1. Experimental objectives

The operation steps are as follows:

1. Place the yellow block in the gray area on the map, and then run the code unit to the sixth unit in sequence.

At this time, the robotic arm will automatically grab the square placed in the gray area and place it in the yellow area.

2. Place the red block in the gray area on the map. Before running the seventh code unit, the robotic arm will automatically grab the square in the gray area and place it in the yellow area.

...

The same procedure applies to blocks of other colors.
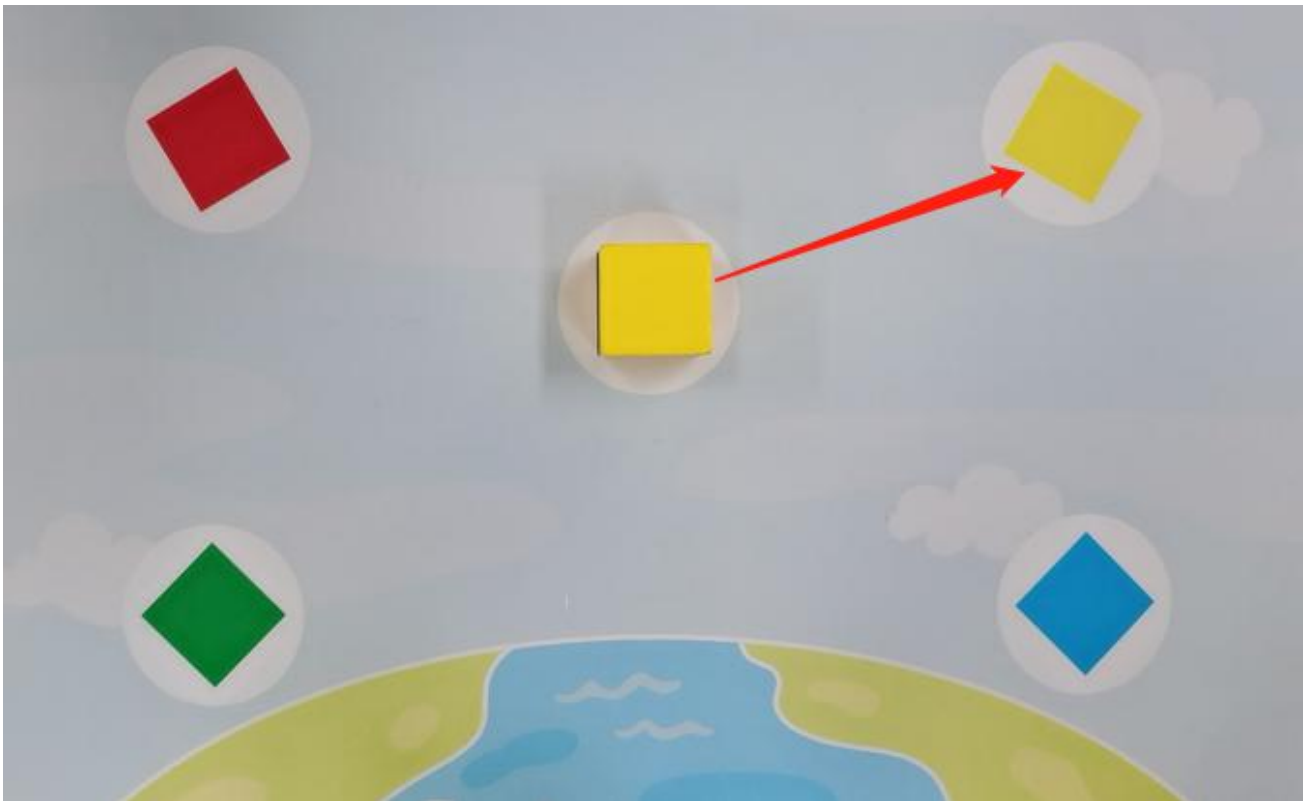
2. About code

Path: /home/jetson/Dofbot/3.ctrl_Arm/9.clamp_block.ipynb

Before the DOFBOT grab the block, we need to place the block in the gray area in the middle of the map, and only one block can be placed every time.

```
#!/usr/bin/env python3
#coding=utf-8
import time
from Arm_Lib import Arm_Device

# Get DOFBOT object
```

```
Arm = Arm_Device()
time.sleep(.1)
```

```
# enable=1: clamp,=0: release
def arm_clamp_block(enable):
    if enable == 0:
        Arm.Arm_serial_servo_write(6, 60, 400)
    else:
        Arm.Arm_serial_servo_write(6, 135, 400)
    time.sleep(.5)



# Define control DOFBOT function, control No.1-No.5 servo，  p=[S1,S2,S3,S4,S5]
def arm_move(p, s_time = 500):
    for i in range(5):
        id = i + 1
        if id == 5:
            time.sleep(.1)
            Arm.Arm_serial_servo_write(id, p[i], int(s_time*1.2))
        else :
            Arm.Arm_serial_servo_write(id, p[i], s_time)
        time.sleep(.01)
    time.sleep(s_time/1000)


# DOFBOT moves up
def arm_move_up():
    Arm.Arm_serial_servo_write(2, 90, 1500)
    Arm.Arm_serial_servo_write(3, 90, 1500)
    Arm.Arm_serial_servo_write(4, 90, 1500)
    time.sleep(.1)
```

```
# Define variable parameters at different locations
p_mould = [90, 130, 0, 0, 90]
p_top = [90, 80, 50, 50, 270]
p_Brown = [90, 53, 33, 36, 270]

p_Yellow = [65, 22, 64, 56, 270]
p_Red = [117, 19, 66, 56, 270]

p_Green = [136, 66, 20, 29, 270]
p_Blue = [44, 66, 20, 28, 270]
```

```
# Make the DOFBOT move to a position ready to grab
arm_clamp_block(0)
arm_move(p_mould, 1000)
time.sleep(1)
```

```
# Grab a block from the gray block and place it on the yellow block.
arm_move(p_top, 1000)
arm_move(p_Brown, 1000)
arm_clamp_block(1)

arm_move(p_top, 1000)
arm_move(p_Yellow, 1000)
arm_clamp_block(0)


arm_move(p_mould, 1000)

time.sleep(1)
```

```
# Grab a block from the gray block and place it on the red block.
arm_move(p_top, 1000)
arm_move(p_Brown, 1000)
arm_clamp_block(1)

arm_move(p_top, 1000)
arm_move(p_Red, 1000)
arm_clamp_block(0)

arm_move_up()
arm_move(p_mould, 1100)

time.sleep(1)
```

```
# Grab a block from the gray block and place it on the green block.
arm_move(p_top, 1000)
arm_move(p_Brown, 1000)
arm_clamp_block(1)

arm_move(p_top, 1000)
arm_move(p_Green, 1000)
arm_clamp_block(0)

arm_move_up()
arm_move(p_mould, 1100)

time.sleep(1)
```

```
# Grab a block from the gray block and place it on the blue block.
arm_move(p_top, 1000)
arm_move(p_Brown, 1000)
arm_clamp_block(1)
```

```
arm_move(p_top, 1000)
arm_move(p_Blue, 1000)
arm_clamp_block(0)

arm_move_up()
arm_move(p_mould, 1100)

time.sleep(1)
del Arm    # Release DOFBOT object
```