MAIN MODEL-

INTERACTIVE TOY

INSPIRED BY-

BASCULE BRIDGE

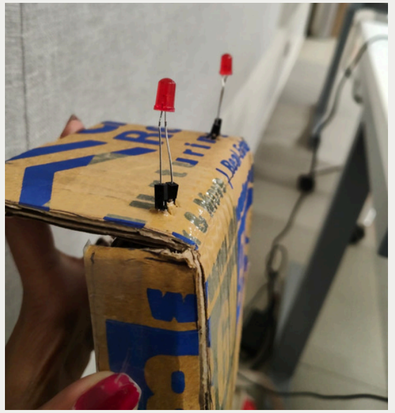
BY SAYONI & JERUSHA

CONCEPT

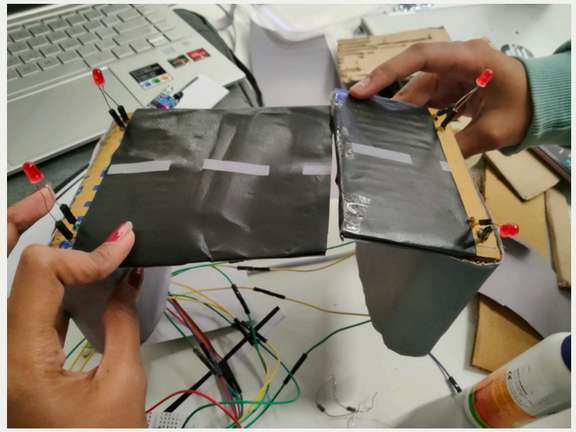
A drawbridge that acts as a movable roadway, pivoting upward on a hinge to allow boats and ships to pass. Now we wanted a playful toy to show this amazing mechanism with the help of motors.

HOW IT WORKED?

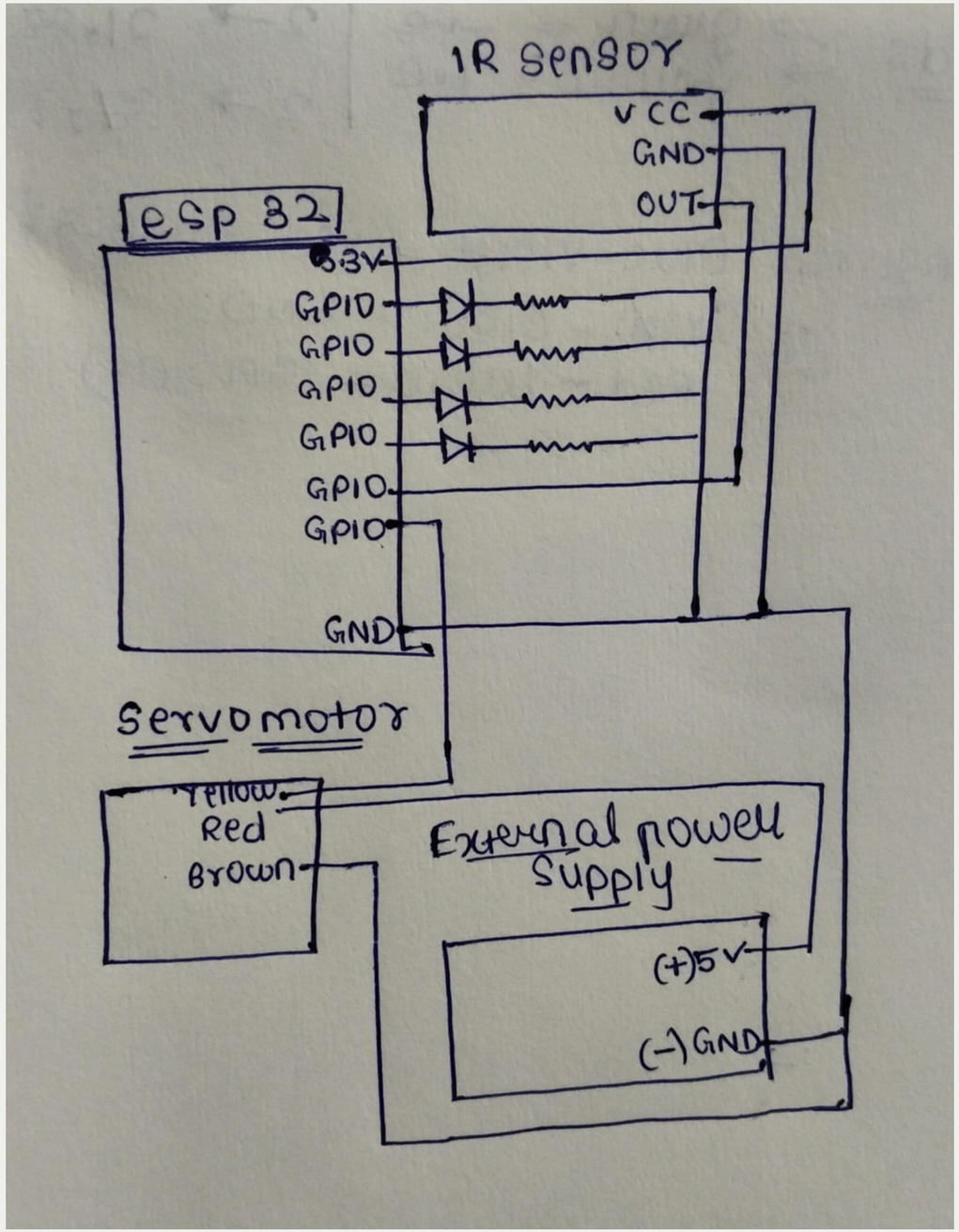
An **IR SENSOR** is attached right below the movable bridge, which triggers the **SERVO MOTOR’s gear** to push it upward when it detects an object.



Red LEDs on either side of the bridge, representing the traffic signals on a drawbridge, to stop oncoming traffic.



CIRCUIT DIAGRAM



CODE

```
from machine import Pin,PWM
import time

led1=Pin(21,Pin.OUT)
led2=Pin(5,Pin.OUT)
led3=Pin(25,Pin.OUT)
led4=Pin(13,Pin.OUT)

sensor=Pin(18,Pin.IN,Pin.PULL_UP)
sm1=PWM(Pin(4),freq=50)
sm2=PWM(Pin(12),freq=50)

while True:
    sensor_val=sensor.value()
    if sensor_val==0:
        led1.on()
        led2.on()
        led3.on()
        led4.on()
        print("ship coming")
        sm1.duty(77)
        sm2.duty(77)
        time.sleep(0.1)
    else:

        led1.off()
        led2.off()
        led3.off()
        led4.off()
        sm1.duty(50)
        print("ship not coming")
        time.sleep(0.1)
    time.sleep(0.2)
```

Individual contribution (both ideas)-

SAYONI-

Concept of the model
Circuit Diagram
Actual Circuit connection(connecting to model+breadboard)
Coding
Game making
PPT Making

JERUSHA-

Actual circuit connection (connecting it to model)
TOY making (model)

Model video

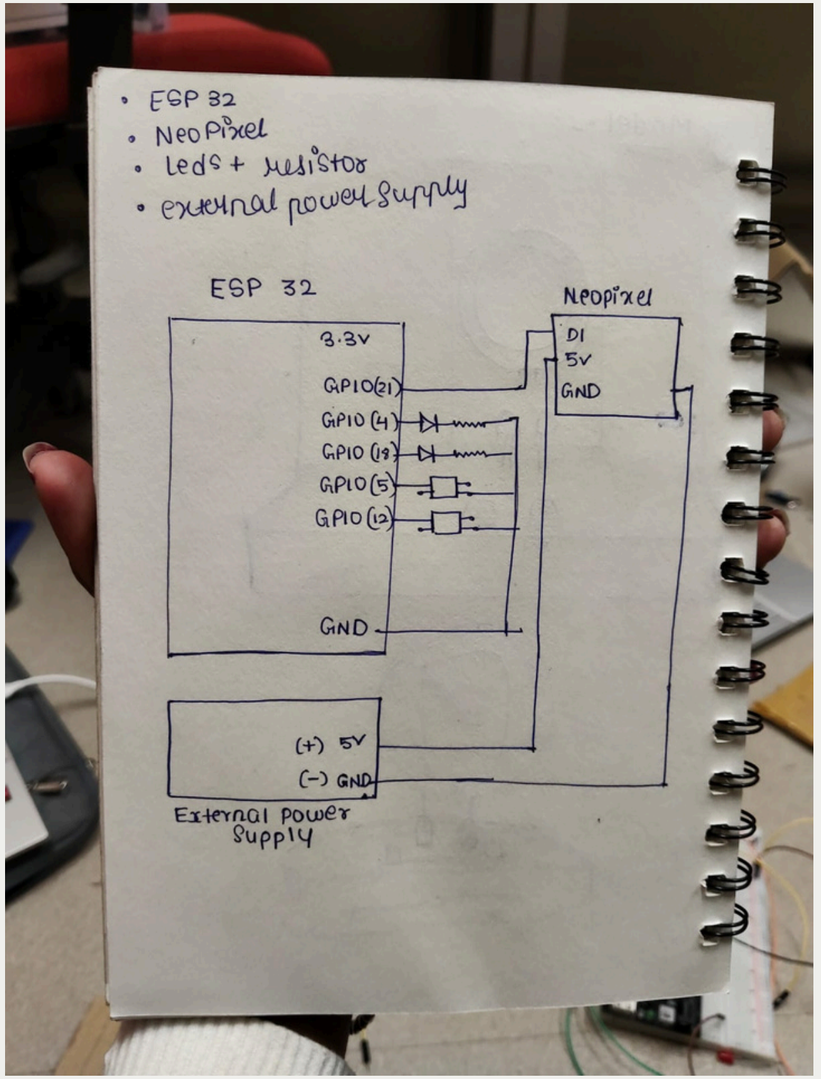
https://youtube.com/shorts/L8v1nlyYFaI?si=66qrHqwhKf7Yj3Ja

BACKUP MODEL-

INTERACTIVE GAME

MINE SWEEPER

we dropped this
because the neopixell's
wire was damaged



BY SAYONI & JERUSHA

CONCEPT

We wanted to built a game with neopixel and buttons but it was suppose to be engaging.Inculcating random elements to make it interesting.The mine sweeper game is inspired by the real one where you have to press numbers to detect BOMB!

WORKING

When you start the game the countdown begins from 10 to 0 and countdown speed increasing as it reaches 5.You have to press any one button out of 2 to defuse the bomb,either of them are correct but that;s randomly decided.If you do it correctly it shows’defused’ otherwise ‘blast’. If timer ends its says ‘TIME UP’. The NEOPIXEL with give the final reveal whether you detected the correct one or not.

CODE-

```
from machine import Pin
import time
import neopixel
import random


pb1 = Pin(5, Pin.IN, Pin.PULL_UP)
pb2 = Pin(12, Pin.IN, Pin.PULL_UP)

led1 = Pin(4, Pin.OUT)
led2 = Pin(18, Pin.OUT)

disc = neopixel.NeoPixel(Pin(21), 16)
#random for choosing
correct = random.randint(1, 2)

print("Bomb Activated!")
time.sleep(1)

count = 10
last_time = time.ticks_ms()
speed = 0.3   # normal blink speed
```

```
while True:


  if pb1.value() == 0:
    if correct == 1:
      print("BOMB DEFUSED")
      for i in range(16):
        disc[i] = (0, 255, 0)   # Green
    else:
      print("BOMB BLAST")
      for i in range(16):
        disc[i] = (255, 0, 0)   # Red
    disc.write()
    break

  if pb2.value() == 0:
    if correct == 2:
      print("BOMB DEFUSED")
      for i in range(16):
        disc[i] = (0, 255, 0)
    else:
      print("BOMB BLAST")
      for i in range(16):
        disc[i] = (255, 0, 0)
    disc.write()
    break #breaking the loop to go to other loopt
```

```
 #countdown
   current = time.ticks_ms()
   if time.ticks_diff(current, last_time) >= 1000:
     print(count)
     count -= 1
     last_time = current

   # Faster blinking in last 5 seconds
   if count <= 5:
     speed = 0.08
   else:
     speed = 0.3
 #Alternate blink
   led1.on()
   led2.off()
   time.sleep(speed)

   led1.off()
   led2.on()
   time.sleep(speed)

   #ending the round
   if count < 0:
     print("TIME UP! BOMB BLAST")
     for i in range(16):
       disc[i] = (255, 0, 0)
     disc.write()
     break

   time.sleep(0.2)
```

Actual Working of the second Model-
(by SAYONI BID)

https://youtube.com/shorts/XULLxVZ94zA?si=zPuC7Fd5b1tGloZW