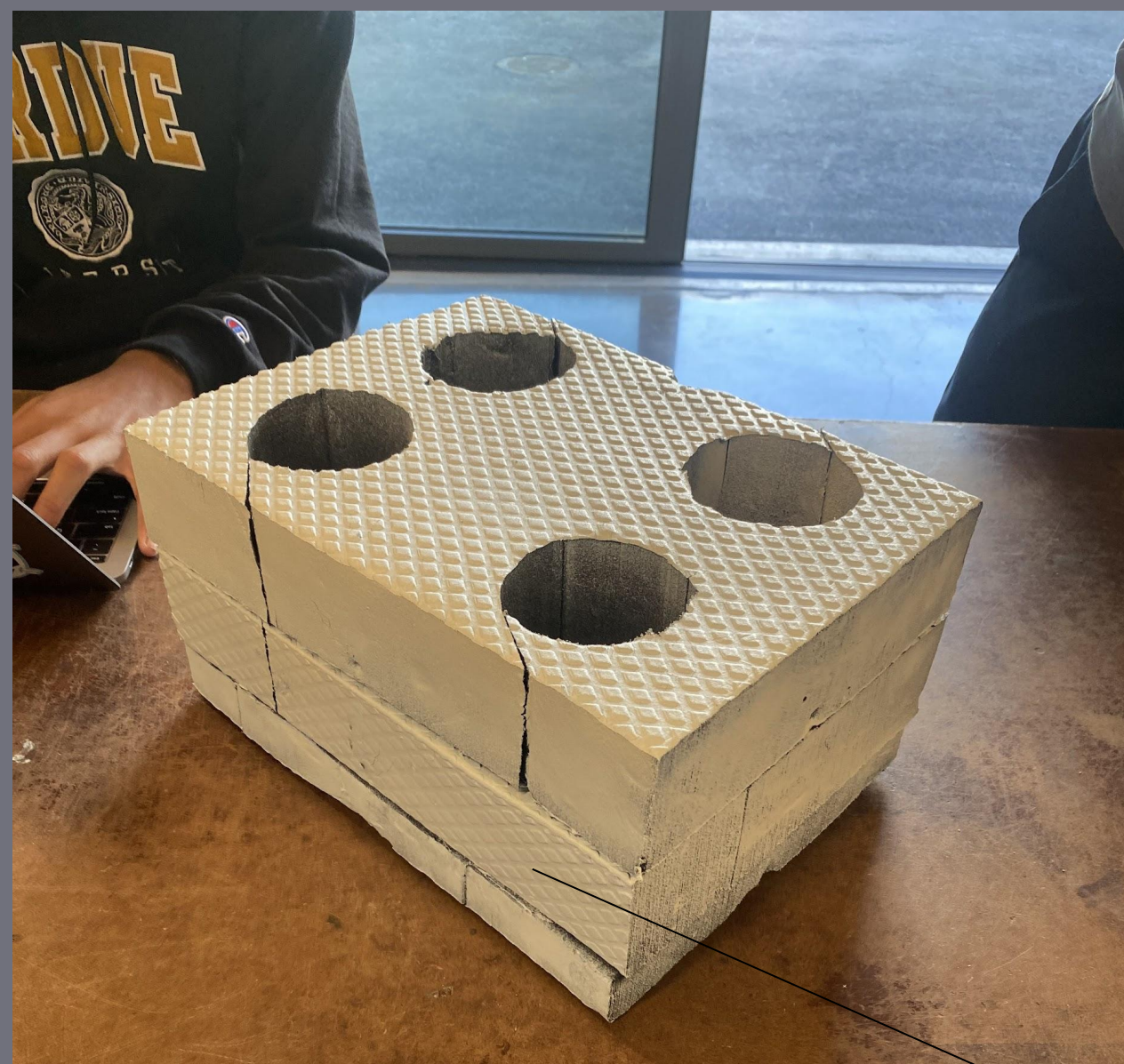
Cup holder extenders are bulky and can interfere with driving. They are also not very secure when driving.

### Patents:

**Pros** - Since the patent includes the product being gyroscoping we can use the same patent for our product. The patents selected offer a wide range of adjustability and configuration for the cup holder.

**Cons** - Given the large amount of patents in this field it may be difficult to create a product that falls within the restrictions of the patents but also doesn't copy another product.

## Final Product



The base for the cup holder that we spray painted white to make clean it off



The frames that we will keep the base gyroscopically stable while in the bed.



The Cup Cart in all of its glory with the help from our mentor is Mr. Sheahan, an engineer.

Mentor Feedback Document

Email [Ronsheahan66@gmail.com](mailto:Ronsheahan66@gmail.com)

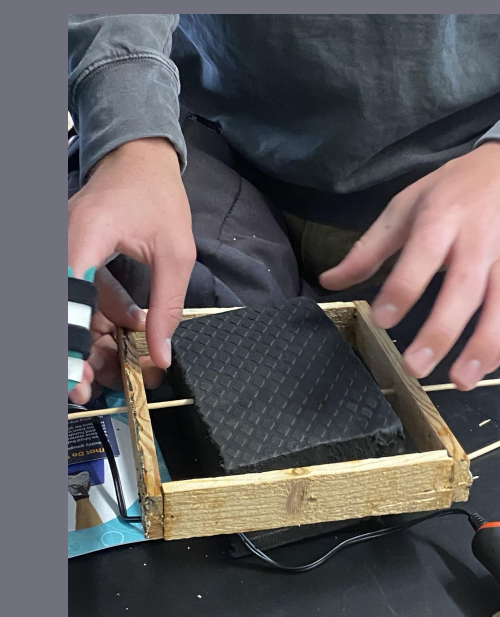
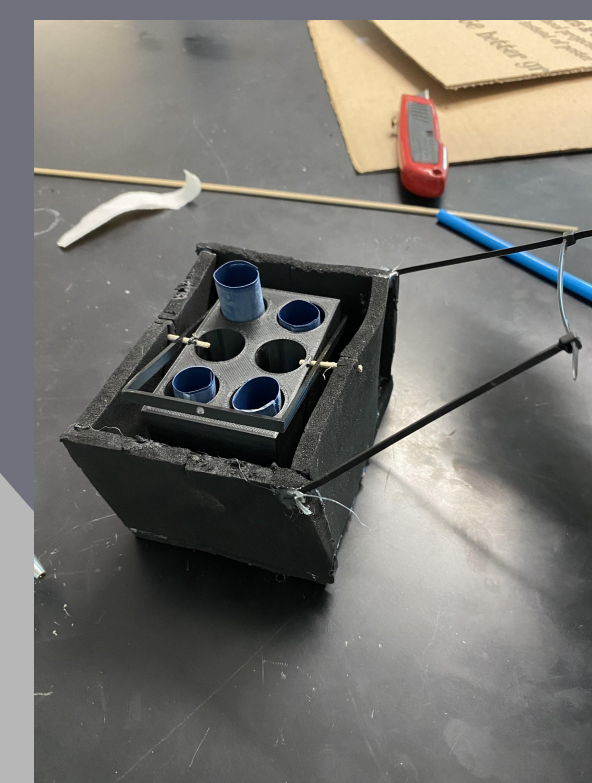
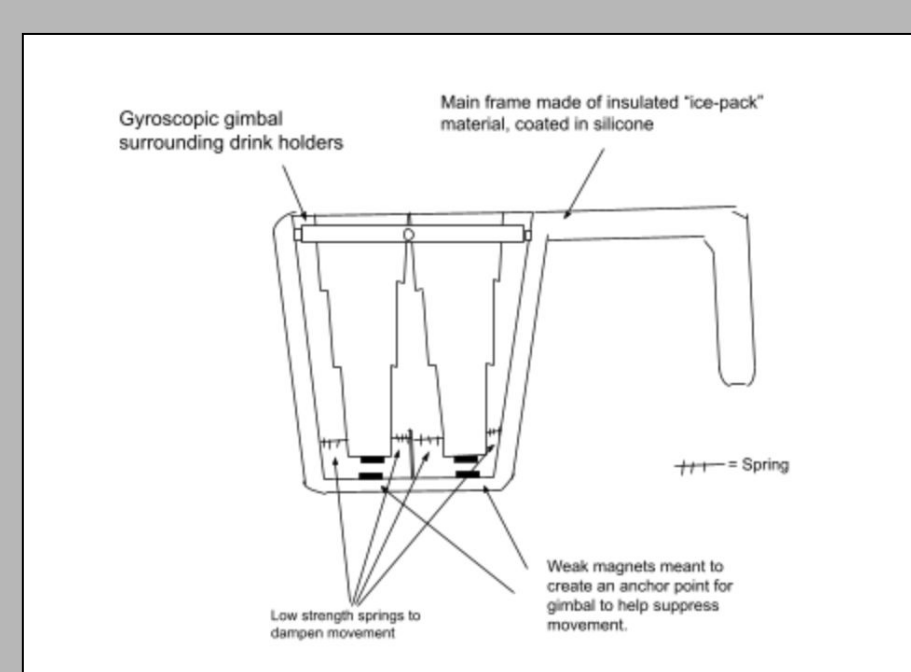
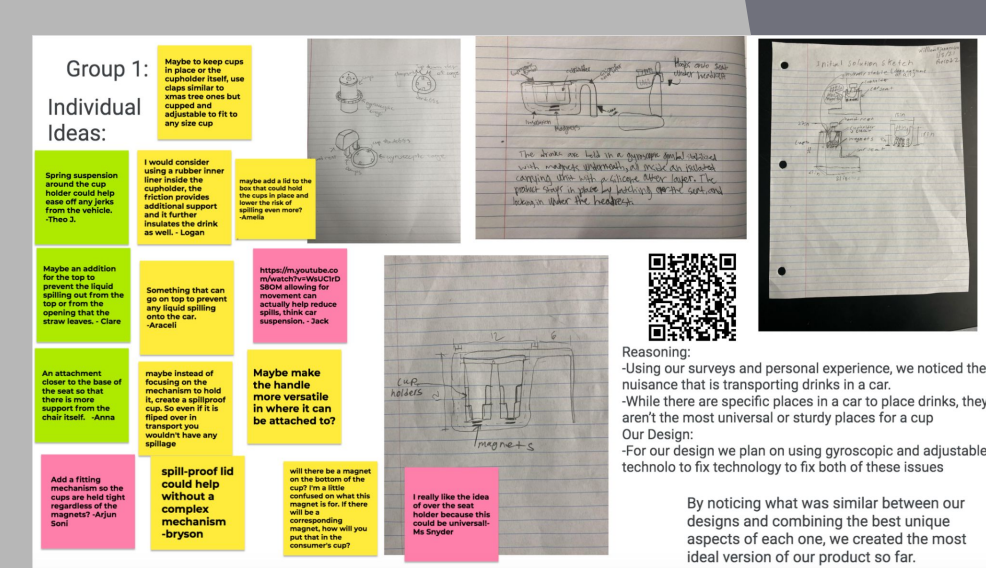


The dog bed that will act as a holder for the frame and base. The straps will attach to the car seat.

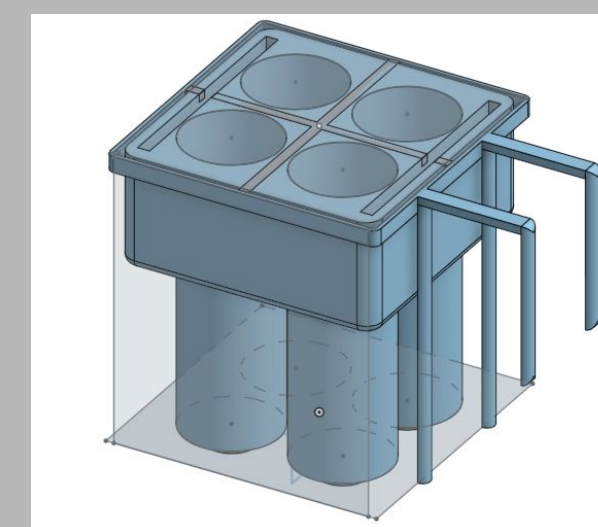
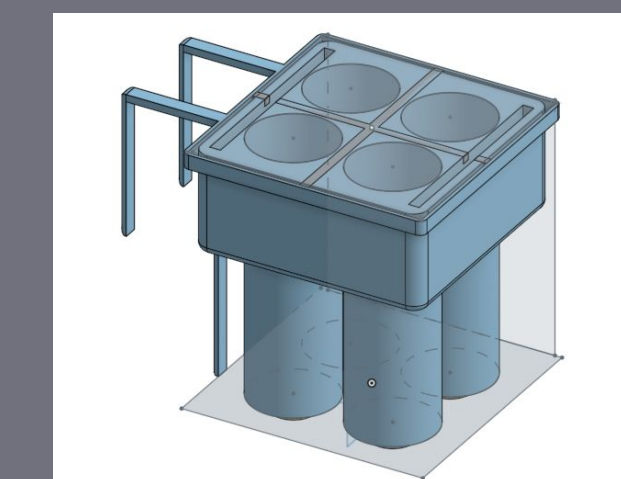
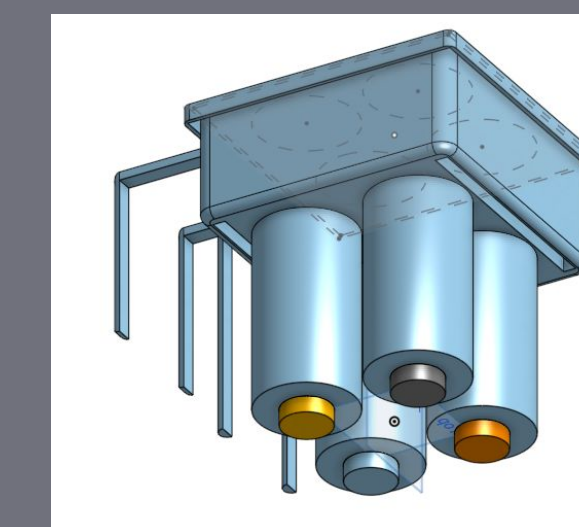


Drilled a hole in the bottom middle of the cupholder to add a counter weight so that the cupholder stays in place.

## Design

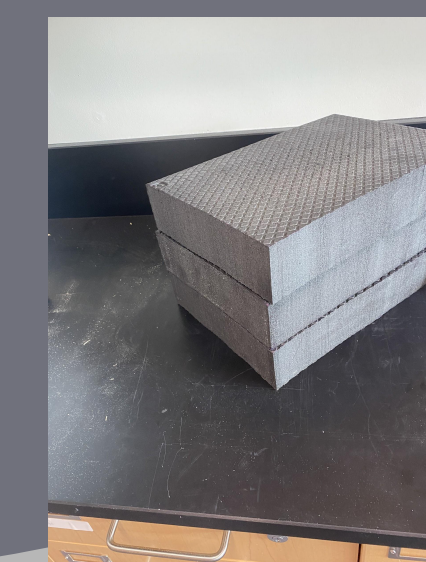


## 3D Models



With our Initial 3D models we thought of adding magnets on the bottom of the individual cup holder stable and handles to attach to the back of the car seat.

## Assembly Process



Cut the foam blocks 13 by 9 so that there will be space in the bed for the frames.



The inner and outer frames had to be perfect before installing into the bed because that will keep the base gyroscopically stable.



Spray painted the cupholder white to seal it so that it looks.

## Testing Method

Criteria/Benchmark	Description of data needed	Quantitative or qualitative	Degree of accuracy	Link Source
The cup holder should be low weight that can easily be moved around	The ideal weight for the cupholder.	Quantitative	±1.5 degrees within 10 to 15 lbs	<a href="#">Scale of weights</a>
The cupholder should take up approximately a little over the car seat	The volume of space the cupholder will take up	Quantitative	±180 degrees	<a href="#">Volume of materials</a>
Throughout the testing process we need to determine what are the best measurements for the cupholder	Which measurements are the most efficient	Quantitative	12 in by 18 in by 10 in	<a href="#">Scale 1.13</a> <a href="#">Scale 1.14</a> <a href="#">Scale 1.15</a>

From our table, we can conclude that the cardboard cup holder will likely remain the most common solution for the average consumer, but that there will be a market for our product in the food delivery industry, as the product is specialized for deliveries and possibly the everyday driver.

## Testing Results

*All metrics rated on scale of 1-10	Spillage	Damage to Product	Damage to Cargo	General Stability
Residential	10	10	10	10
*Speed Bumps	9	7	9	7
Freeway	8	9	10	8
Backroad	9	6	8	7



## Conclusion

We do believe that our product has the potential to be manufactured on a mass scale. To achieve this, however, our group would have to retake certain measurements in order to ensure the final mass produced product has a level of refinement that would be expected from a professional product. In order to implement mass production, we would need to find a fabrication company which would be able to produce foam cut to our product's dimensions, along with a place able to create our wooden frames for us. Assembly could either be outsourced to another company, or performed by our group alone, depending on the scale of production.



