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Foundation: FID

Tutorial Lecturer: Ms Fu Yen Huei

Product Name: Cyborg's Arm

Group members:

- Jonathan Hiew
- Zafran Zolkefle
- Ating Otobong Melvin
- Wong Chee Yuan

Group Name: Cyborg Exploded Lecture Hall

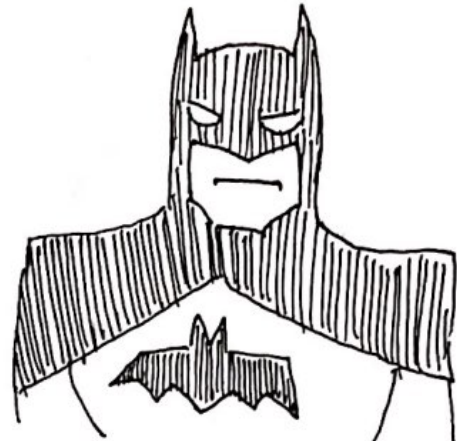
Assignment 1: A TOY

an 80's popstar



We couldn't really come up with an idea of a toy that has to do with popstars, so we decided to not do popstars.

a DC superhero



or?

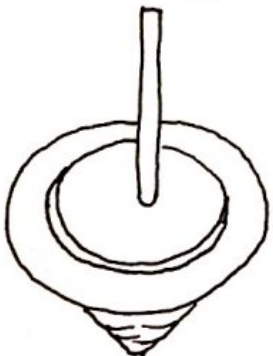
HOWEVER



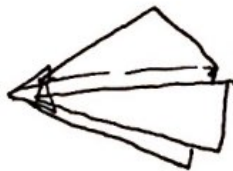
We decided to settle with a DC superhero because we didn't really know that many popstars and heroes seemed more fun.

OUR CHOICES:

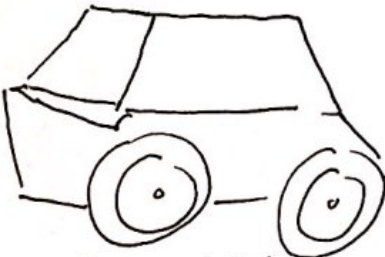
Spinning top



glider

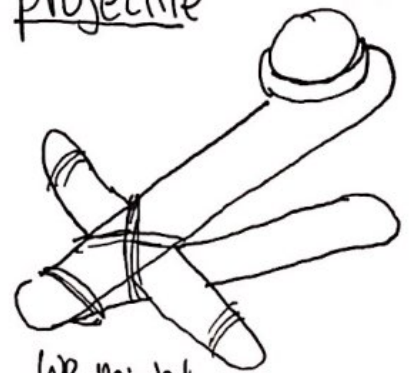


wheeled racers



We might do this? Perhaps a hero that is fast.

projectile



We might do this with a hero's weapon.

TOY IDEAS



INITIAL → → → IDEA



RAVEN
from
TEEN
TITANS

RAVEN CAR

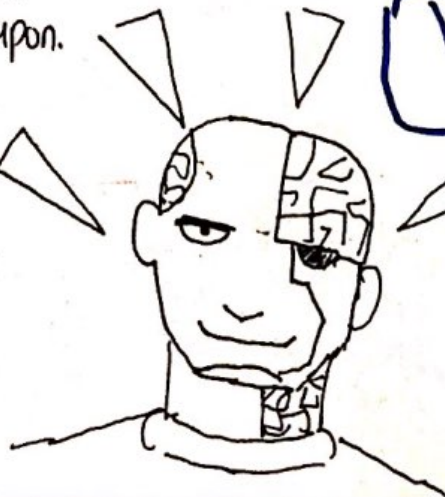


Since most of us were heavily inspired by Teen Titans, we wanted to pick a hero from there. Our first pick was Raven. We wanted to make a car that was themed like her.

BUT!!

We couldn't really come up with an idea that was unconventional. We wanted a vehicle that could move by itself, however, that would involve a motor or at least something to make it move. So we quickly dismissed the idea and decided on a different hero.

We thought that it would be easier if we picked a hero that has a weapon. I started thinking that we could use Green Lantern's ring but I was unsure as to how it would be a toy. Then ~~I~~ I thought about Aquaman's trident but it didn't seem that appealing.



WHICH eventually led to...

CYBORG

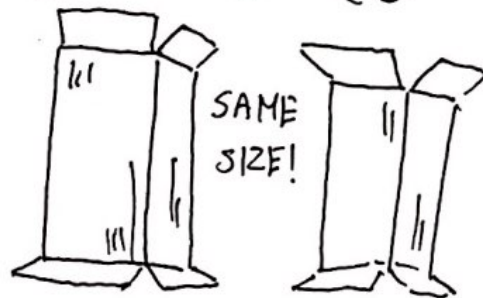
Which was suggested by Zafraan and so, we started to develop on his idea.



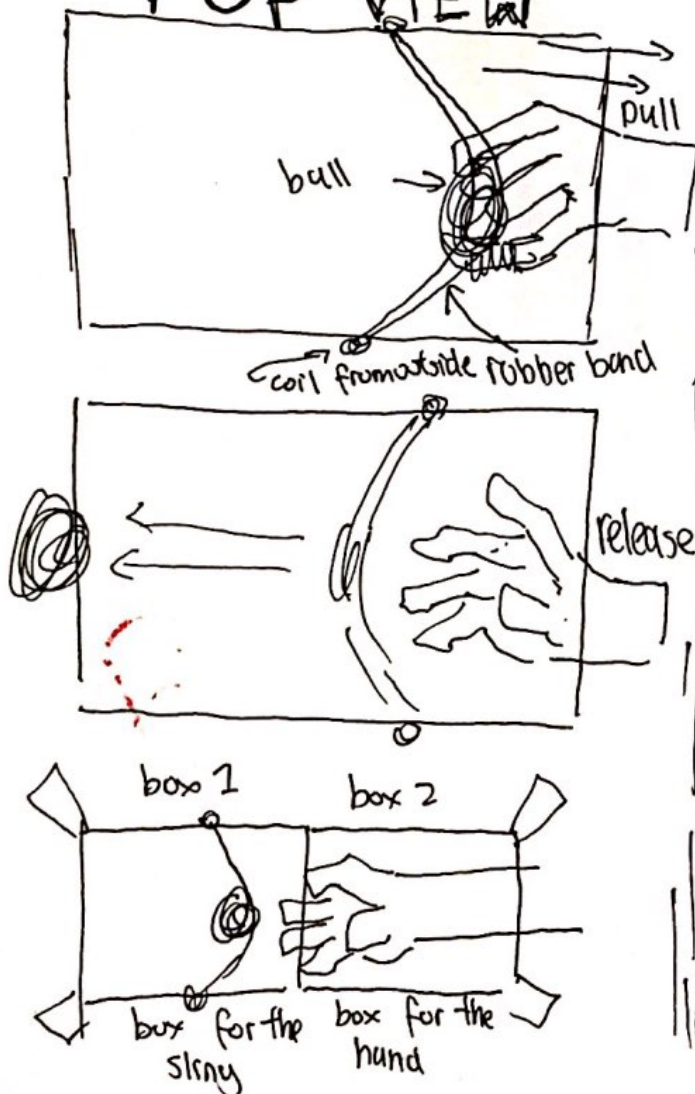
This pattern is based of Cyborg's design in the Teen Titans cartoon. However I feel like it seems a bit blocky, or bubbly, for someone who is meant to be half robot. So based on this, I plan to modify it slightly while maintaining his theme.

THE DESIGN

We plan on combining two boxes to make his arm. Luckily, we found two that fits perfectly in any person's arm next to a trash can... but it's clean so don't worry.

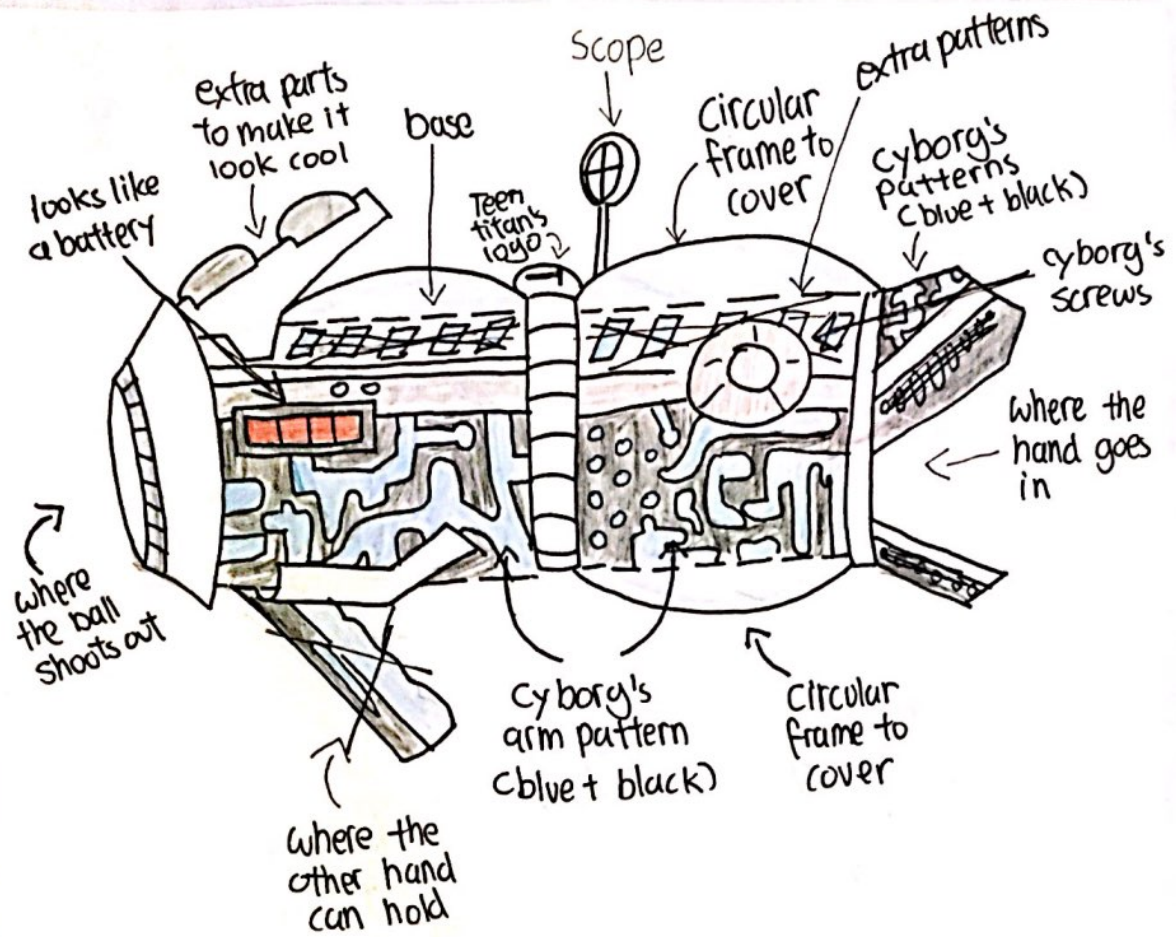


TOP VIEW

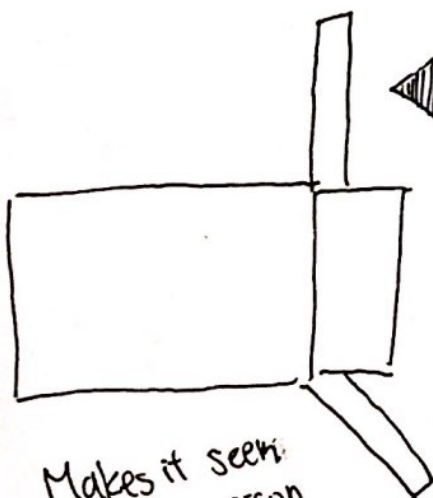


HOW IT WORKS

Our idea is to make a projectile that acts like a slingshot. We decided to add this mechanism into the box to make it seem as if cyborg's ~~arm~~ arm (cannon) is shooting something out. To make this work we've decided to use a rubber band that is thick & strong enough to be pulled. Both ends of the rubber band is held ~~together~~ together by a wire (coil) from the outside of the box which will be shaped into a tiny hook and it will be shielded with mahjong paper.



Basically a rough sketch I made of what the arm will look like. My teammates advised me that it might be too detailed, which I ~~agree~~ agree that it does seem quite time consuming. Because of that, we decided to prioritise the pattern of his arm as that's a crucial part of achieving Cyborg's theme.

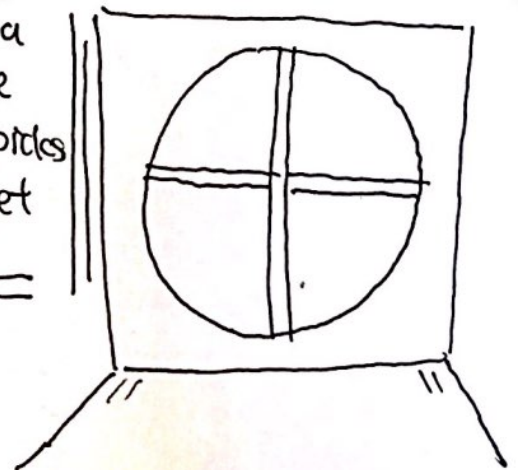
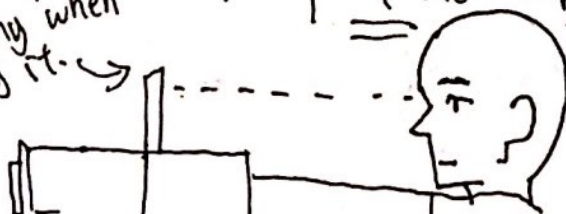


Makes it seem as if the person is aiming when holding it.



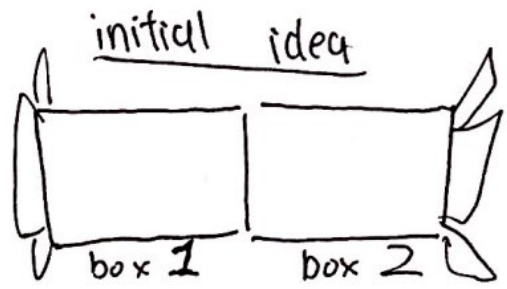
We've also decided that the top flap of the box will be used as a scope, as it's quite simple & easy to put together.

The plan is to cut a circular shape into the flap and use toothpicks to create ~~the~~ the target of the Scope.

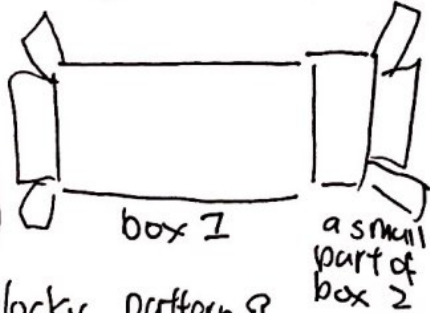


CHANGES

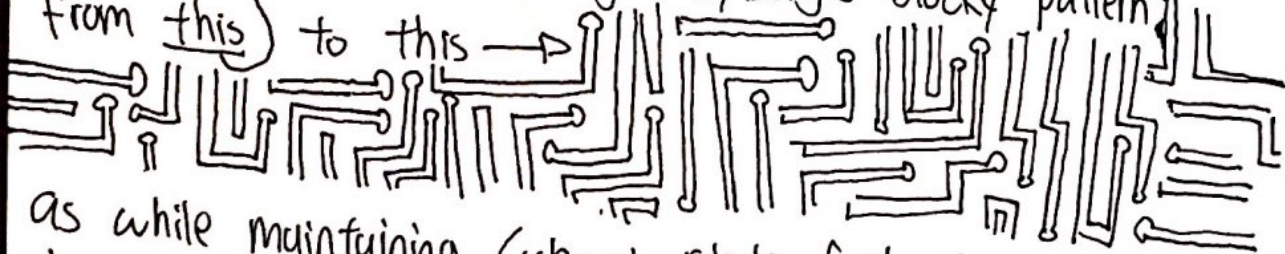
After the top half of the arm using one box, we realized we really only need one box instead of two. Thus, we cut the initial design in half.



final idea

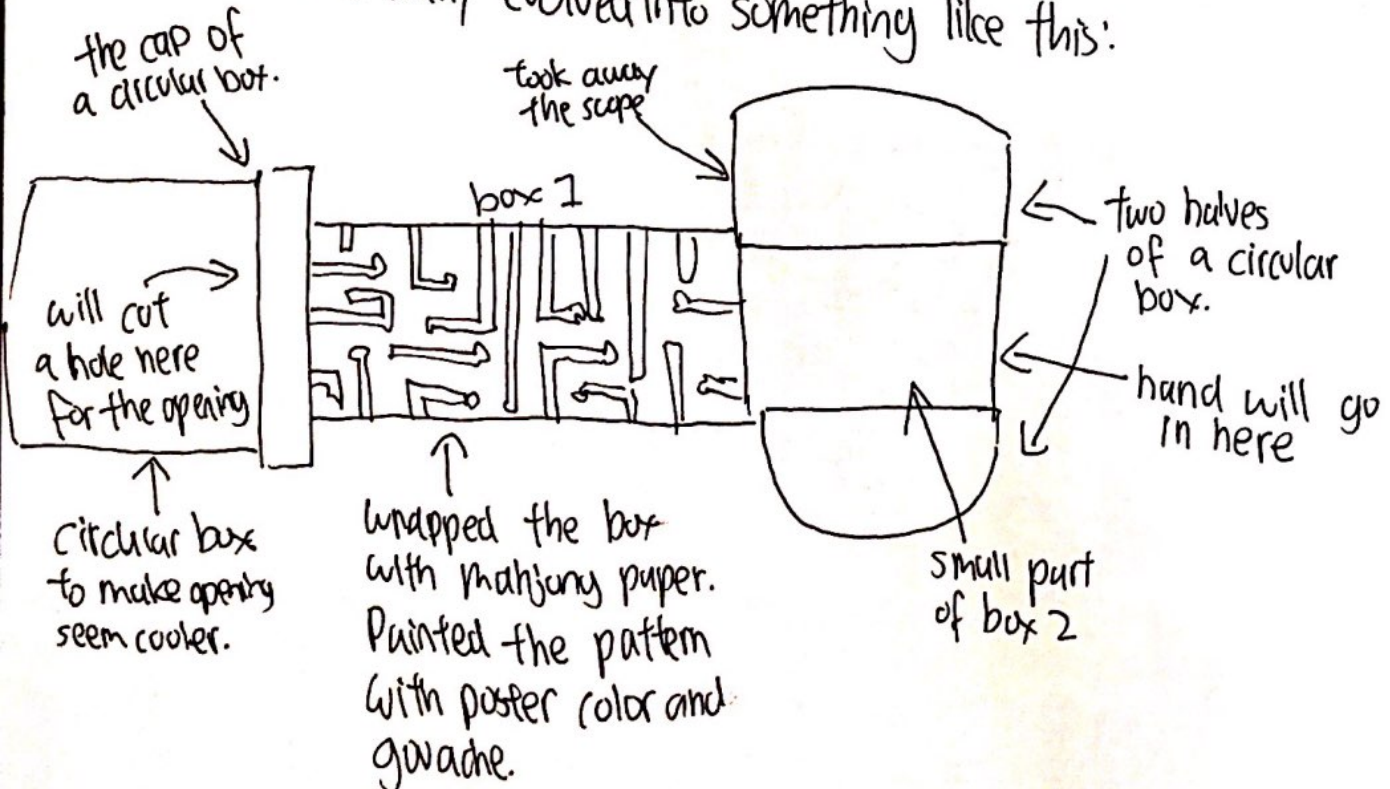


We also decided to change Cyborg's blocky pattern from this → to this →



as while maintaining Cyborg's robotic feel, it makes it somewhat less cartoony and more so futuristic.

our product eventually evolved into something like this:



Problem arose

when Mr Charles critiqued our work when he inspected the function of the arm.

Because the mechanism was to pull back the rubber band in order to make it project, he didn't want the hand to be out of the box

as it will lose the immersion. He wanted us to find a way to make it work without having

the person to actively pull it or for the hand to be out of the box, but instead, for it to

act like a gun and that it would shoot continuously.



1 rubberband



↑ broke

2 rubberband



↑ maybe won't break???

Sadly, ~~the~~ the rubber band that acted as our sling broke into two. We were devastated, and we began thinking of alternatives of a rubber band.

→ ALTERNATIVES

SLING

↳ Cross bow

but the fact that it might need a rubberband was tricky.

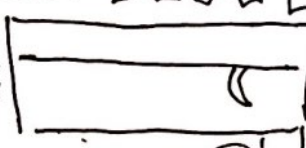
too complex

GUN

↳ basing it off the insides of a nerf.

not enough time

for the gun mechanic to be in the box.



2nd choice

PROJECTILE?

↳ would need a spring?

but might need to buy

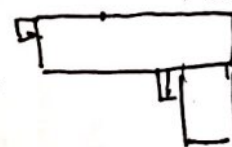
but how would it be made?

↳ how would the trigger be made?

made of cardboard + rubber bands

↳ however, we were scared it would break.

↳ 3 boxes small enough to fit in the box.

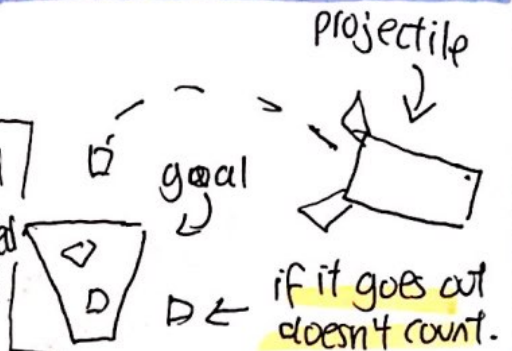


Mini ACTIVITY

1st idea: Given by Melvin. It starts with 3 bottles because it's going to be a 3 player game. The aim is to remove as many colored bricks as possible within a time limit of 3-5 mins. The main goal is the person with the most colors with.



Then, using the colored bricks that were collected the player will attempt to use the projectile to throw it into a container.

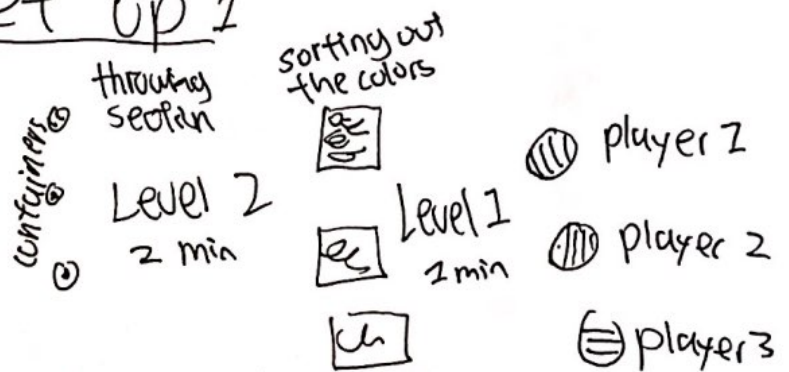


There will be two levels, the choosing colors section will take about 1 min, and the throwing section which will take about 2 mins. Therefore it is 3 mins in total.

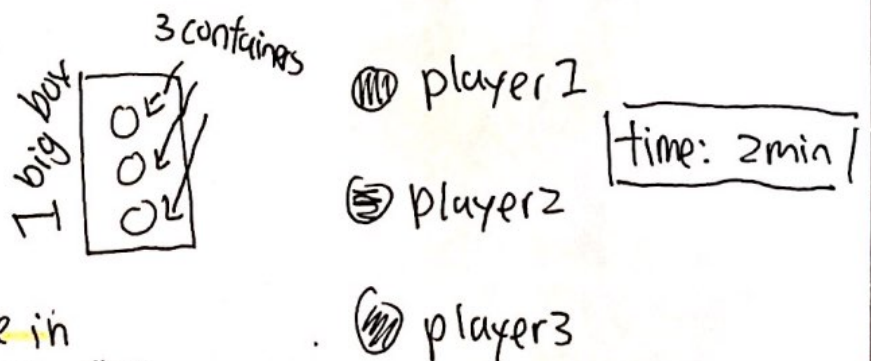
selecting colors Level 1	Throwing Level 2
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↑ will take 1 min ↑ 2 min = 3 min in total

Set up 1



Set up 2



but later we thought of another idea ~~to~~ because we thought that level 1 of the activity will drive away the main focus, which is the try. So, we decided to only keep Level 2.

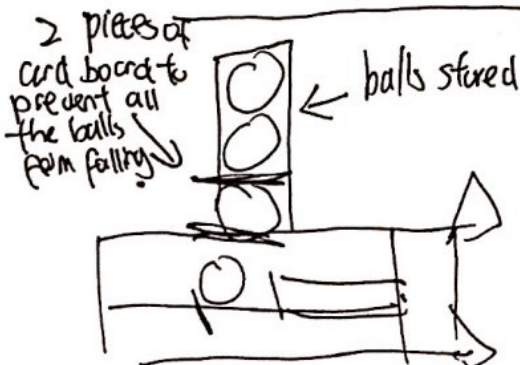
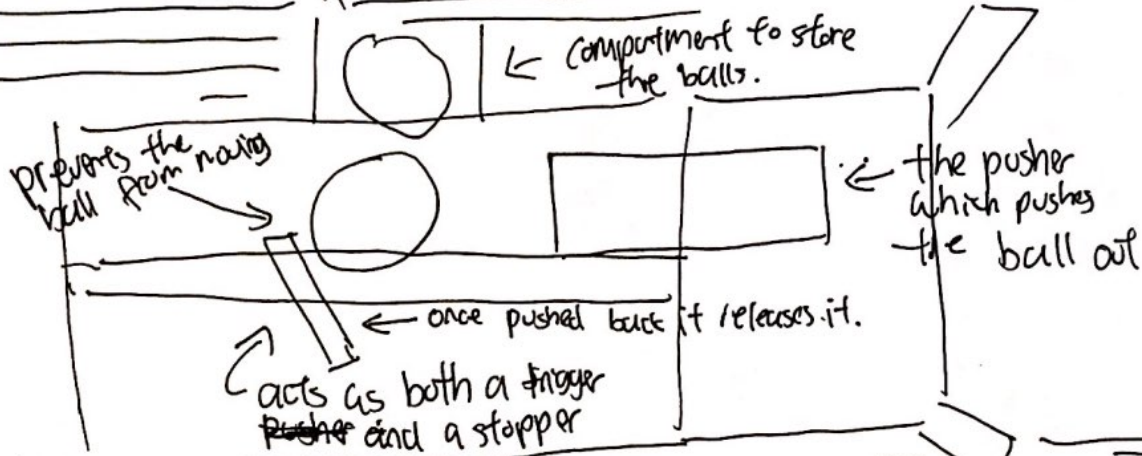
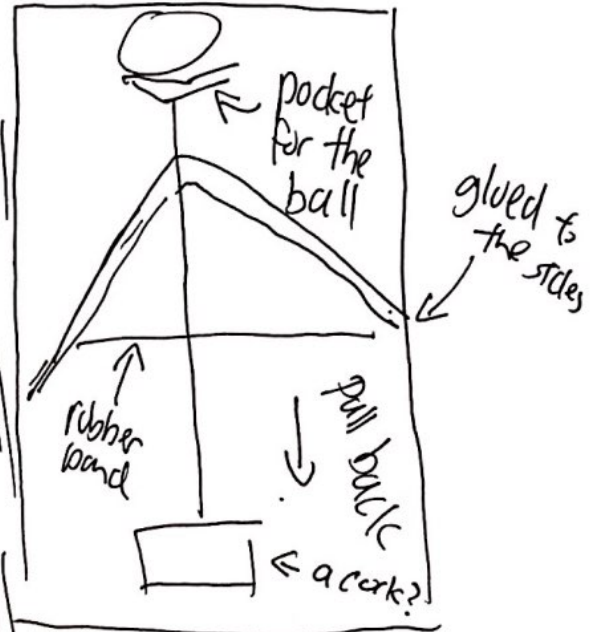
Modified it slightly so now all three containers are in one box. The players can't see their containers so they must attempt to score their goal.



~~the~~ we decided to cut the top part of the box that's close to the opening to make room for the hand to enter.

1st → IDEA

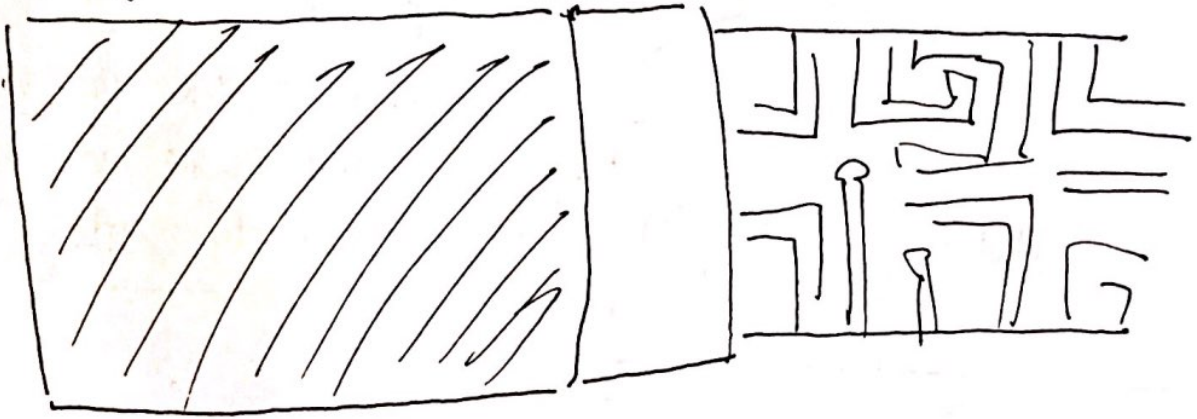
our initial idea after the failure of our slingshot mechanism, was to include a cross bow mechanic, but we realized that would mean you have to actively pull the trigger out.



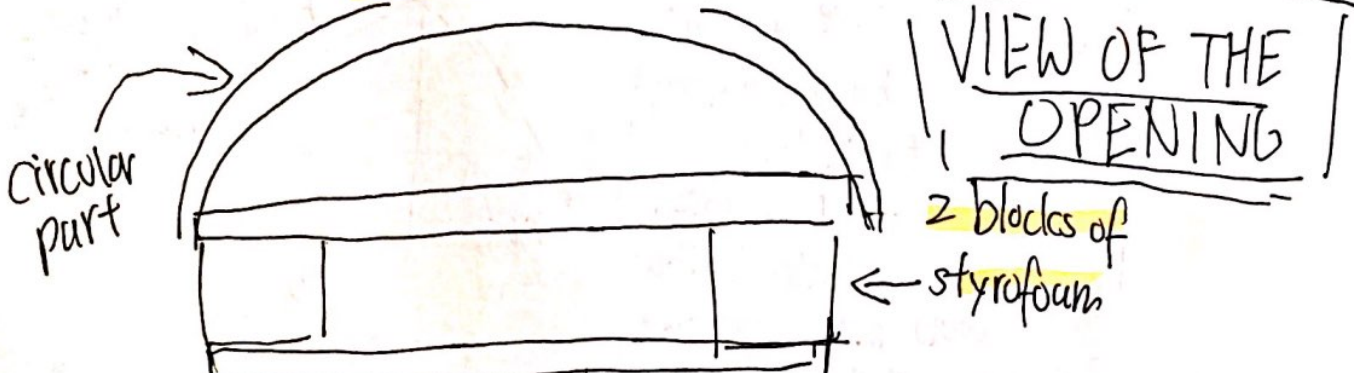
We ~~are~~ decided to add a gun mechanism in the box itself, and we found a way to make the trigger act as a stopper too.

2nd IDEA

will repaint this.

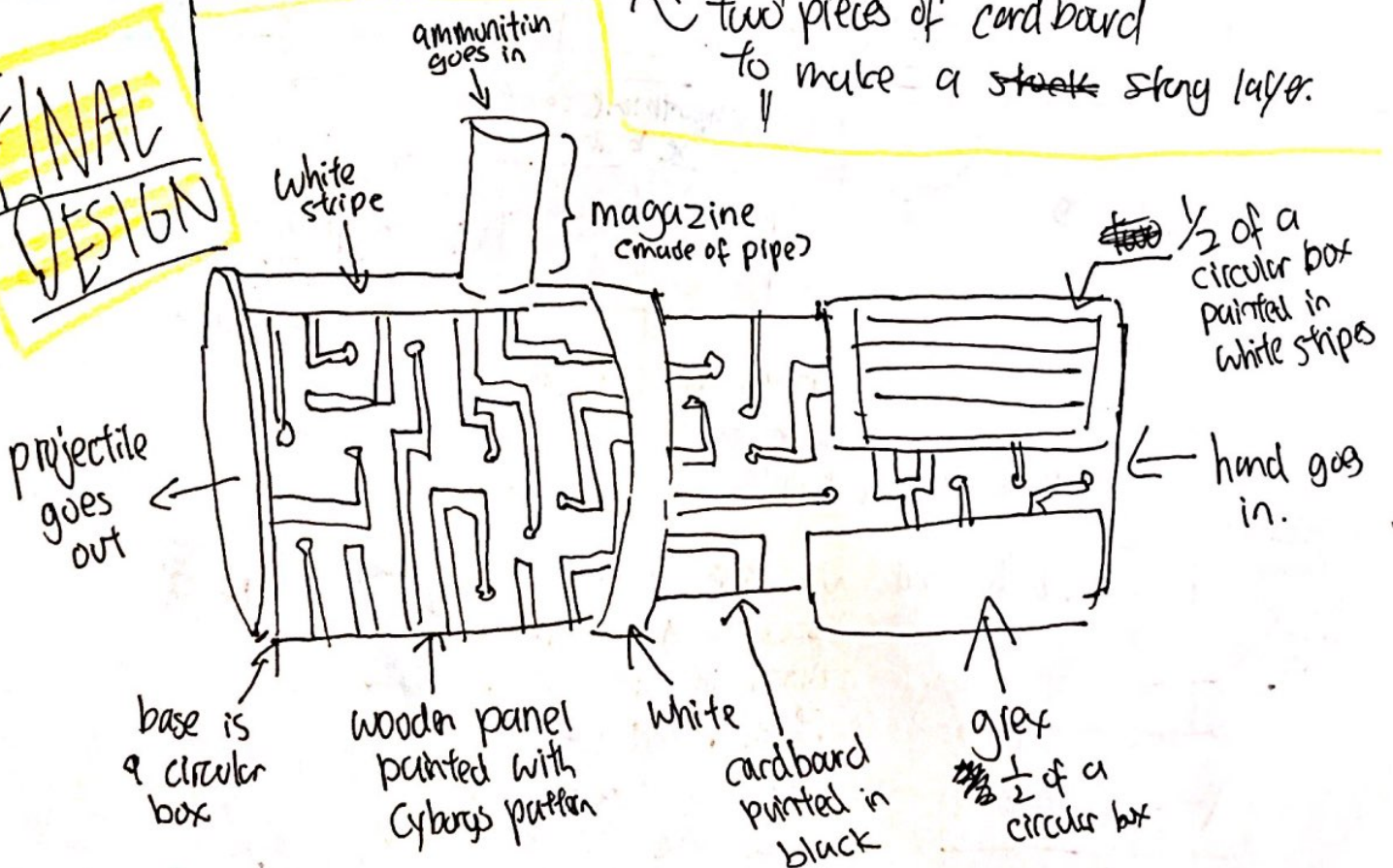


wrapped the top part with thin wood. stuck together using tape



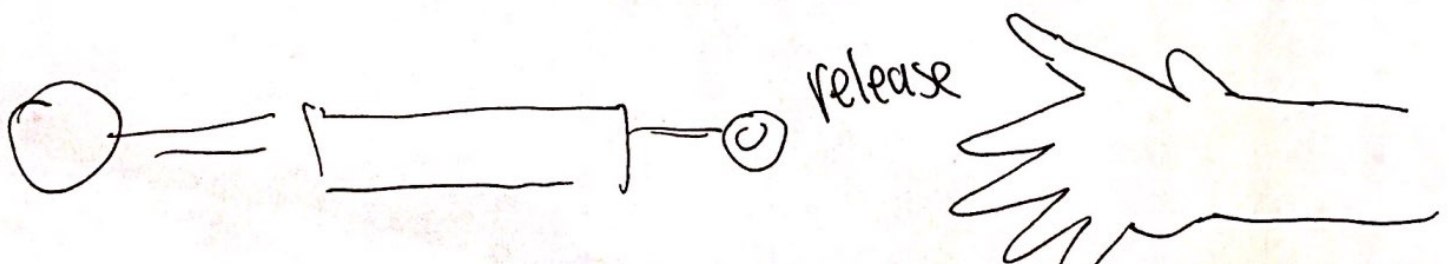
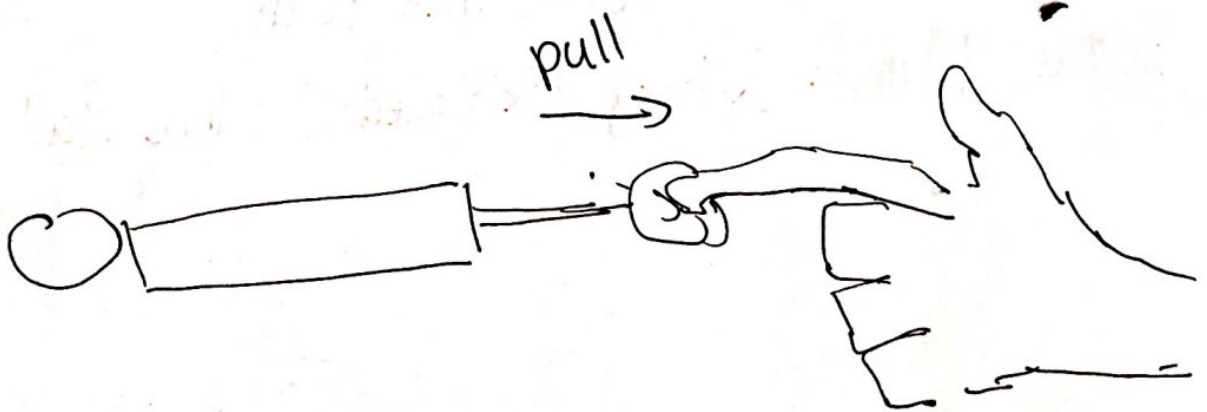
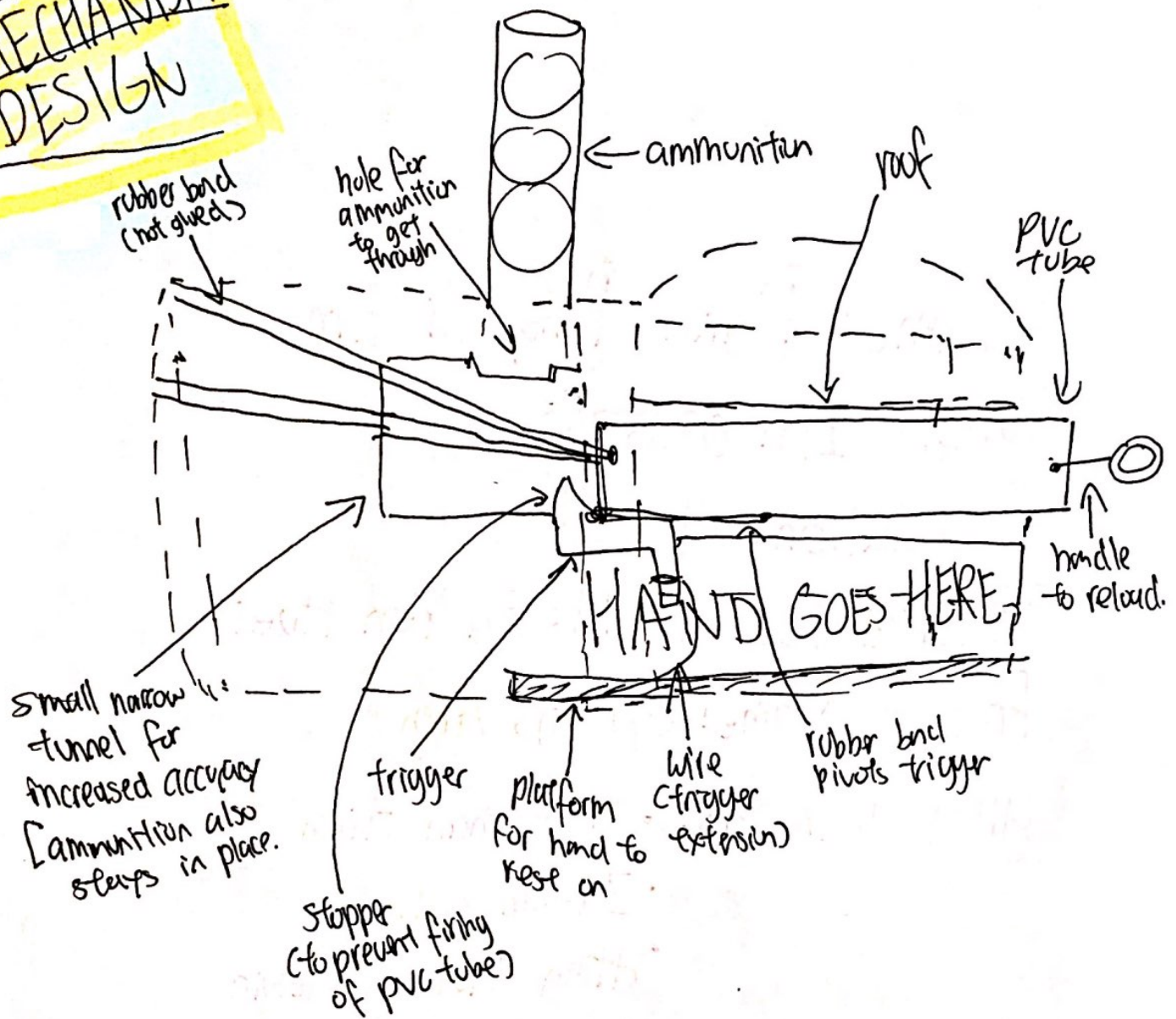
FINAL DESIGN

two pieces of cardboard to make a ~~stack~~ strong layer.



FINAL MECHANISM DESIGN

[not to scale]



CONCLUSION of ASSIGNMENT 1

As a group, we've decided to choose Cyborg from Teen Titans as our main superhero for our toy, more specifically, Cyborg's arm. And because we hold the show and the hero himself in a special place in our hearts, we wanted to make a toy that was unique, that wasn't conventional but more, unconventional. Due to our ambitious attitudes, we started to plan big and difficult ways to make our product, which was most definitely the wrong way to go about it. Throughout our assignment, we were faced with many obstacles, such as the lack of materials we had as one of the main requirements was to spend as little money as possible. Although difficult, we managed to pull through and created a projective that ~~was~~ is mostly made of 100% recyclable items. I believe the ~~per~~ best part of the toy is how the mechanism is designed and how it functions. It is easy, yet at the same time, unique, which is what our team hopes to draw attention to. All in all, the making of Cyborg's Arm was an incredibly enlightening experience. While it might not have turned out the way we wanted, we worked very hard for the outcome.