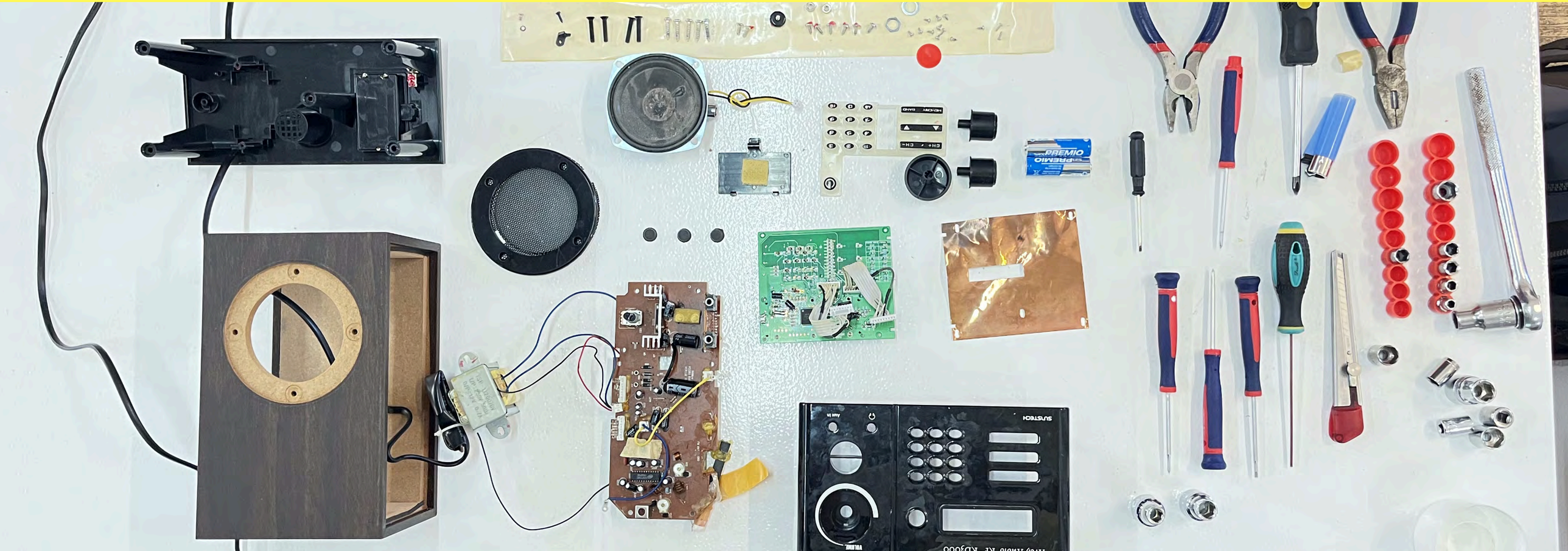
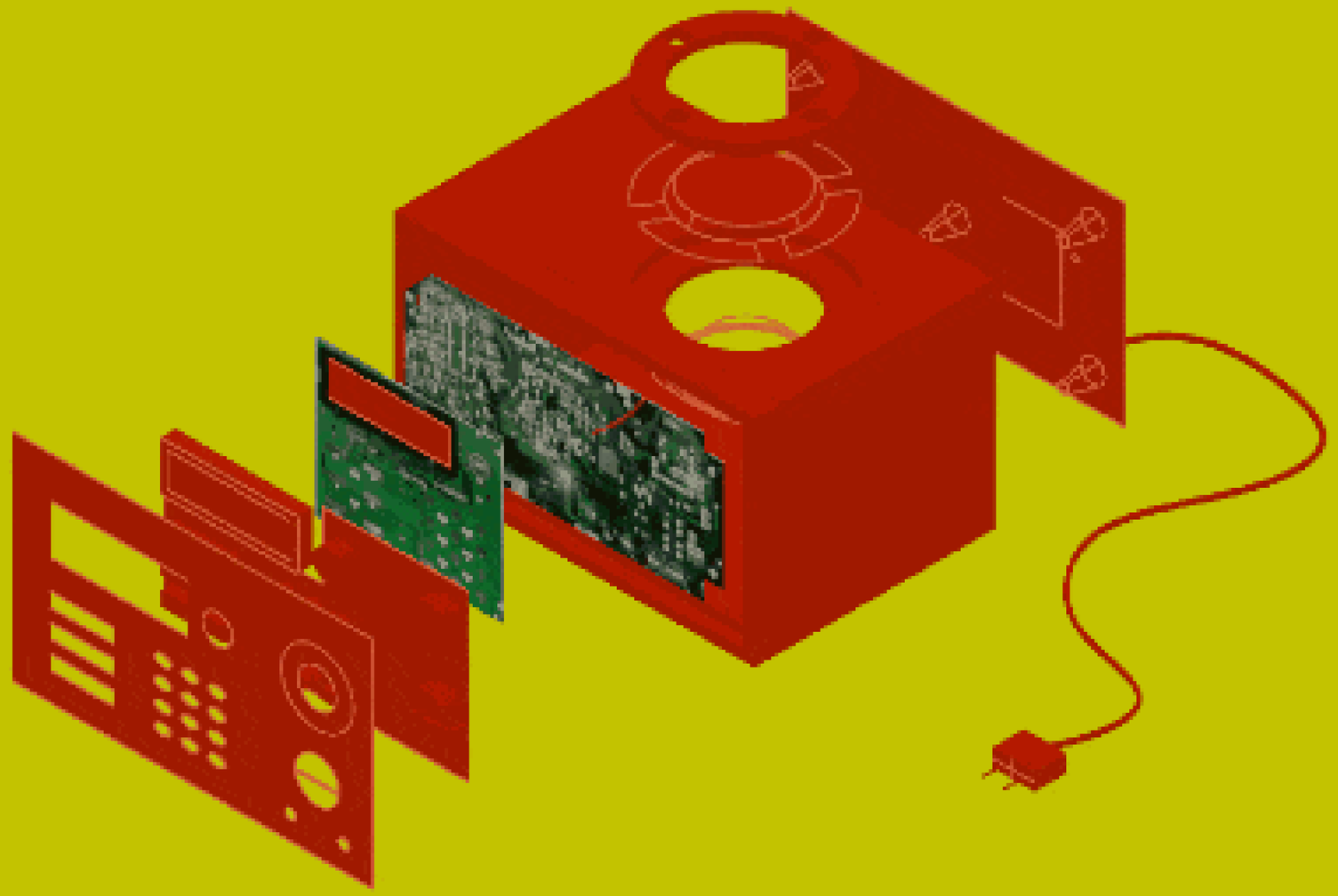
HANNAH PEEVEY, ISHAN MUDGAL, MARYAM SHOJAEI, SILA KARA

NOV2025

The Radio





The Concept

The Joy Killer is a re imagined version of the classic children’s toy, the “Jack in the Box” designed to expose the hidden truth behind the magic of Christmas.

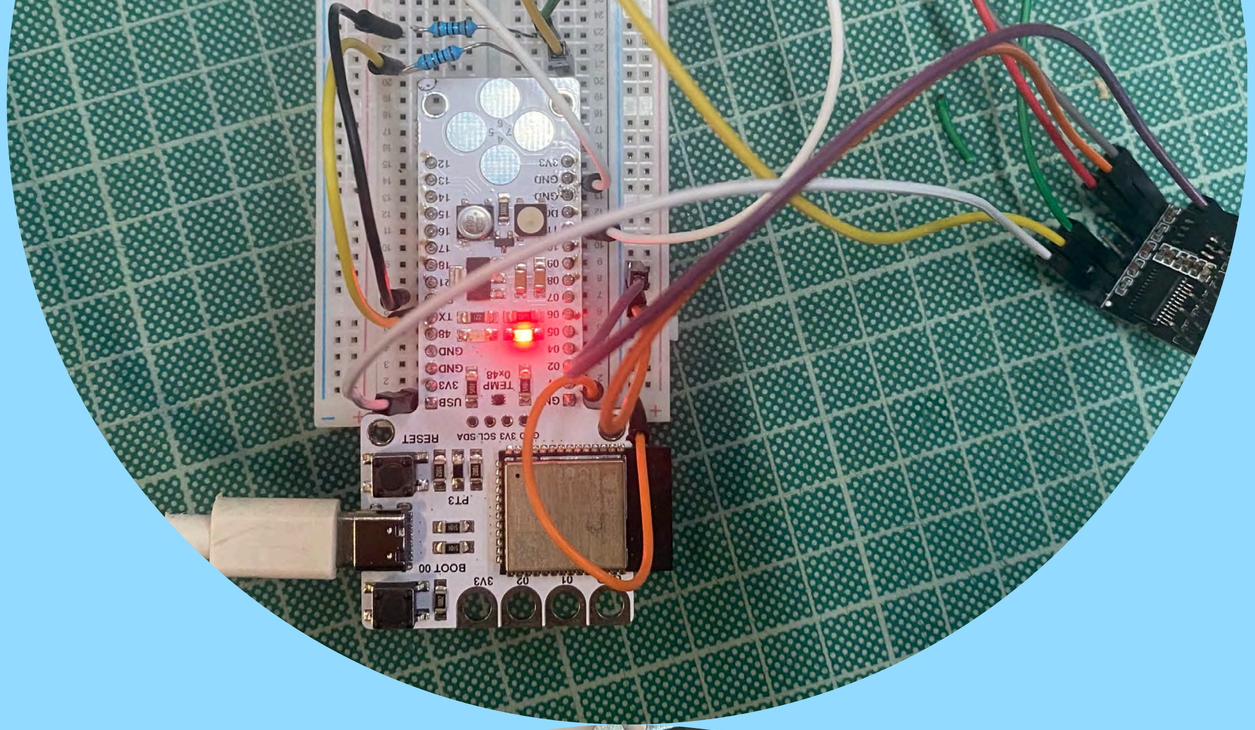
The Design

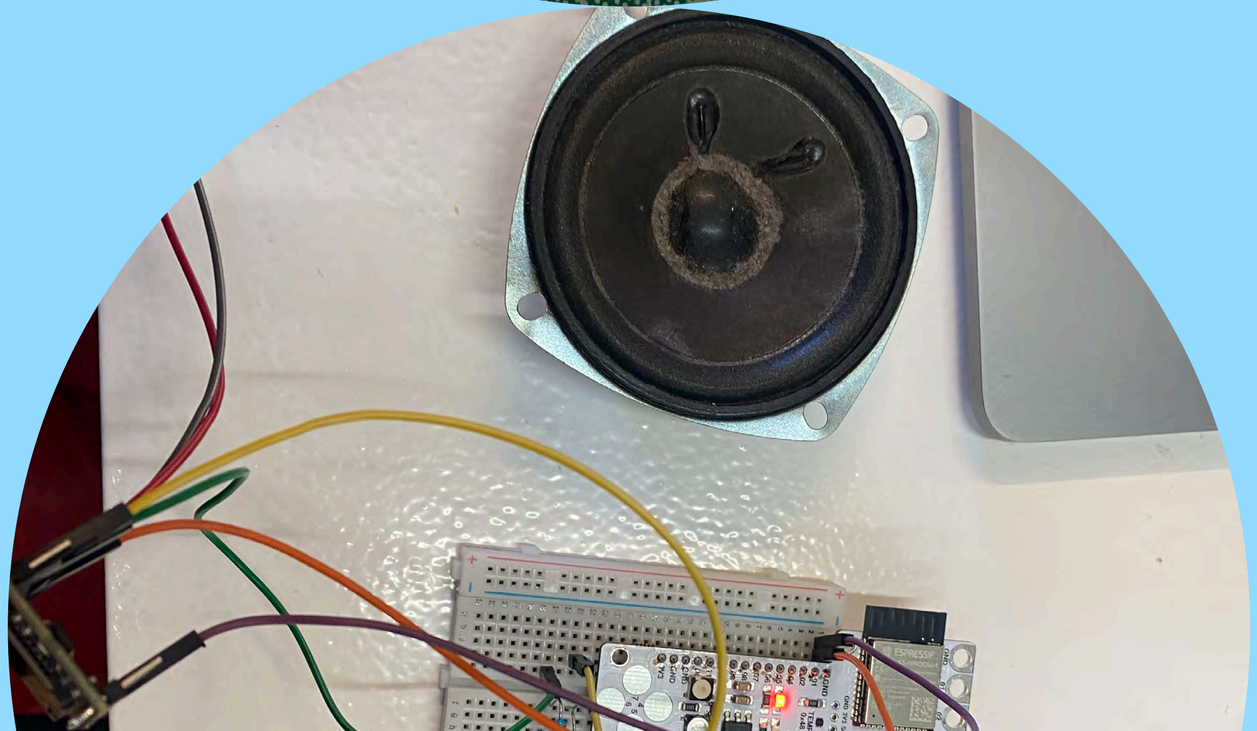
We repurposed a **Sunstech vintage radio**, completely gutting its internal components and transforming the existing casing into the shell for our device.

The opening where the original speaker once was now serves as the stage for our mechanical clown.

Inside the box, three gears powered by an Arduino and controlled through a joystick, animate the clown's pop up experience.

When the joystick is pushed upward, the system triggers the clown to spring through the speaker opening and deliver a prerecorded message revealing to all naive children that: "Santa is not real."





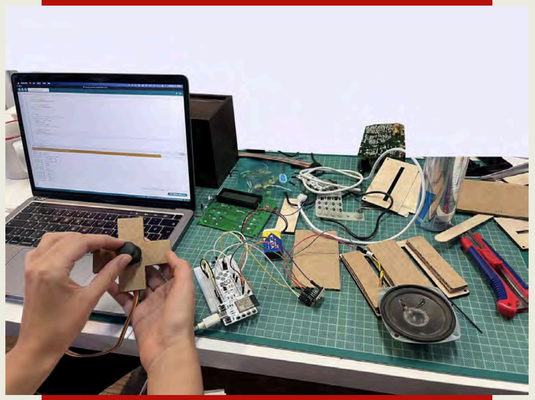
1

Initial Prototypes

Exploring the internal spatial constraints and motion. with quick mock-ups.

2

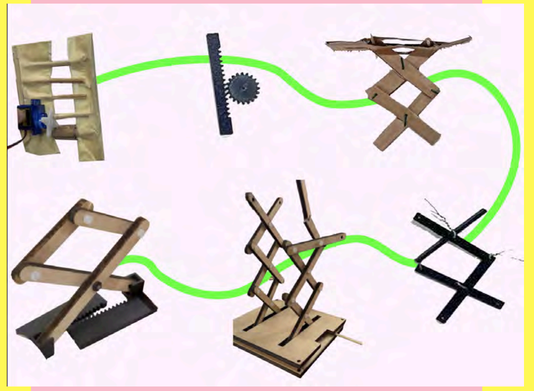
Code Trials



Testing the code to store audio in the SD card and control the audio with arduino.

3

Mechanism Evolution



Iterating on the accordion structure designed for the jumping movement.

Initial Prototypes

We repurposed the speaker with our own audio using the amplifier of the main board from the radio.

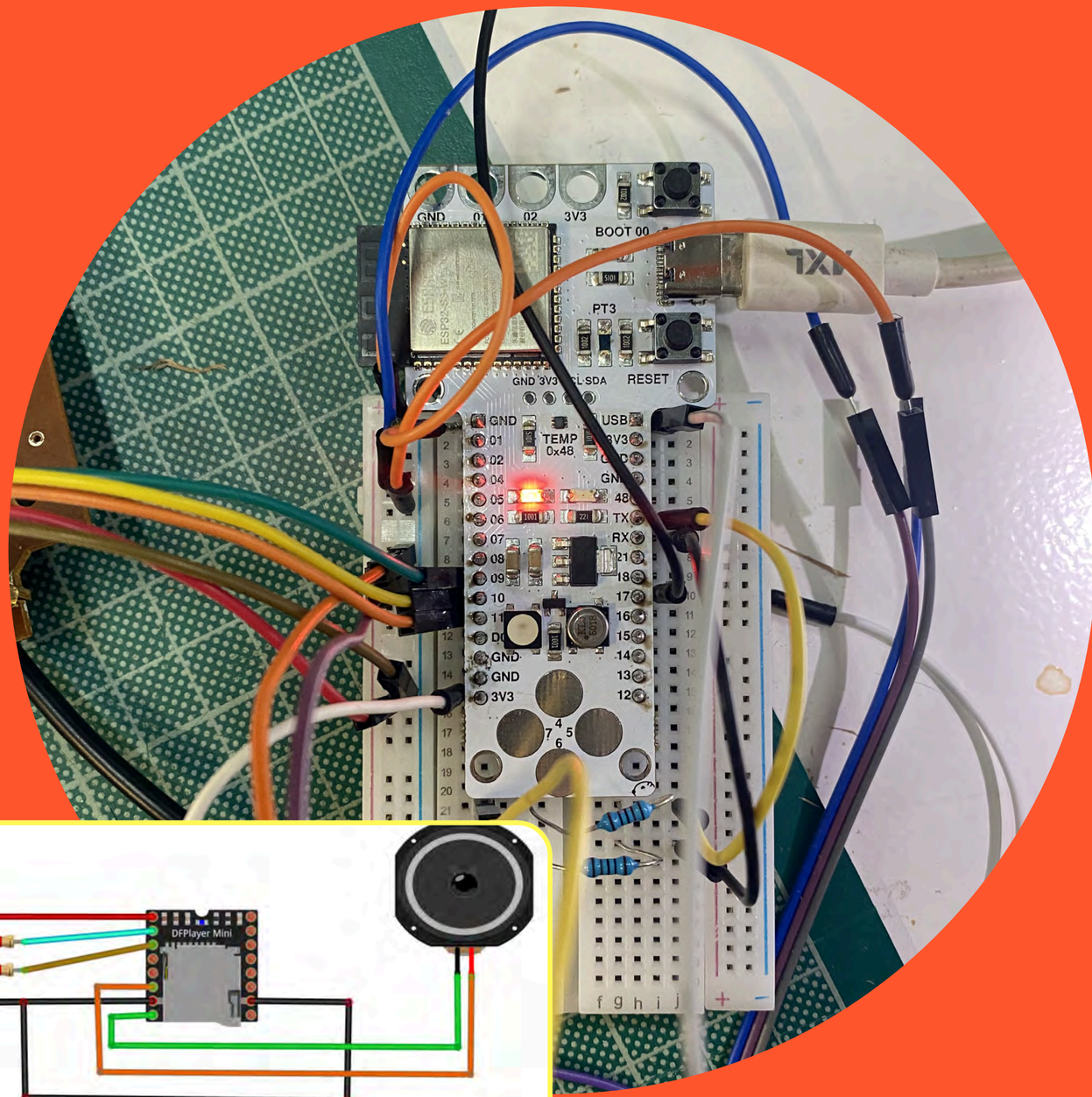
We reprogrammed the touch sensors from the original radio buttons to stimulate different sounds.

Our main aim was to combine these two hacks to create our own useless mechanism.

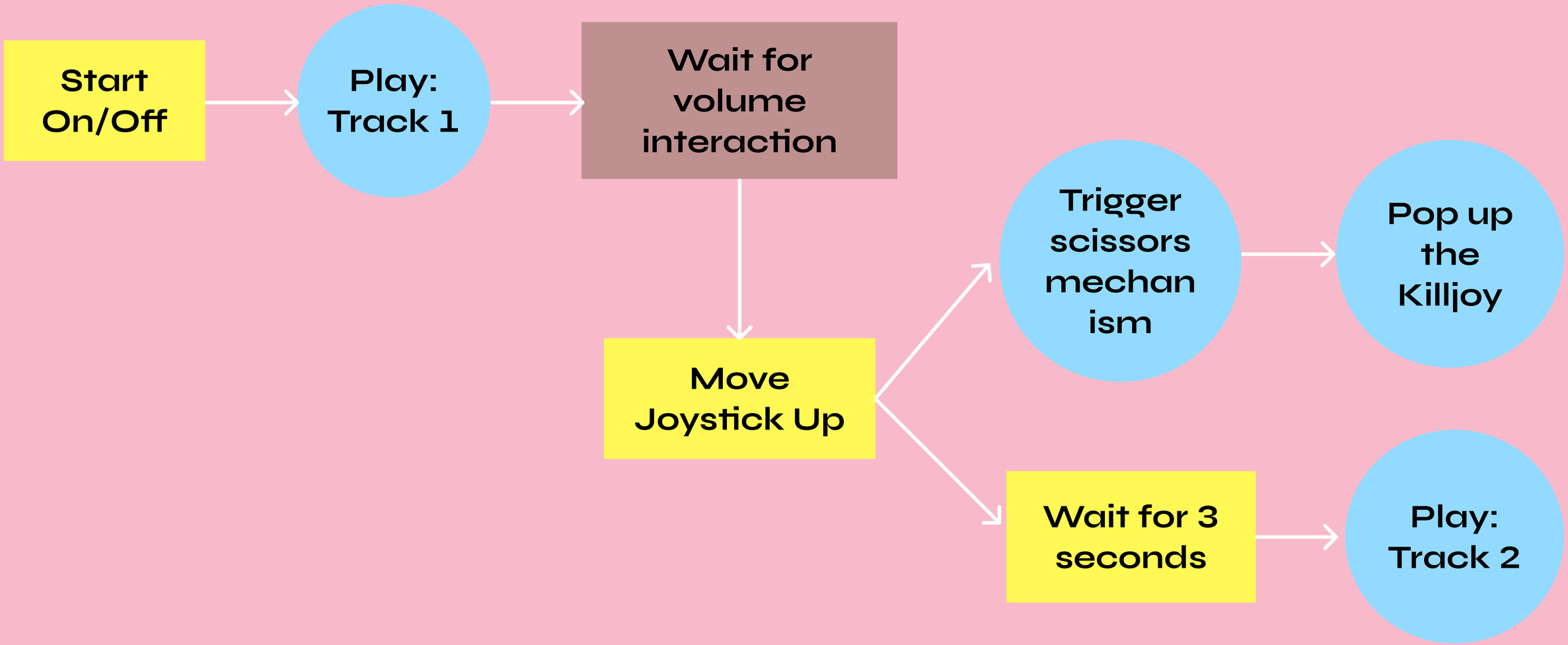
The Code

We used a Barduino, DFmini player, a speaker and a joystick. We recorded the audio to store inside the DF Player, and controlled the audio using joystick; when the joystick is used the next audio is played.

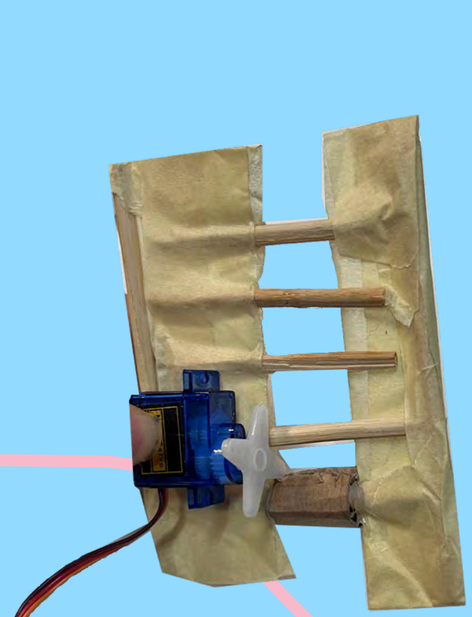
```
void loop() {

  // this reads the button
  int state = digitalRead(buttonPin);

  // Optional: show DFPlayer state every 2 seconds
  static unsigned long last = 0;
  if (millis() - last > 2000) {
    last = millis();
    Serial.print("State: ");
    Serial.println(dfPlayer.readState());
  }
  if (state == LOW) {
    dfPlayer.next();
    Serial.println("Next");
  }
  delay(100);
```

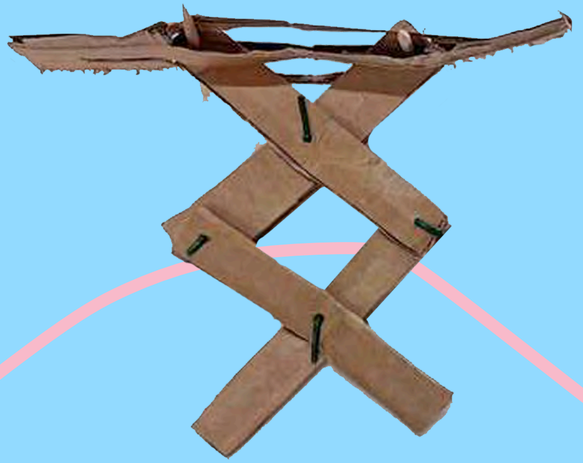


The System

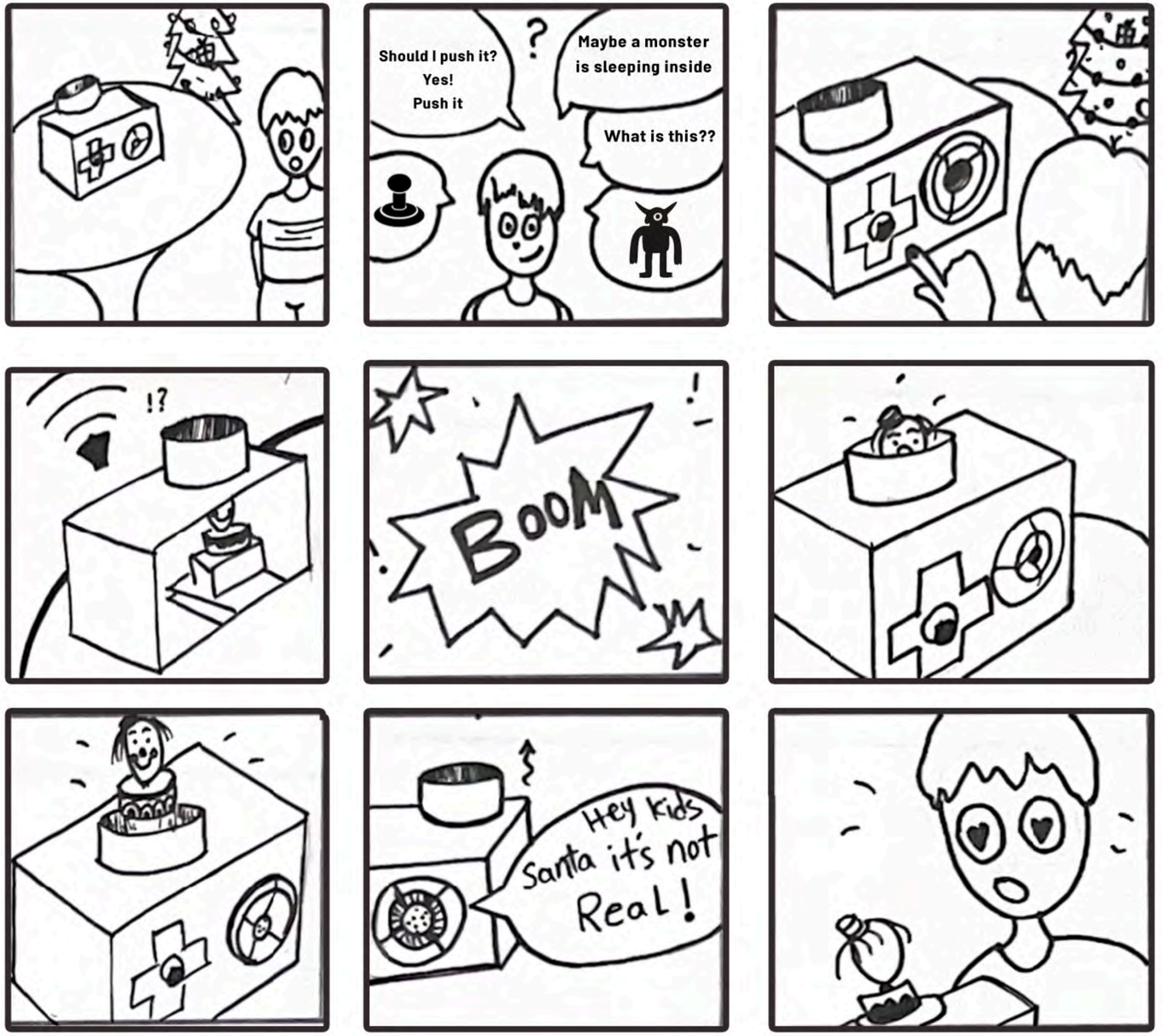

Start
On/Off
Play:
Track 1
Wait for
volume
interaction
Move
Joystick Up
Trigger
scissors
mechan
ism
Pop up
the
Killjoy
Wait for 3
seconds
Play:
Track 2

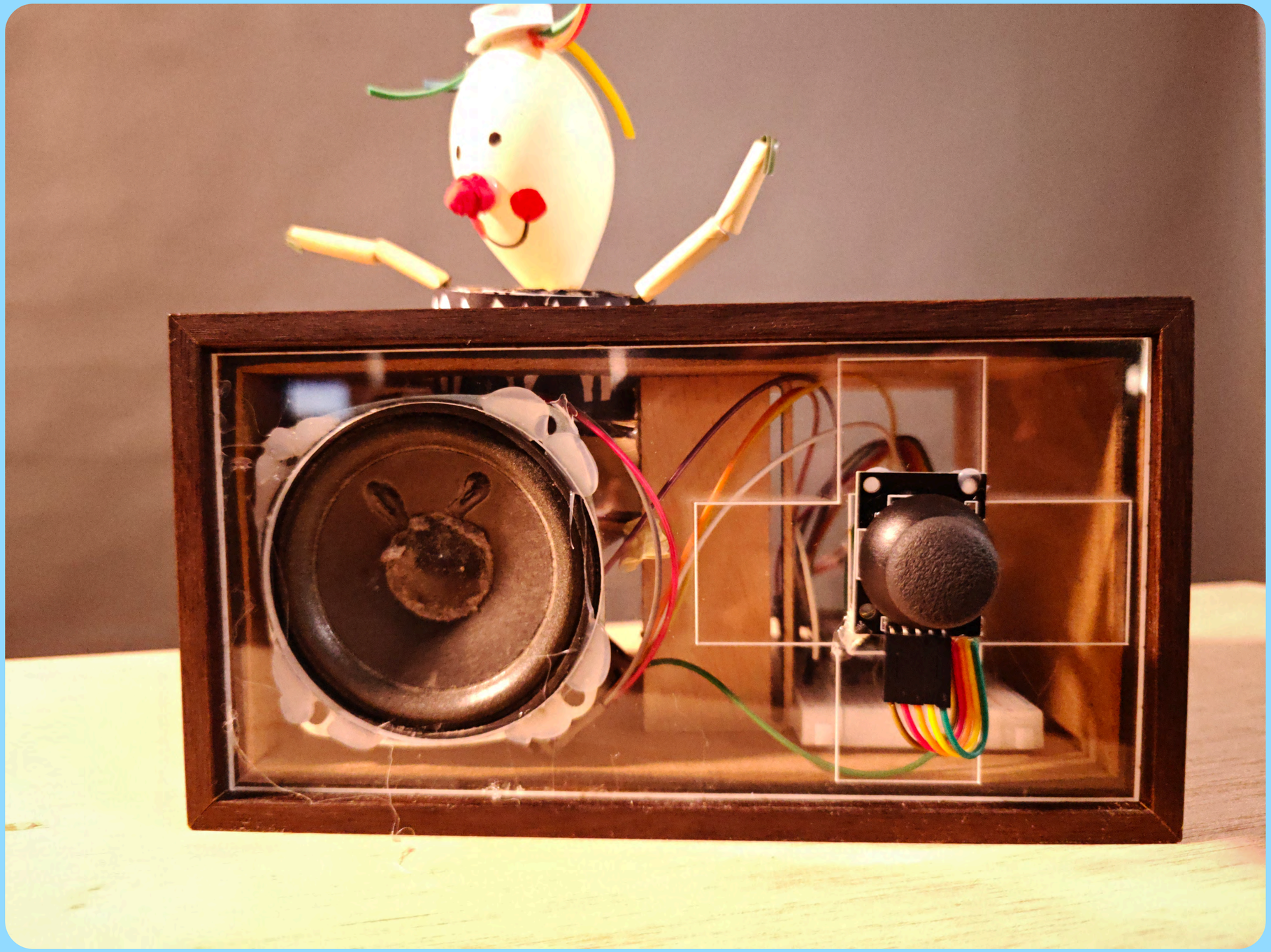
Mechanism Evolution



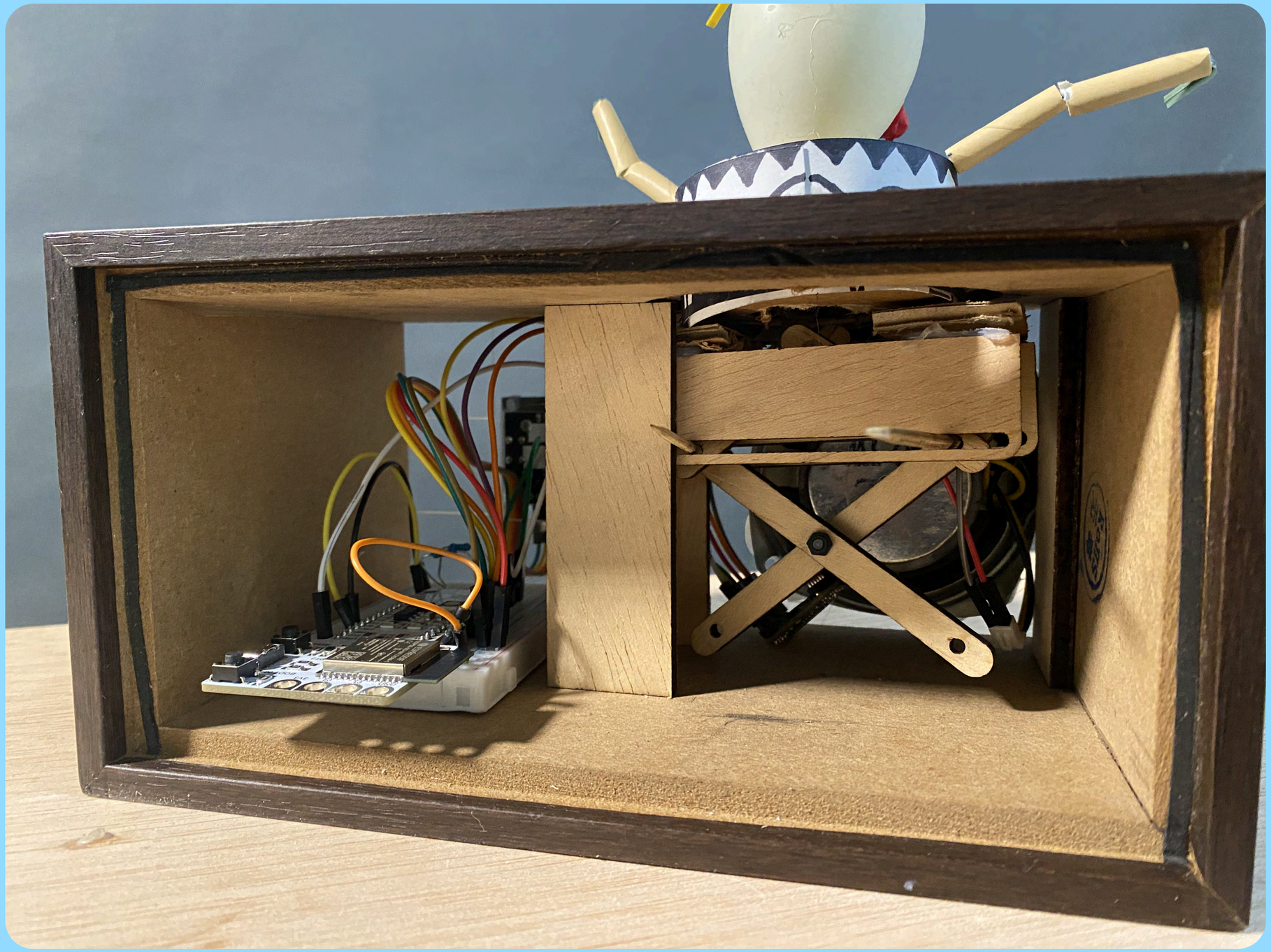


The Storyboard





the front



the back

Thanks

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