Tank Tracing Robot Equipped Soft Gripper

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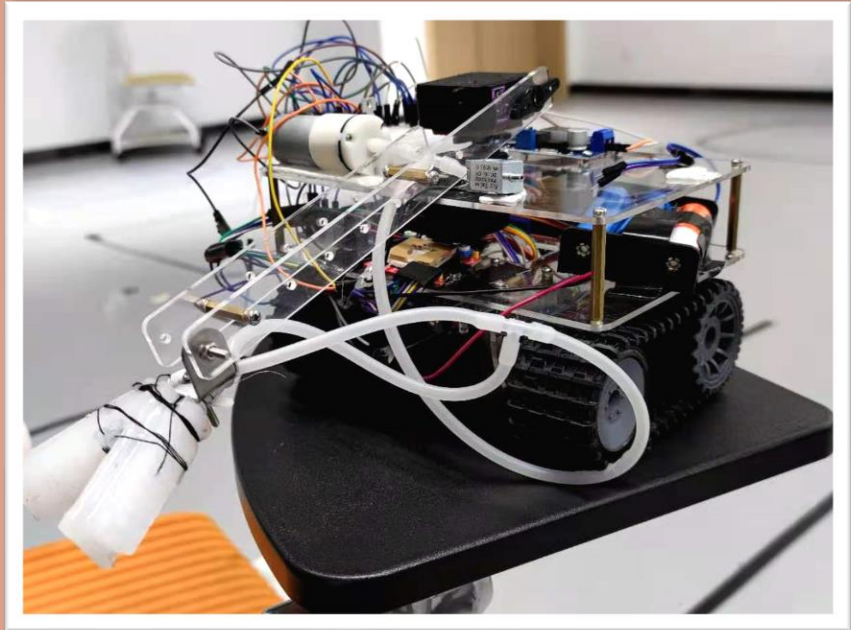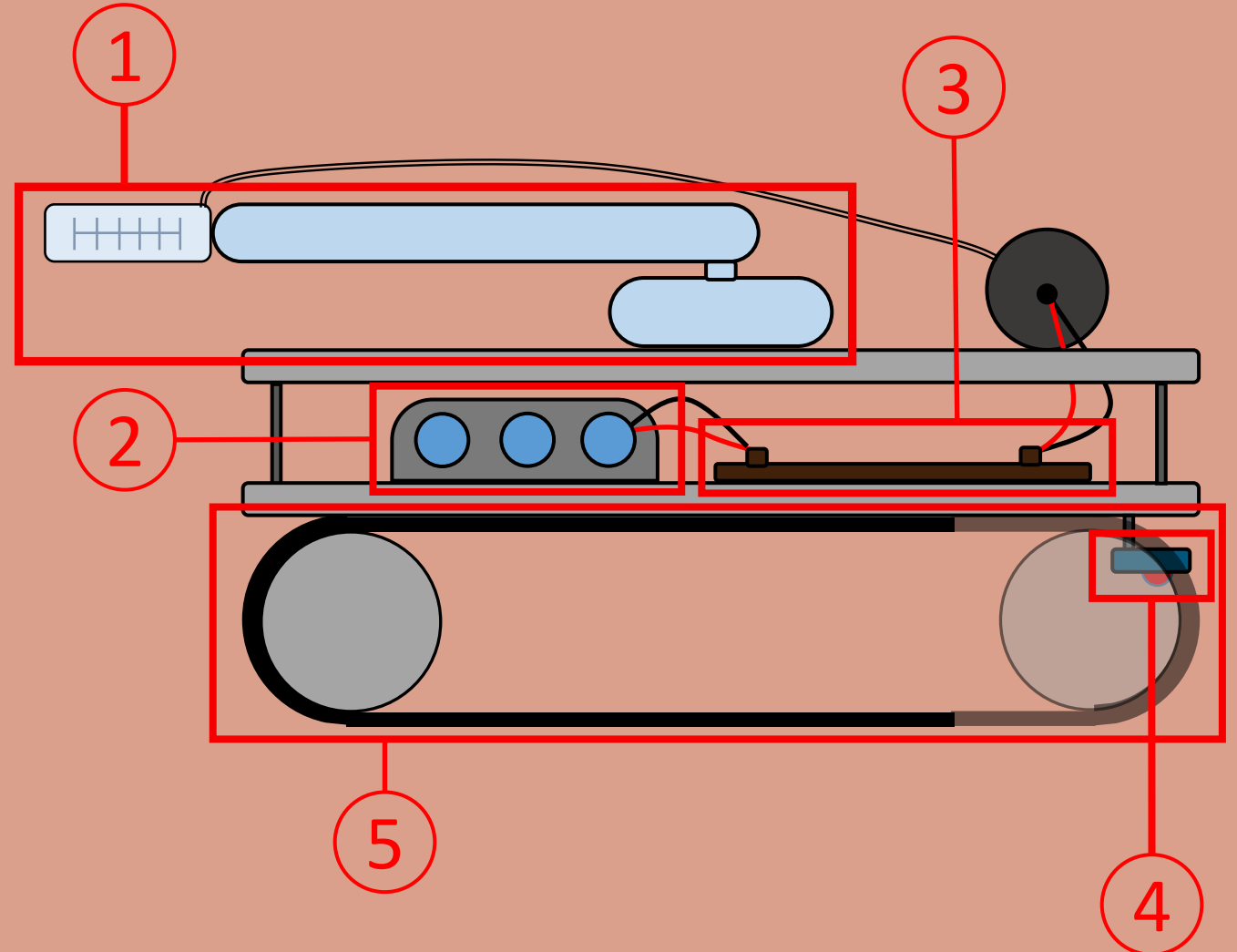## Team: Take Off

CONTENT

Overview

①Robotics Arm & Gripper

②Battery Box

③Control Board

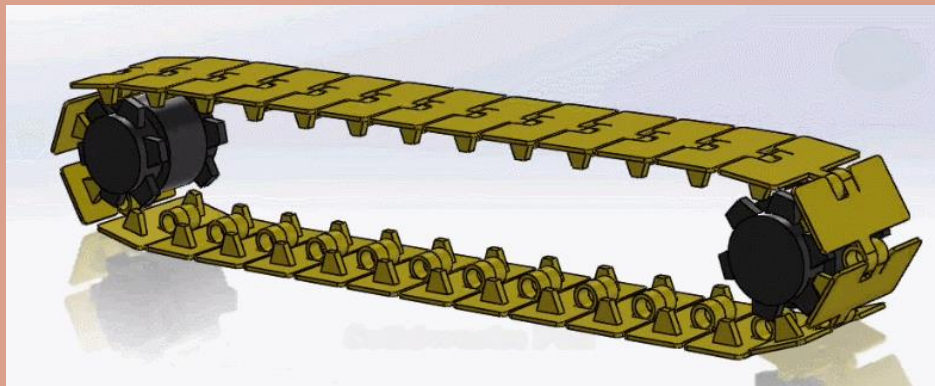④Infrared Sensor

⑤Tank Structure
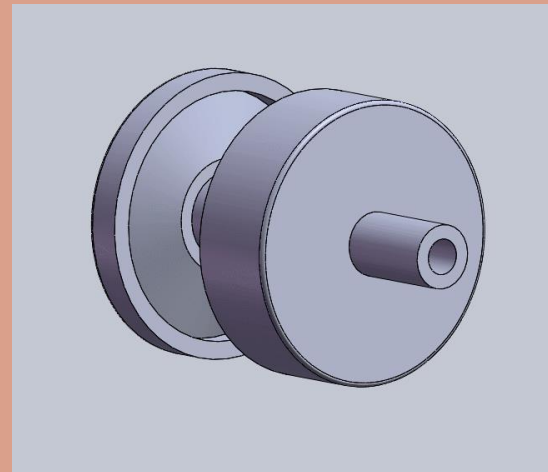
Tank Structure

➤ **Widely adaptive**

➤ **Simple Structure**

Tank over obstacles
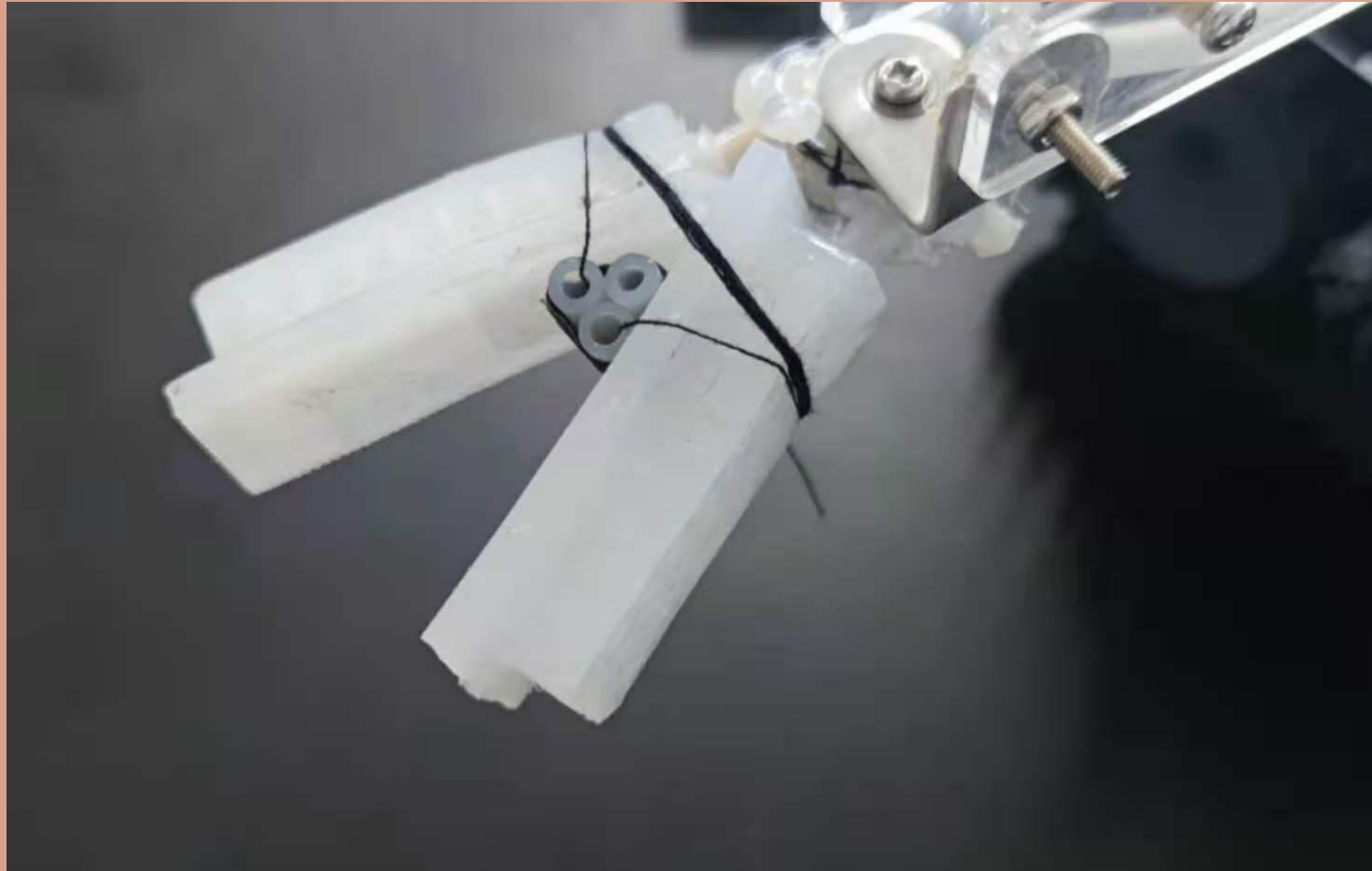

Motion simulation of Tank Track
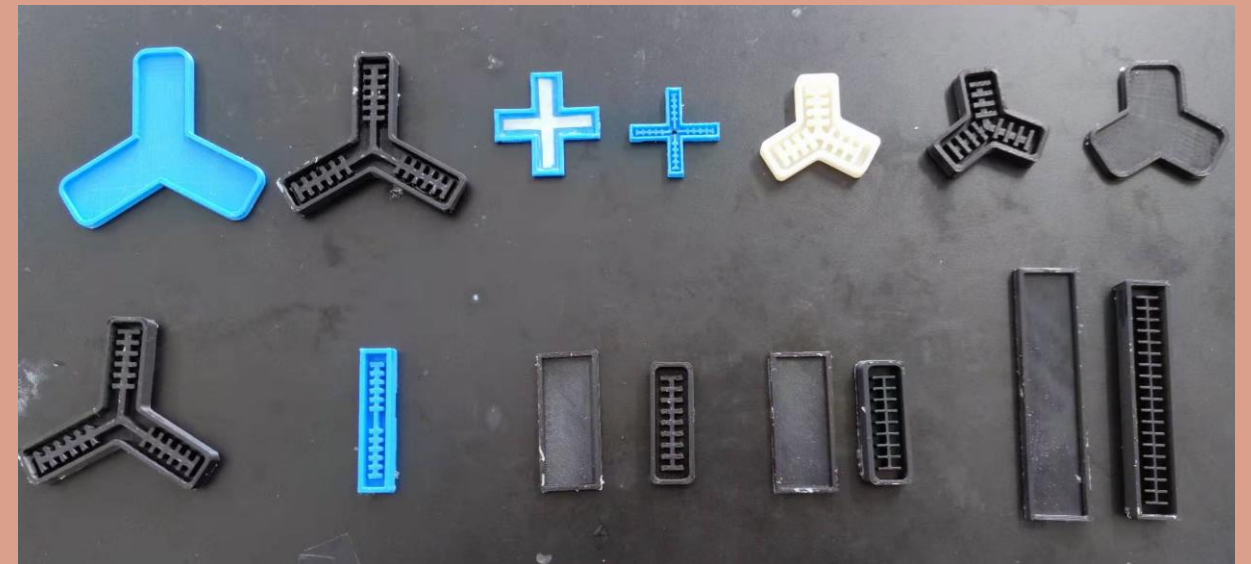

Loading Wheel

Driving Wheel

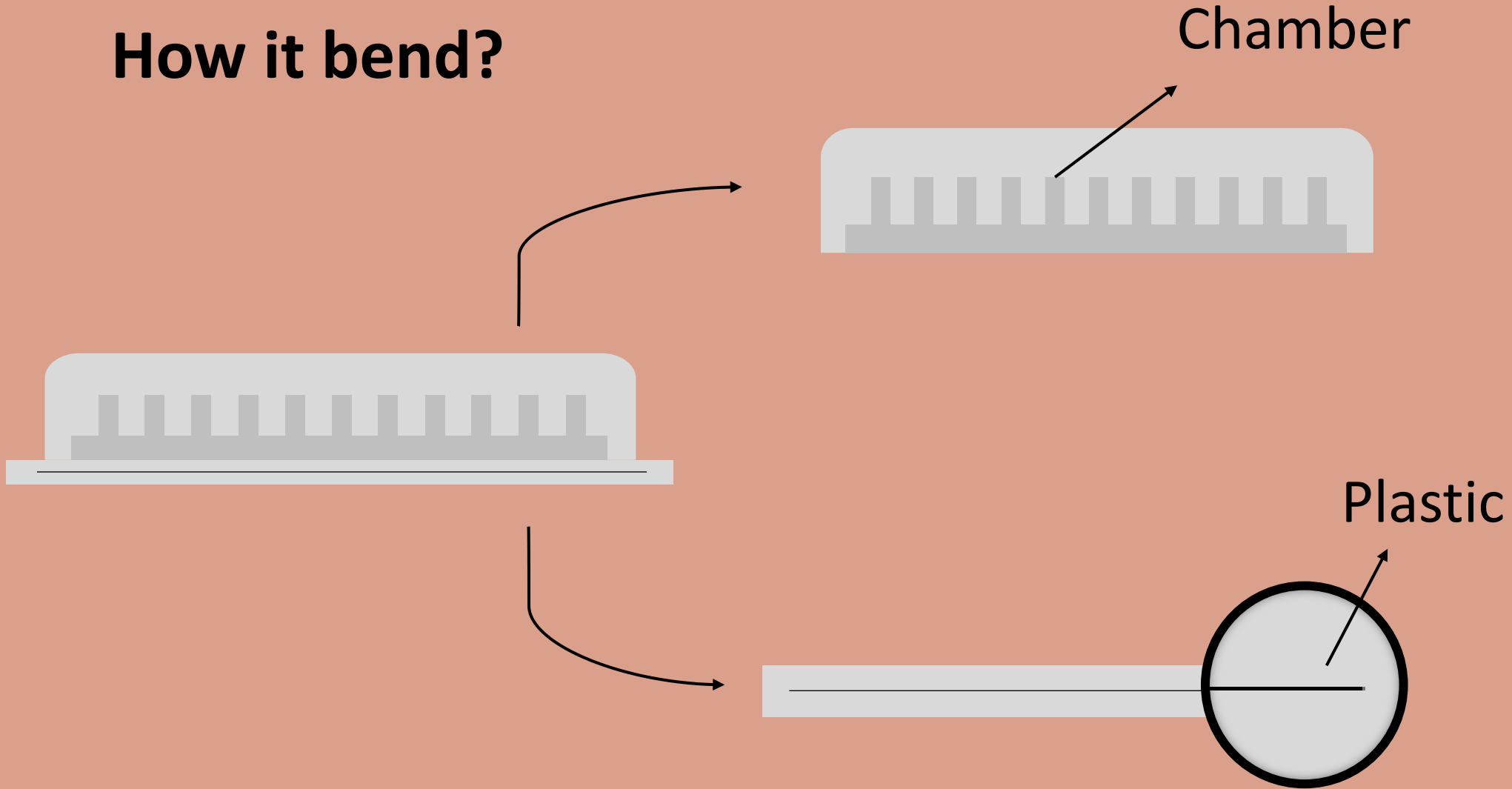# Pneumatic Soft Gripper

Pneumatic Soft Gripper

Ecoflex 00-30

3D-printing mould

Pneumatic Soft Gripper

How it bend?

Chamber

Plastic

Pneumatic Soft Gripper

Pneumatic Soft Gripper

Power Supply

Function : Receive & Output signal

Problem :Output 5V voltage

Function : Rotating arm
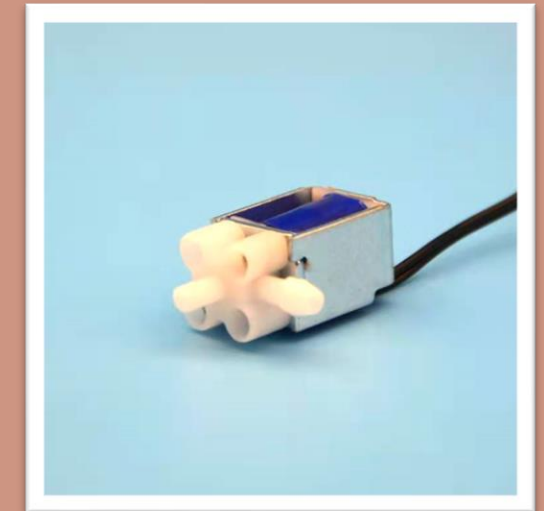
Problem: Need 5V voltage
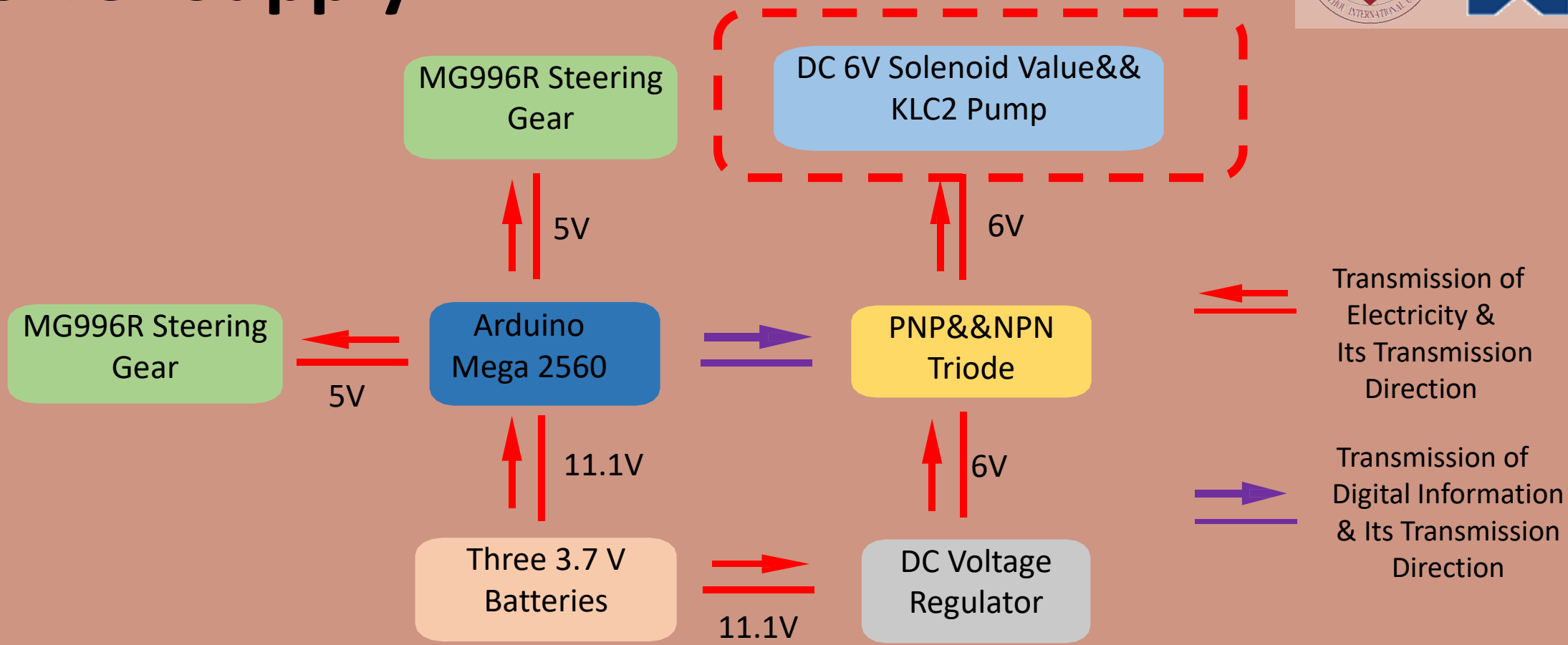

Function : Inflate the soft grip

Problem : Need 6V voltage

Function : keep the soft grip tight

Problem : Need 6V voltage

Power Supply

MG996R Steering Gear

DC 6V Solenoid Value&& KLC2 Pump

5V

6V

MG996R Steering Gear

Arduino Mega 2560

PNP&&NPN Triode

Transmission of Electricity & Its Transmission Direction

5V

11.1V

6V

Three 3.7 V Batteries

DC Voltage Regulator

Transmission of Digital Information & Its Transmission Direction

11.1V
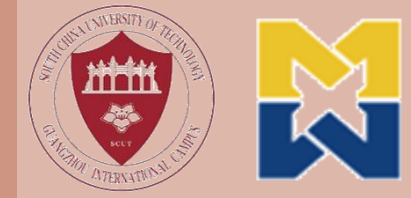
Arduino Mega board

Steering gear

Triode

Power supply

Transformer

Solenoid value &&Pump

11

Code & Whole Process

1. The connection between gripper and servo motor's code.

2.Pump's opening time.
      (t=delay2-delay1)

3. The connection between grabbing and tracing's code.

```
1   unsigned long currentMillis=millis();
2   if(currentMillis<DELAY)
3   {
4     motorRun(STOP,0,0);
5   }
6   if(currentMillis>=DELAY)
19     if(currentMillis>=superdelay)
20     {
21     tracing();
22     }
23     |
12  myservo1.write(pos1);
13  myservo2.write(pos2);
14  delay(40);
15  }
16  delay(800);
17  one();
18  }
19  |
```

Code & Whole Process
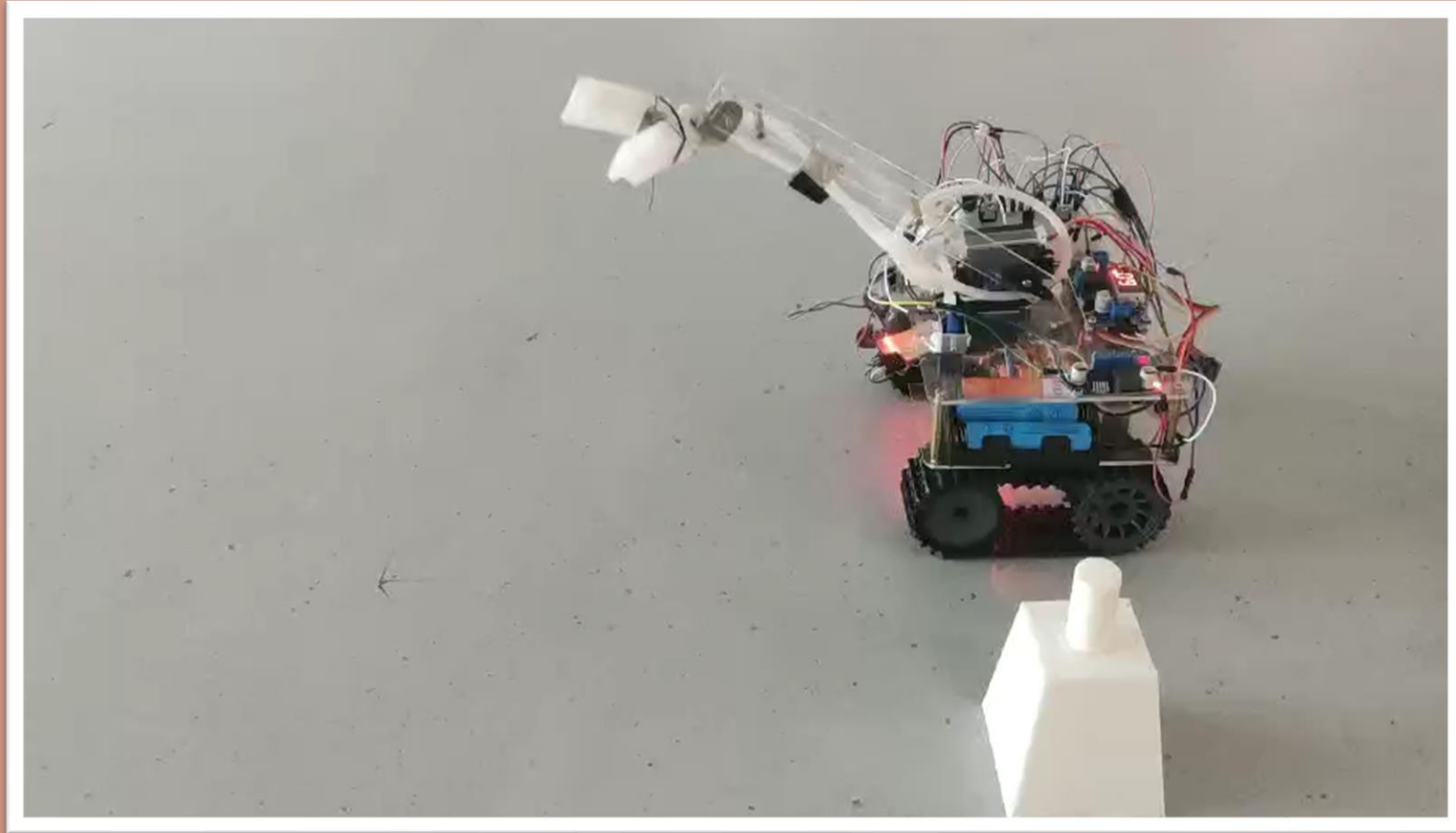
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15

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