

JUNE 2022

# 9 BOARD

An interactive board that helps people with autism

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# WHAT IS AUTISM?

ALSO CALLED AUTISM SPECTRUM DISORDER, IT REFERS TO A BROAD RANGE OF CONDITIONS CHARACTERIZED BY CHALLENGES WITH SOCIAL SKILLS, REPETITIVE BEHAVIORS, SPEECH AND NONVERBAL COMMUNICATION.

(NATIONAL AUTISTIC SOCIETY)





# USER

A child between 5 and 15  
years old that suffers from  
autism



# USER NEEDS

COMMUNICATE  
THEIR NEEDS

CALM  
THEMSELVES  
DOWN

STIMULATE THEIR  
SENSES

EXPRESS THEIR  
FEELINGS

# PROCESS

1

THINK OF AN  
IMPAIRMENT TO  
FOCUS ON

2

MAKE A PROPER  
RESEARCH TO SEE  
THEIR NEEDS AND  
PREVIOUS WORK

3

START TO  
BRAINSTORM IDEAS

# PROCESS

4

MAKE A FIRST  
PROTOTYPE OF  
THE BOX WE  
WANTED

5

GET SOME  
FEEDBACK FROM  
EXPERT

6

CHANGE SOME  
ELEMENTS OF THE  
BOARD

# PROCESS

7

MAKE A SECOND  
PROTOTYPE

8

ASK FOR  
FEEDBACK AND  
QUESTION FOR  
OUR 9 SECTIONS

9

ADAPT THE  
PROTOTYPE

# PROCESS

10

DESIGN THE BOX  
AND LASER CUT IT

11

ASSEMBLE ALL THE  
ELEMENTS

12

FINISH THE FINAL  
PROTOTYPE



# MISTAKES

## AGE RANGE

WE WERE SUPER EAGER TO MAKE THE BOARD ACCESIBLE FOR EVERYONE THAT WE THOUGHT IT COULD FIT ALL AGES.

## DURABILITY

WE DON'T KNOW HOW DURABLE OUR BOARD IS. KIDS THAT HAVE TANTRUM ISSUES CAN THROW AND BREAK THEM.

## INTERACTION

WE DON'T KNOW HOW CHILDREN WILL INTERACT WITH OUR BOARD, BECAUSE ALL CHILDREN INTERACT IN DIFFERENT WAYS.

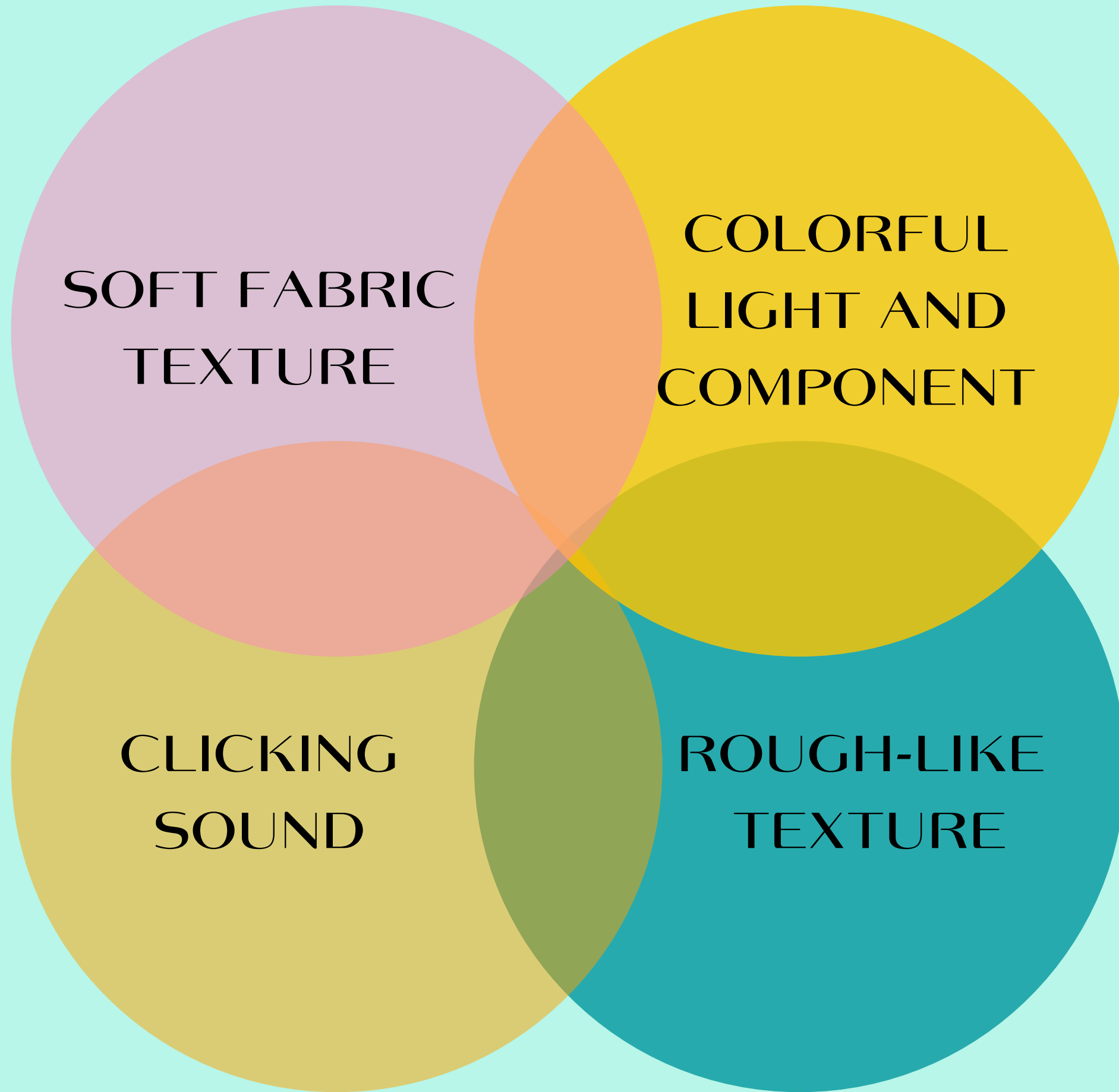
## ASTHETICS

OUR BOARD MAY NOT LOOK AS NICE AS AN INDUSTRIAL-PRODUCED PRODUCT.



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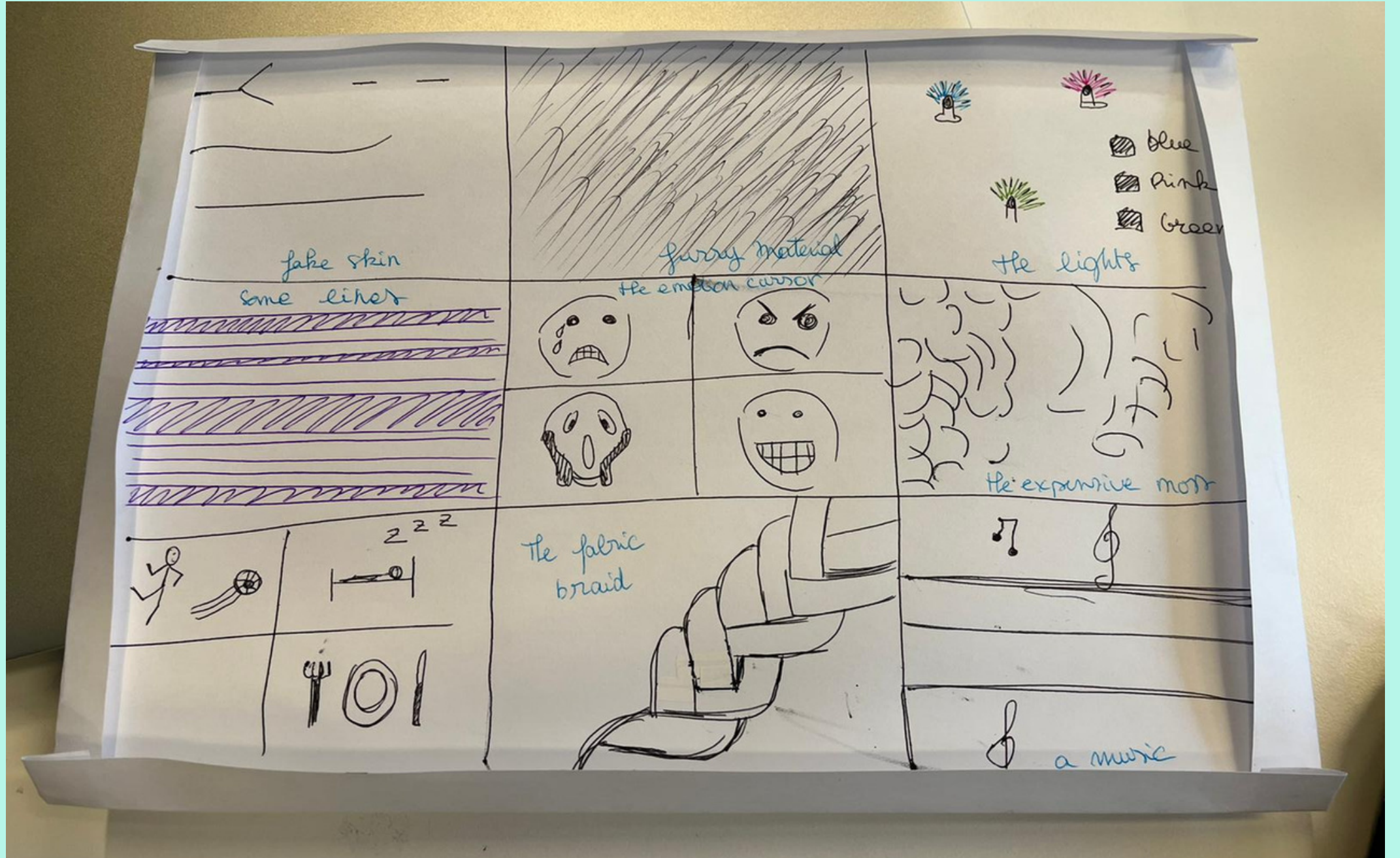


The image features two teal-colored scribbles in the top corners. The one on the left is a wavy, horizontal line, while the one on the right is a more circular, looped shape. Both are drawn with a thick, brush-like stroke.

**ITERATIONS**



WE HAD A PAPER  
PROTOTYPE WITH  
THE DIFFERENT  
CLASSIFICATIONS



WE MADE A  
CARDBOARD  
BOARD WITH  
SOME OF THE  
FABRICS  
AIMING TO USE





WE FINALLY  
MADE OUR  
FINAL BOARD  
OUT OF  
PLYWOOD



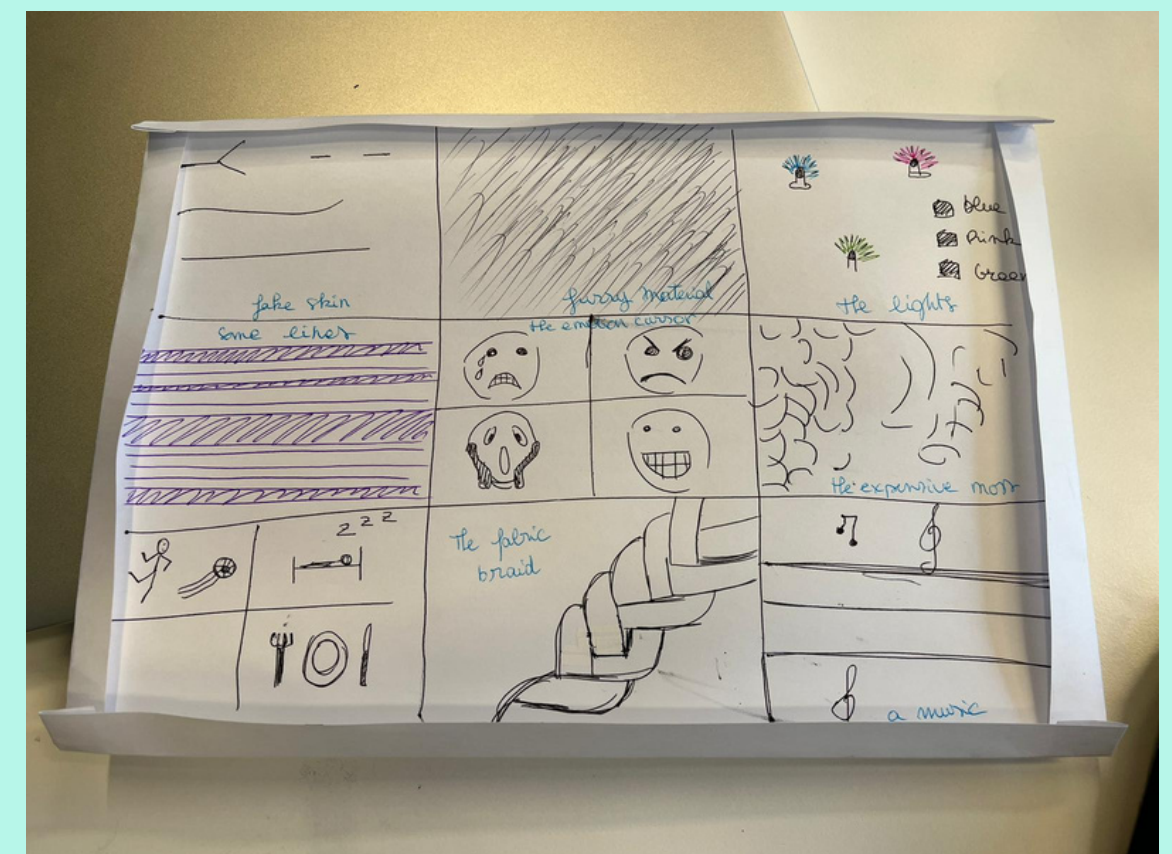
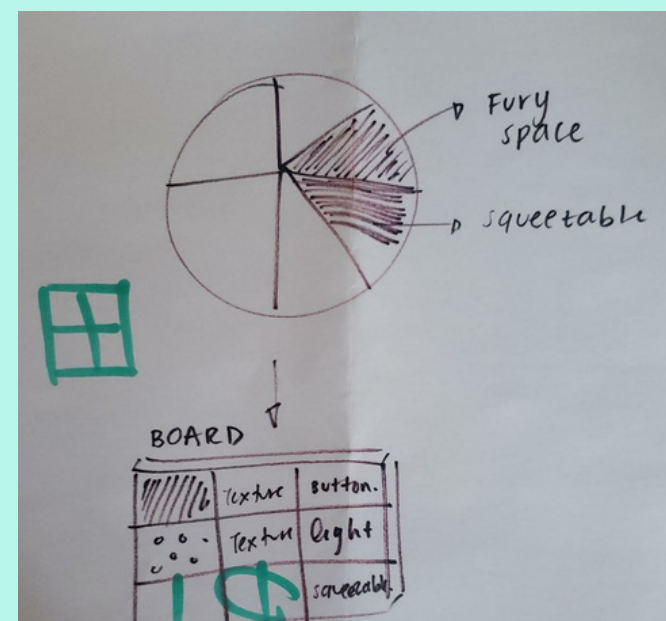
DOCUMENTATION

April 20th

It was the first day we worked on the project and it was when we came up with the idea of making a sensing box that would help people that suffer from autism. But we thought it would also be important to help them communicate, so we researched which was the best way to make that functional.

We also asked for some guidance from a person that is working with people with autism to give us some feedback and insights based on his previous experience. This helped us a lot in terms of how to variate textures.

Here we made our prototype out of paper.





May 4th

Based on the feedback we adapted some of our components of the inside of the box and started to make a bill of materials to see what we would be requiring, also managing to see a way to incorporate some electronics that didn't alter the user.

When finally deciding on the different sections of the board we received feedback because we were starting to put some textures but losing focus if it would really help the user. At this point we also made our second prototype made out of the carton with the estimate dimensions we wanted for the final result.

Project name	Item Description	Price	Quantity	Total incl	amazon business link (check invoice option)	expected delivery date
Autism board	Plywood to build the board					
Autism board	8 LEDs rings	7.99€	4		<a href="https://www.amazon.fr/XUN">https://www.amazon.fr/XUN</a>	
Autism board	Arduino UNO	25.99€	1		<a href="https://www.amazon.fr/Ard">https://www.amazon.fr/Ard</a>	
Autism board	Yarn	10.61€	1		<a href="https://www.amazon.fr/Coa">https://www.amazon.fr/Coa</a>	
Autism board	Furry fabric (10x10 cm)	17.70€	1		<a href="https://www.amazon.fr/Pan">https://www.amazon.fr/Pan</a>	
Autism board	breadboard	9.99€	1		<a href="https://www.amazon.fr/Eleg">https://www.amazon.fr/Eleg</a>	
Autism board	jumper cables for arduino	6.49€			<a href="https://www.amazon.fr/AZD">https://www.amazon.fr/AZD</a>	
Autism board	buttons	8.98€	4		<a href="https://www.amazon.fr/RUN">https://www.amazon.fr/RUN</a>	
Autism board	pop it					

May 11th

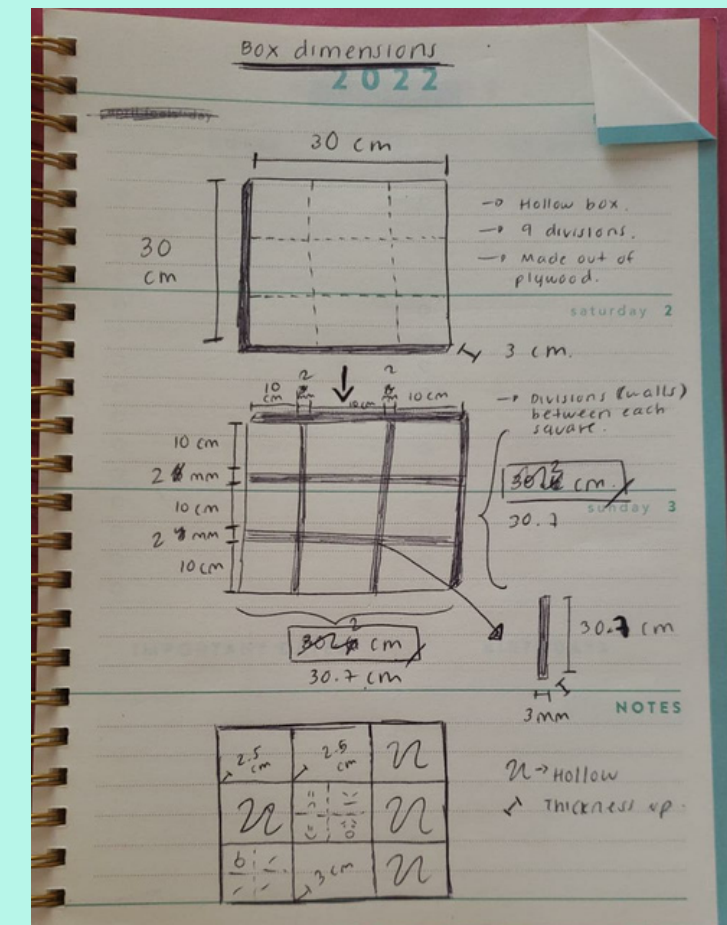
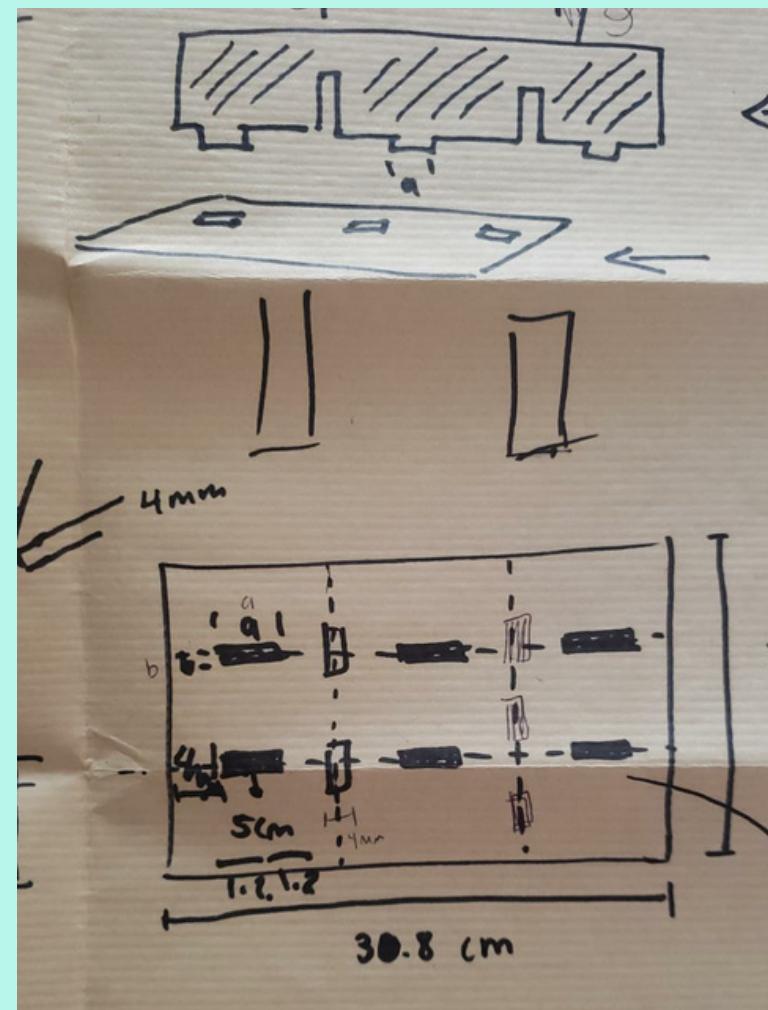
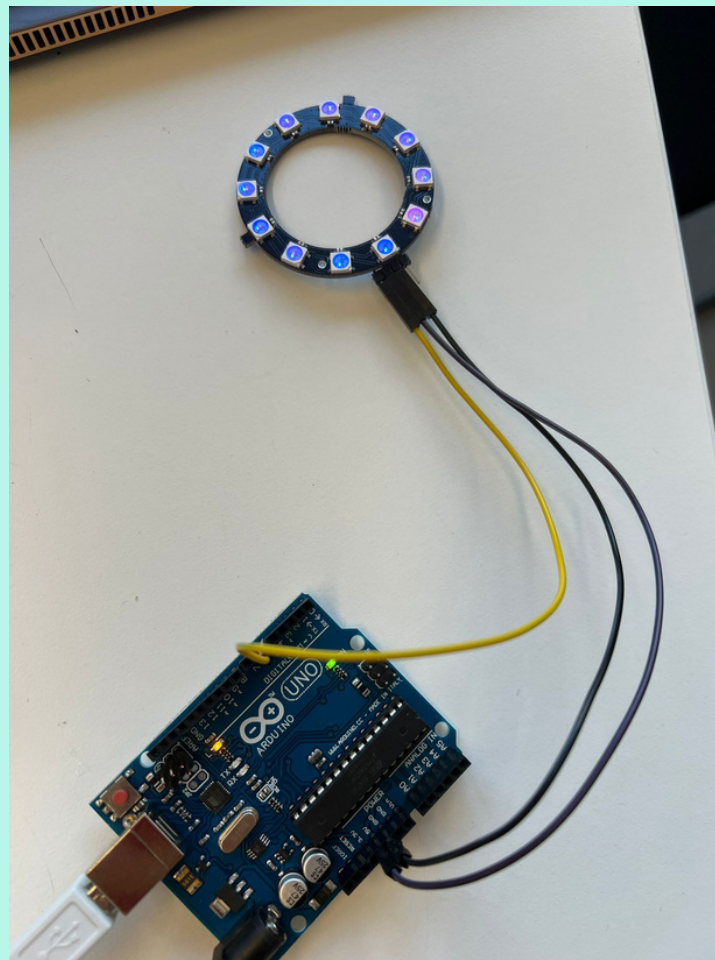
Based on the materials received we started distributing the components in the box to see the proper order and how it would be more appropriate for the user.

We started cutting the right size and continue doing touching tests to see which textures would have a contrast and how they felt. Then based on a comment from a person that has interacted with people from autism we decided to change a texture to give it a more broad variety to help stimulate more people. Because one challenge that we face is that every person reacts different or likes different things.



May 18th

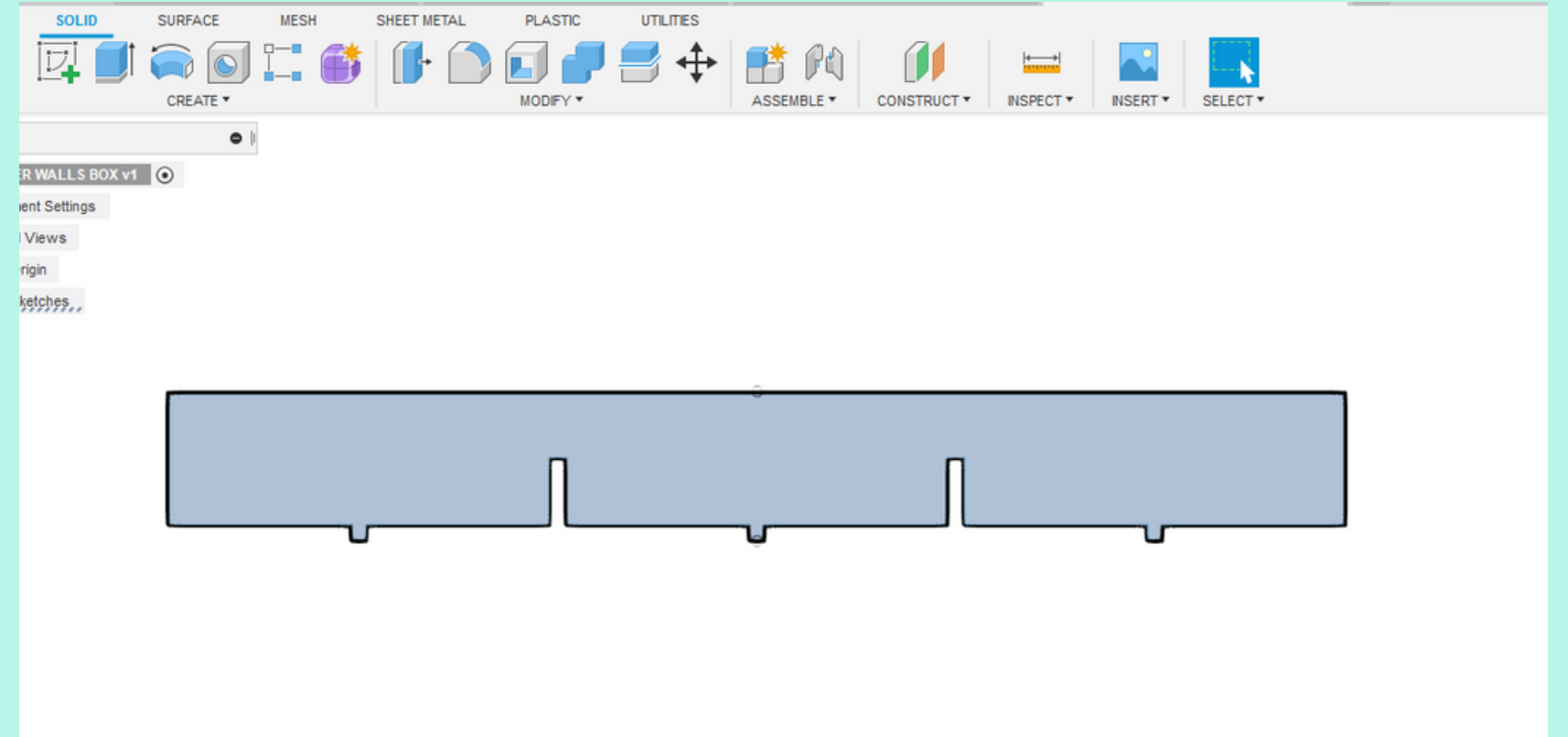
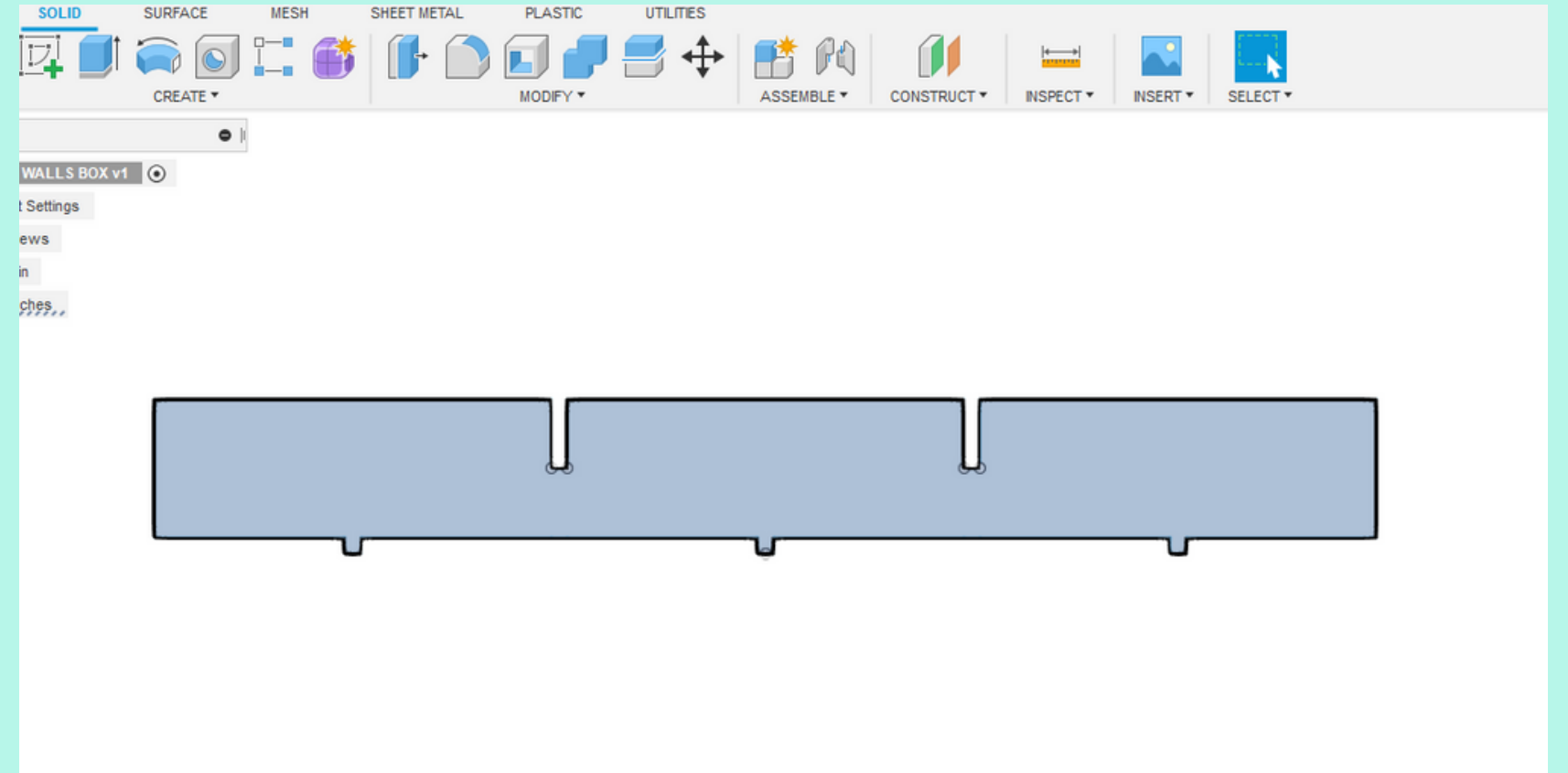
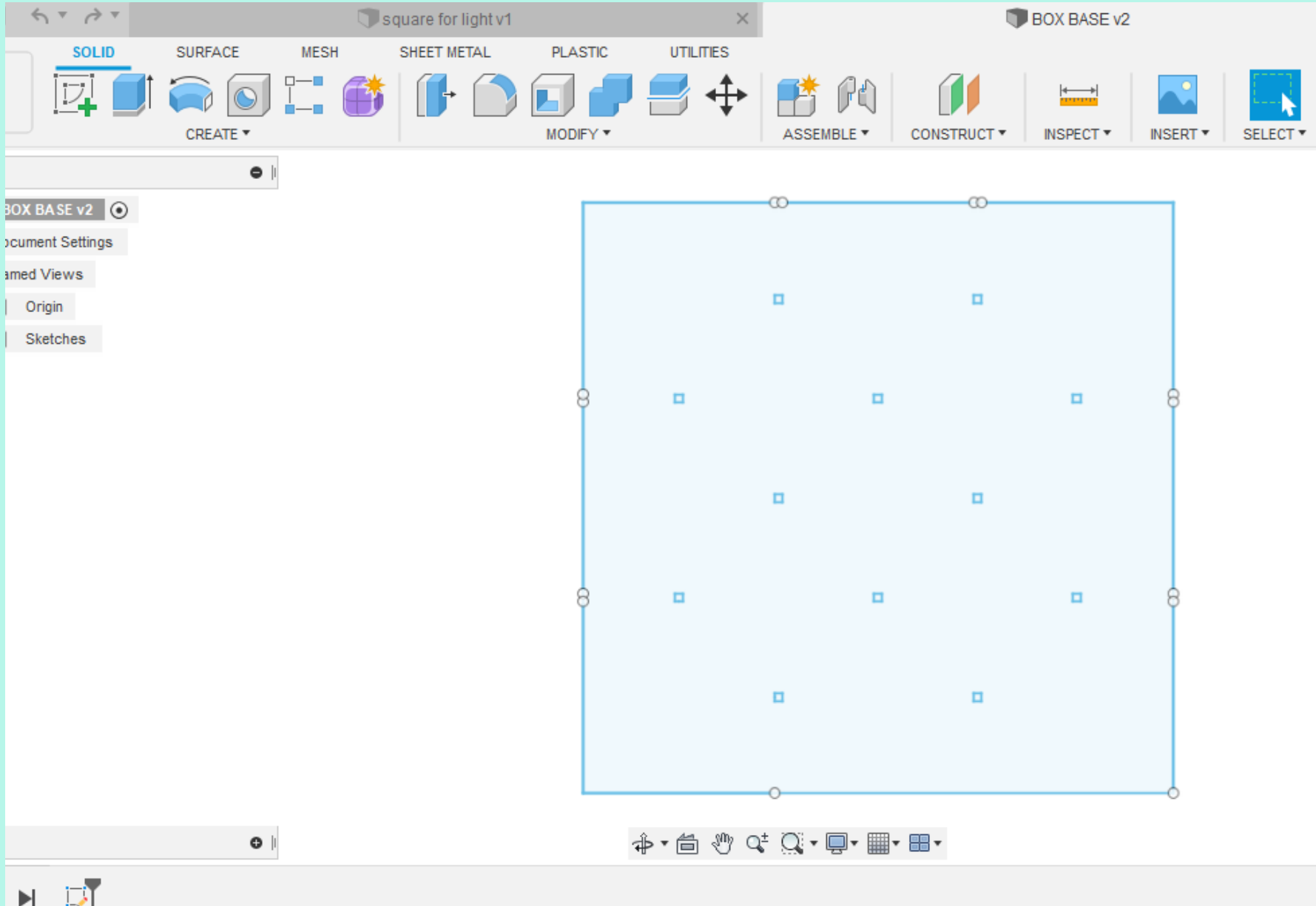
We started to make the design of the box based on the measurements of the plywood that we had chosen which is 4mm. Then we also started to work on the code to be able to turn the LED ring with a button. We had some trouble findind the correct measurements at first but then we managed it and continue in the designing process.



May 25th

We finished the design for the box and laser cut it in order to assemble it. We had some trouble finding the proper glue but we manage to make it work. Also we where making the finishing touches to our code of the LED ring. We also made the finishing touches of some components of the inside of the board.





May 31st

We finally finished integrating all of the components that go inside the box. We decided to put some foam in order to fill the free space between the bottom of the box and the actual texture to keep it light but functional. We also change some components of the code to leave only normal light colors in the pattern of the LED ring.

