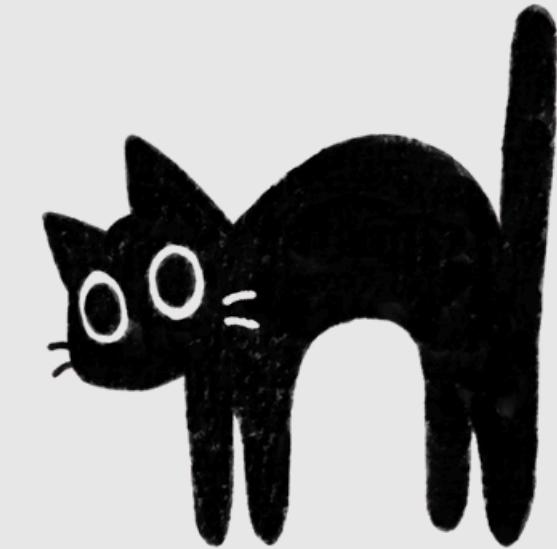


# SCHRÖDINGER'S CAT



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# Our Idea

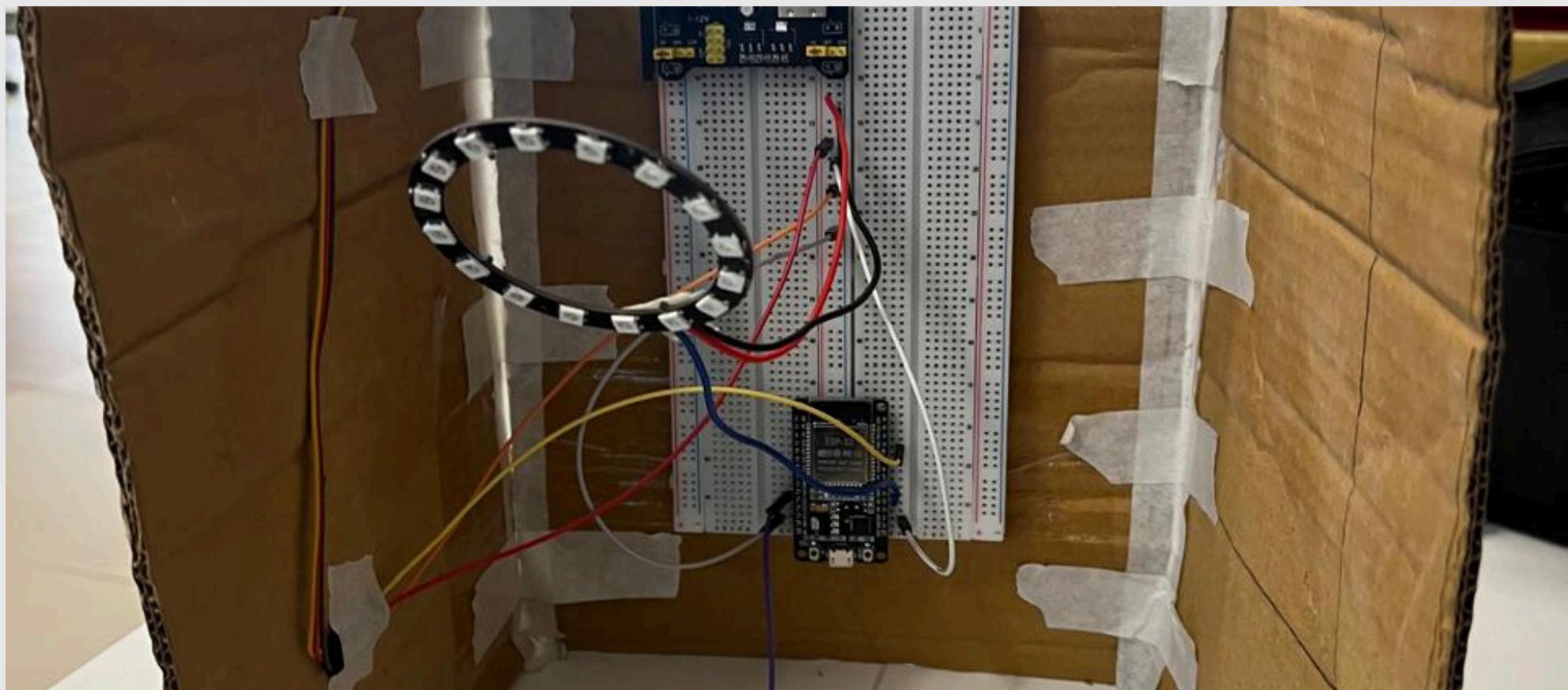
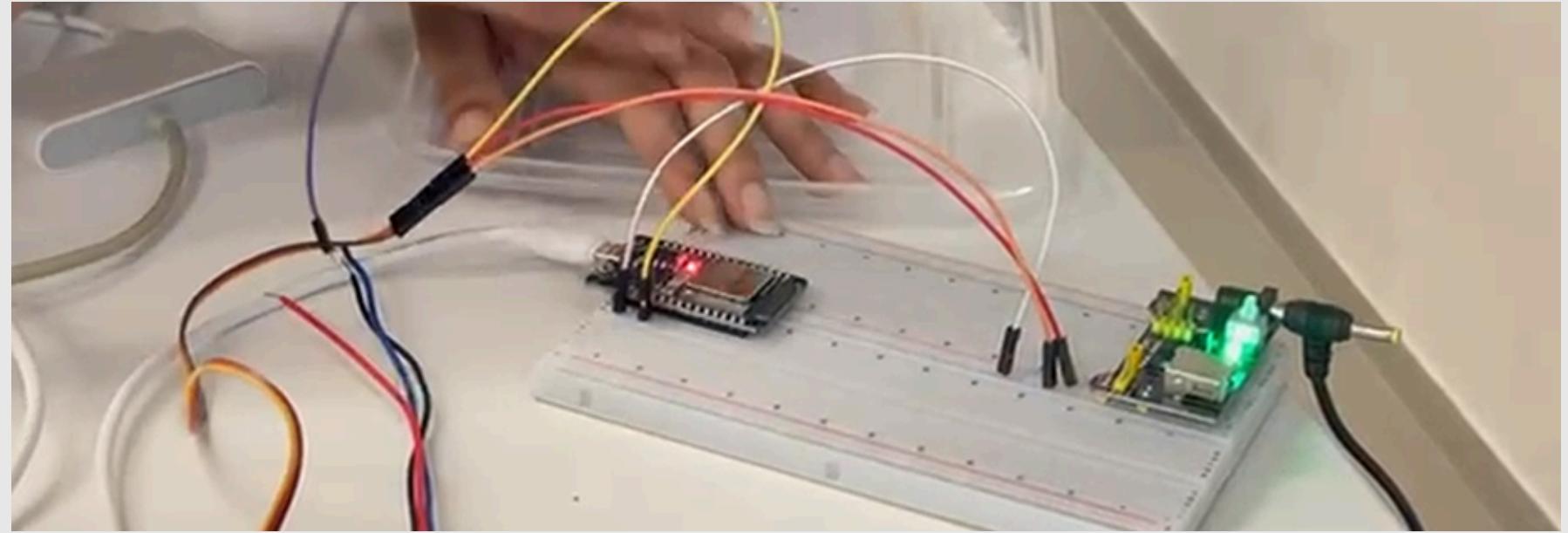
We wanted to create a toy based on Schrödinger's Paradox. A cat is in a box but you don't know if it's dead or alive until you open it. We ideated a game based on this principle using capacitive touch to determine whether the cat would appear with a servo motor opening the box or would remain dead, signalled by the neopixel.





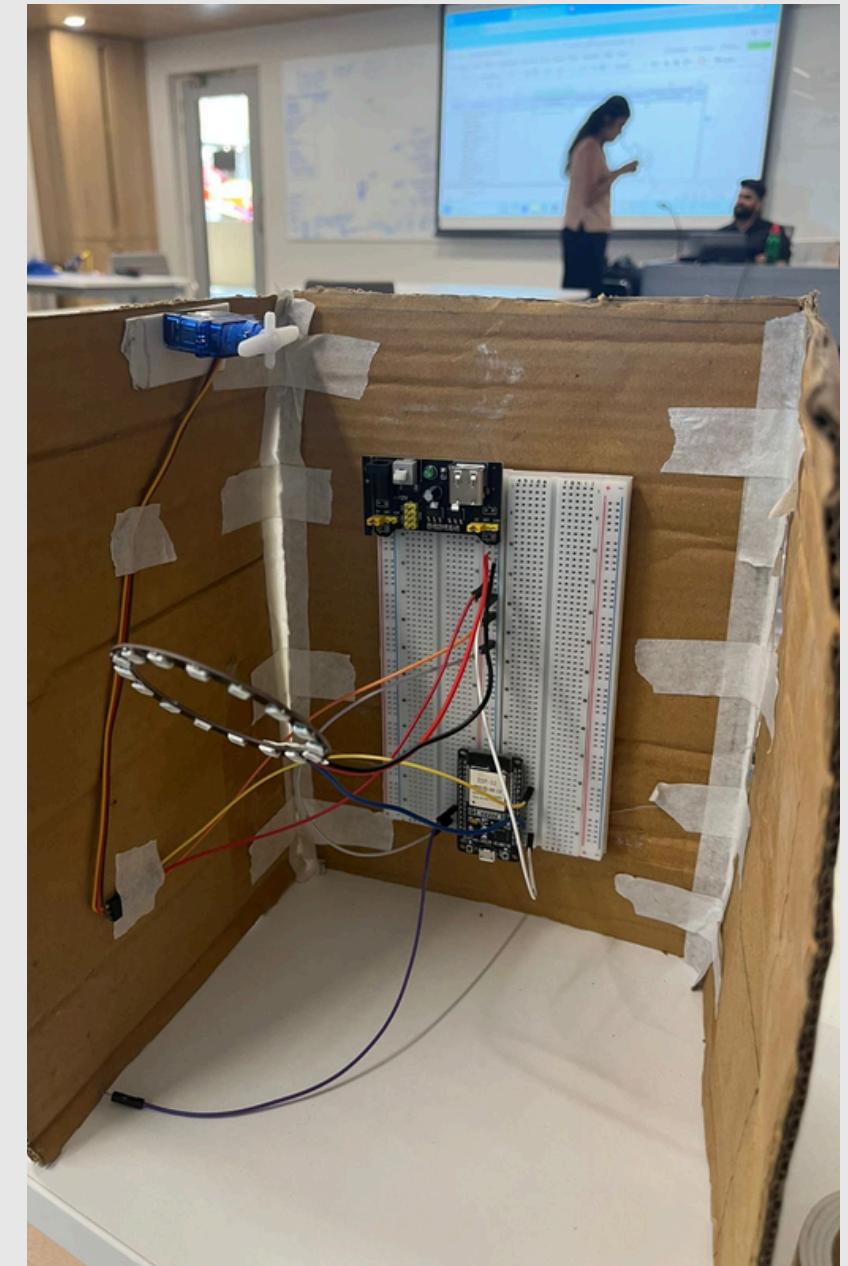
# Iterations And Prototyping

We started out with inspiration from lucky Chinese cat toys and jack-in-the-box toys. We combined our ideas and decided on the final components- a servo motor (to open the box), capacitive touch (input) and a neopixel (output feedback). Initially, we tried multiple code variations including putting the capacitive touch range to specific numbers and having the neopixel respond to different objects with different colours. Through trial and error we eventually reached our final product.



# Final product

Our final product is a toy that reacts based on capacitive touch. A touch pad detects the touch value of the user- if the value is less than 200, the servo motor moves and displays a cat as well as cycles through a neopixel animation. If the value is more than 200 the neopixel blinks red and the cat stays hidden.



## Servo Motor

The servo motor is coded to rotate enough to open the box then return to its default position

## Touch pad

The TouchPad reads value of the users input to trigger all other mechanisms of the system

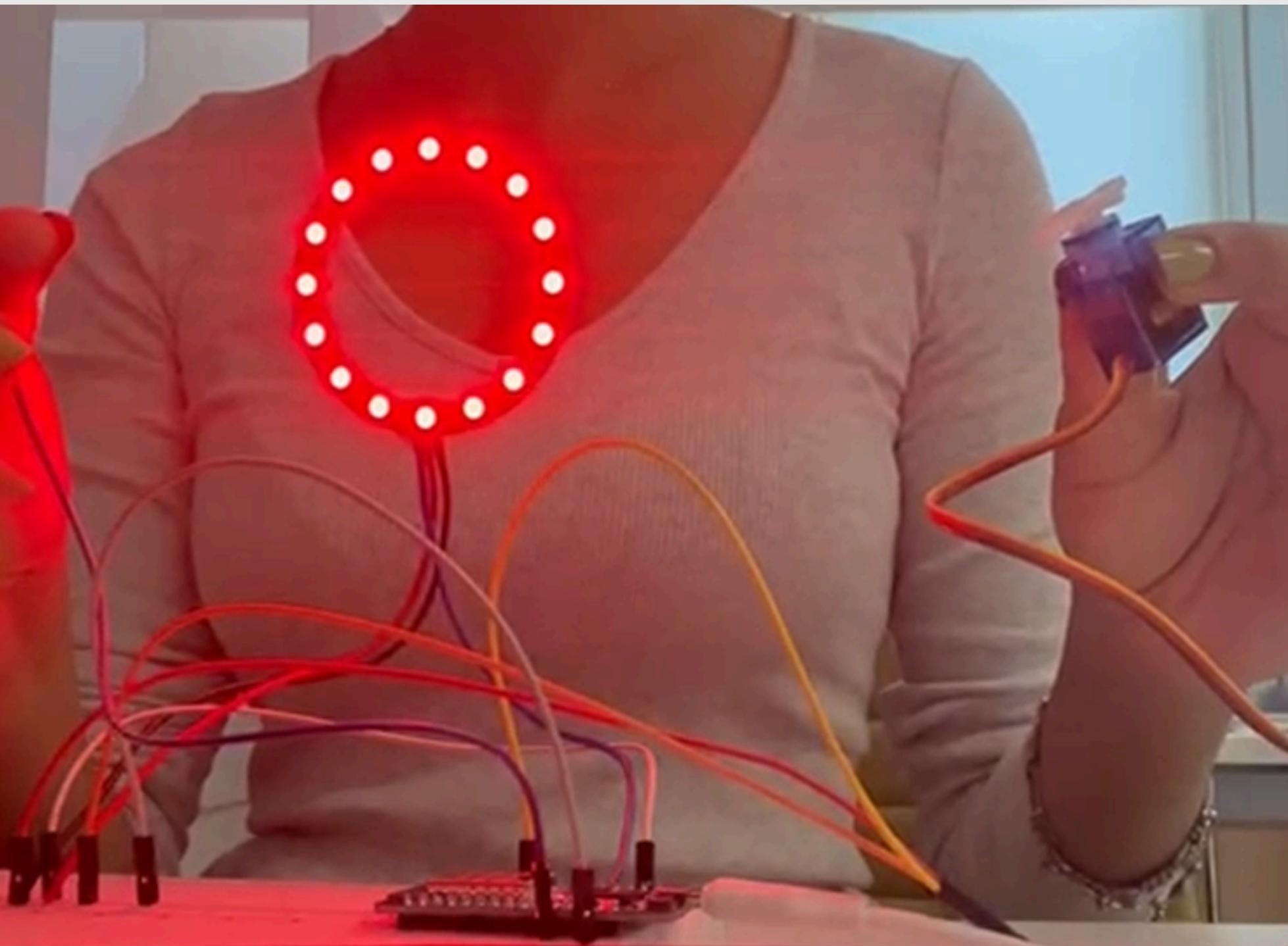
## Neopixel

The NeoPixel uses lists and basic lighting to indicate whether the cat is shown or not.





# Learnings and Pain Points



Our biggest pain points through out the process were

- **Time Delays**

During the coding, our capacitive touch and neopixel timings were off making the outcome “wonky”. We used print statements to check where this issue occurred in our code. We finally realised the time.sleep statement was in the wrong place.

- **Physical Circuit**

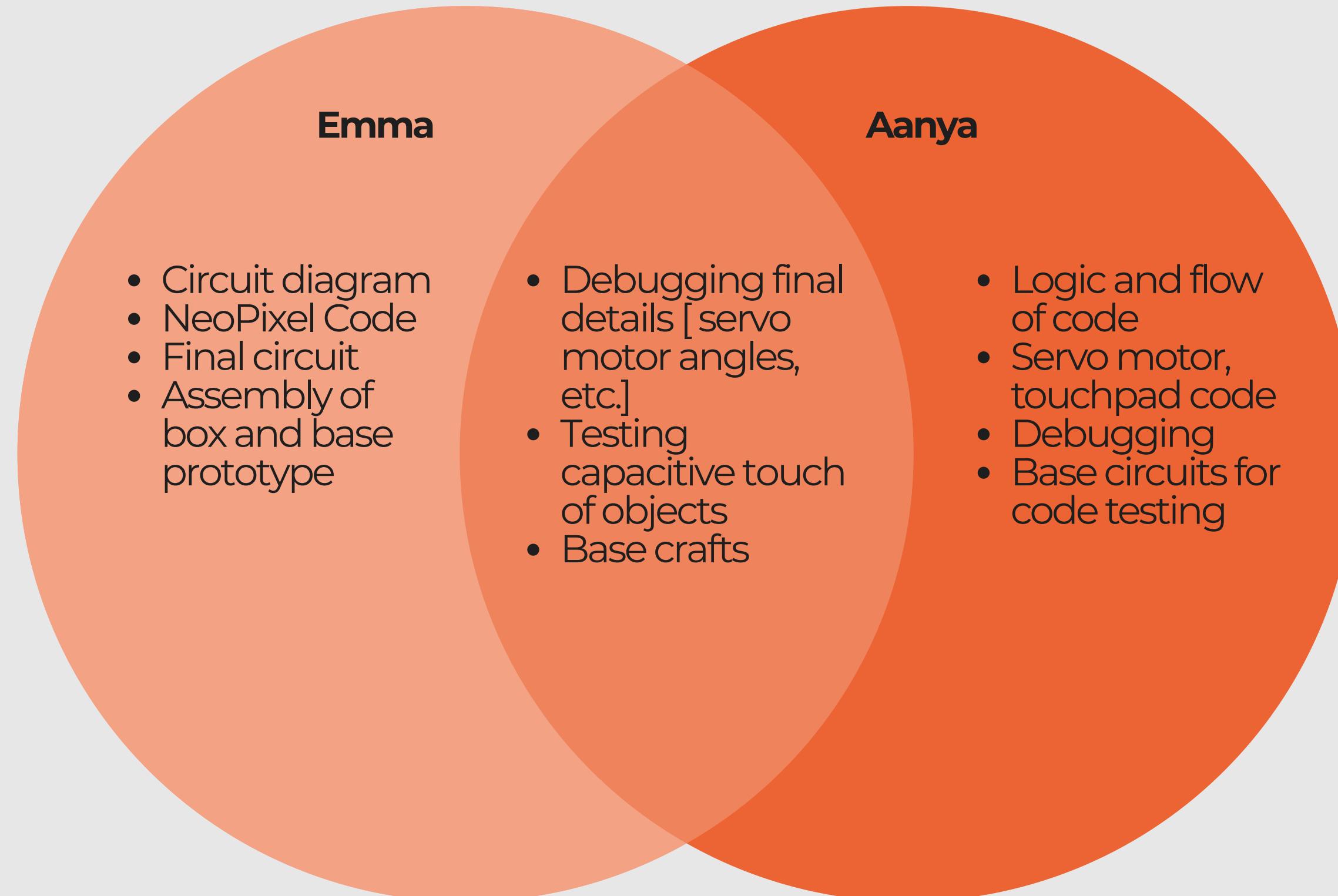
The servo motor itself can carry a specific weight, and was constantly breaking unable to support the weight of cardboard, which led us to remaking the lid out of paper. The motor positioning (close to the end of the lid) also determined how much it opened.

- **Elif loops**

We wanted the neopixel to be off and only respond to a user's input. To achieve this we tried to experiment with if and elif loops.



# Contributions





thankyou

