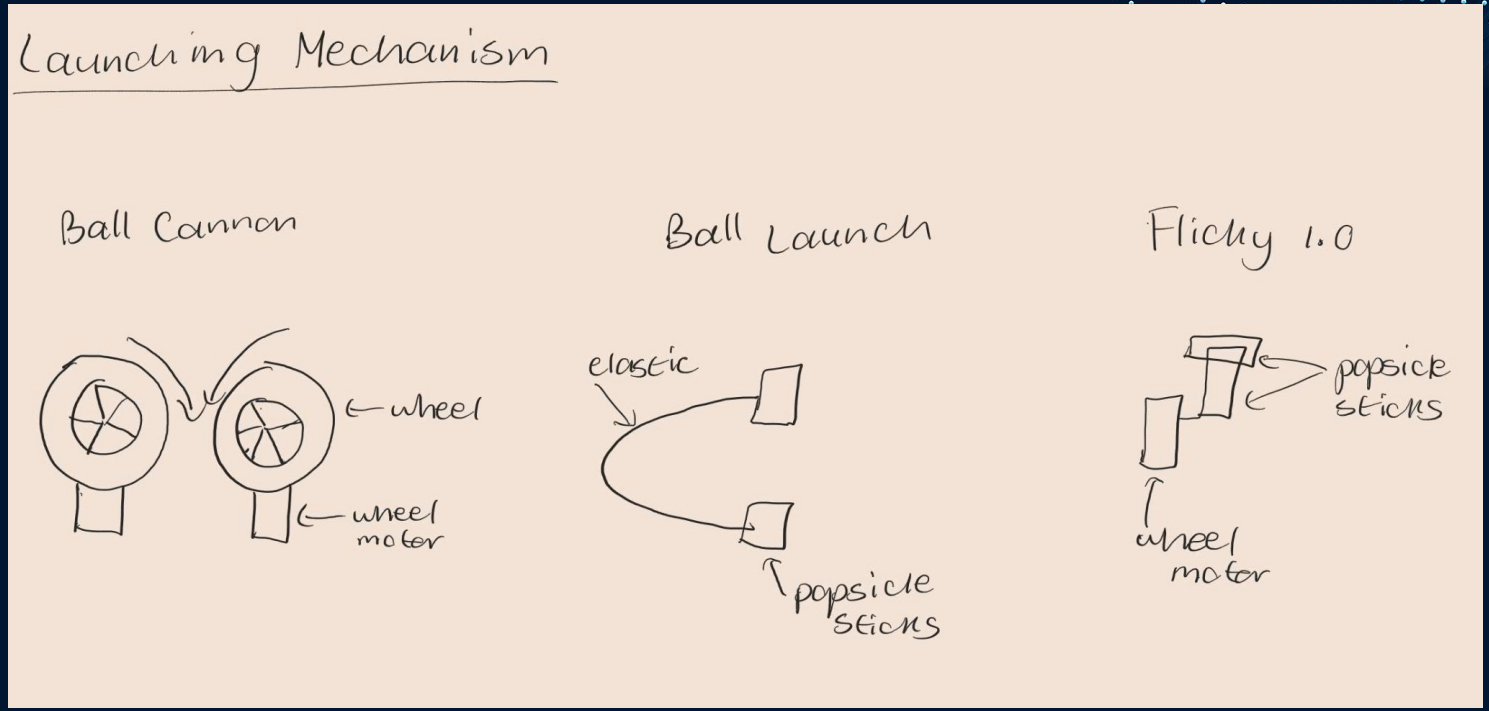
Flicky 2.0

Bear Squad

Problem Statement

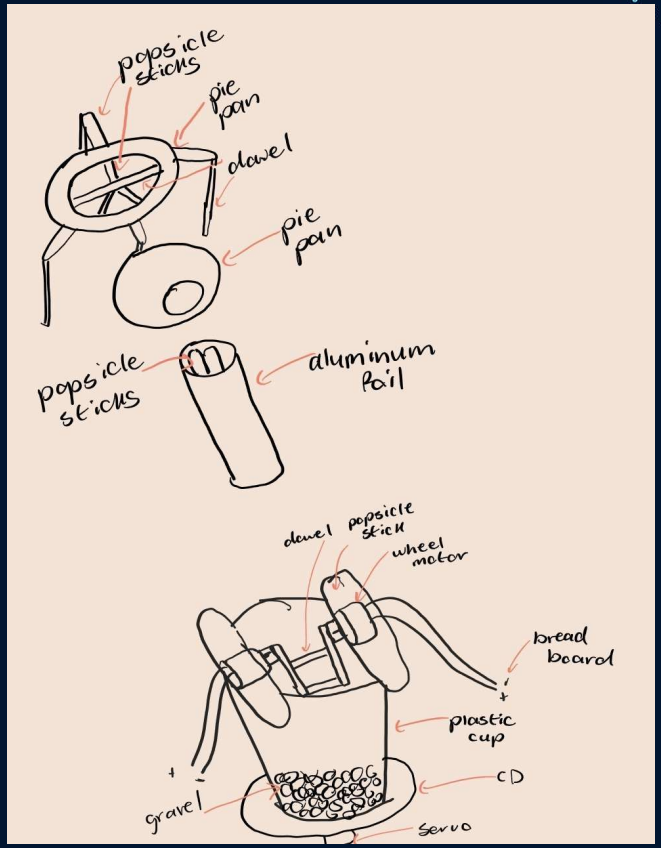
Build an autonomous mechanism to place nuclear pellets into waste bins

Design Iterations

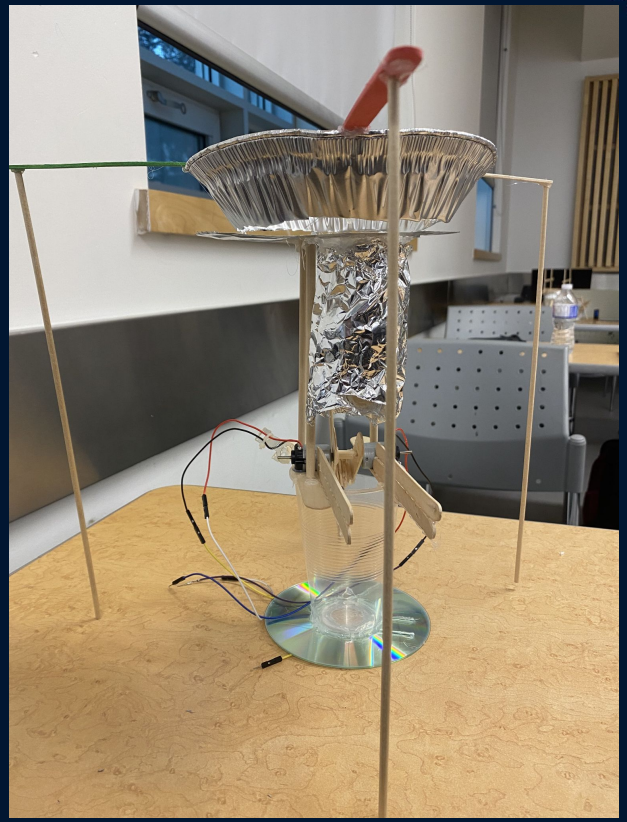


Design Iterations

Final Blueprint

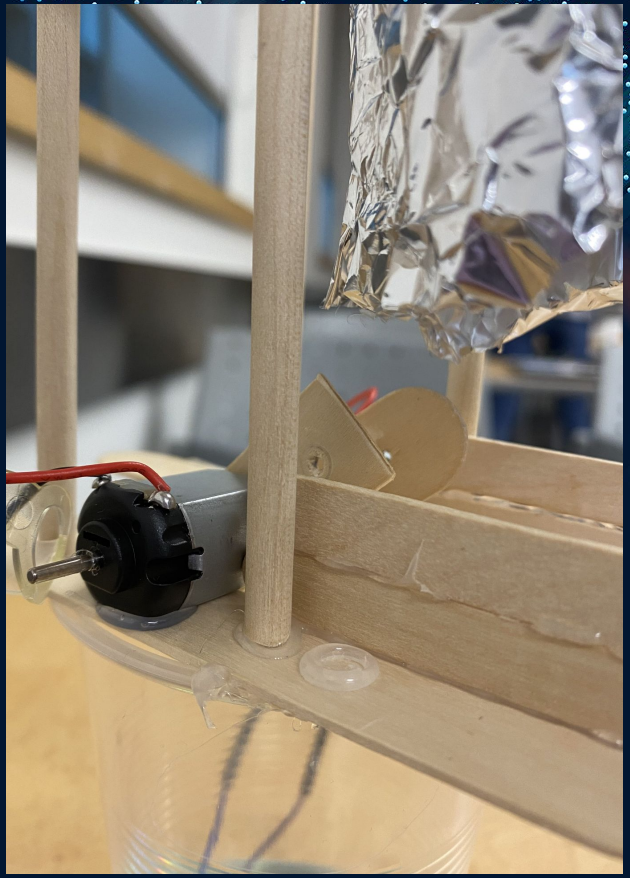


Final Design



Unique Features

- Double motor propulsion
- Guided launch
- Sledge hammer styled launcher



Mechanism

1. Drop the ball onto the pie pan shell
2. The ball goes through the aluminum foil tube
3. Motors rotate in opposite directions
4. Sledge hammer hits the ping pong ball

Autonomous Loading Mechanism

```
#include <Servo.h>

Servo myservo;

int pos = 0;

void setup() {
  // put your setup code here, to run once:
  myservo.attach(9);
}

void loop() {
  // put your main code here, to run repeatedly:
  delay(20);
  for (pos = 0; pos <= 90; pos += 1) { // goes from 0 degrees to 180 degrees
    // in steps of 1 degree
    myservo.write(pos);              // tell servo to go to position in variable 'pos'
    delay(20);                       // waits 15ms for the servo to reach the position
  }
  delay(2000);
  for (pos = 90; pos <= 225; pos += 1) { // goes from 180 degrees to 0 degrees
    myservo.write(pos);              // tell servo to go to position in variable 'pos'
    delay(20);                       // waits 15ms for the servo to reach the position
  }
  delay(2000);
  for (pos=225; pos >=0; pos-=1){
    myservo.write(pos);
    delay(20);
  }
  delay(2000);
}
```

Cost Analysis

Material	Amount Bought	Amount Used	Cost	Theoretical Cost
Plastic Cup	1	1	1000	1000
Motor	2	2	0	0
Pie pan	1	1	1000	1000
Popsicle sticks	18	12	360	240
Dowel	7	6	210	180
Hot Glue	4	4	100	100
Aluminum Foil	6 in	3 in	600	300
CD	2	2	0	0
Servo	1	1	1000	1000
Gravel	100 g	100 g	200	200
Net			4470	4020

Improvements

- More stable base
- Ultrasonic sensor to locate waste bin
- Motor runs conservatively
- Finish Autonomous loading

GitHub for Servo Motor Code

https://github.com/kabirsinghgupta/engcomp2022.git