Action learning

1. Introduction

The principle of this experiment is to use one of the robot dogs as a server to start TCP network services, receive data and perform operations; The other robot dog acts as the client, that is, the operator, reads the angle value of the steering gear, and then immediately sends the angle of the steering gear to the server through the TCP service; At this time, the client always reads the angle value of the steering gear quickly and sends it to the server. The server receives and immediately updates the angle of the steering gear, so as to realize the function of remote synchronous action of two robot dogs.

2. Preparation

1.This experiment involves two robot dogs with the same hardware. Except for the different programs, the other can be the same. If the robot dog uses the system image provided by the factory, please end the factory large program of power on and self start before conducting this experiment.

2.Ensure that the two dongles are connected to the same LAN, that is, to the same router (wired or wireless connection is acceptable), and can communicate in the LAN.

3.Since two robot dogs are involved here, in order to easily distinguish them, we call the robot dog as the server a robot dog (the controlled party) and the robot dog as the controller B robot dog (the free breaking party). Since the motion of robot dog a depends on the motion of robot dog B, please set both robot dogs to the default posture before starting the program.

3. Code analysis

【Server code: a robot dog】

Please refer to the following path for specific code.

```
~/DOGZILLA/Samples/3_AI_Visual/14.sync_movement/A_dog_follow.py
```

【Client code: B robot dog】

Please refer to the following path for specific code.

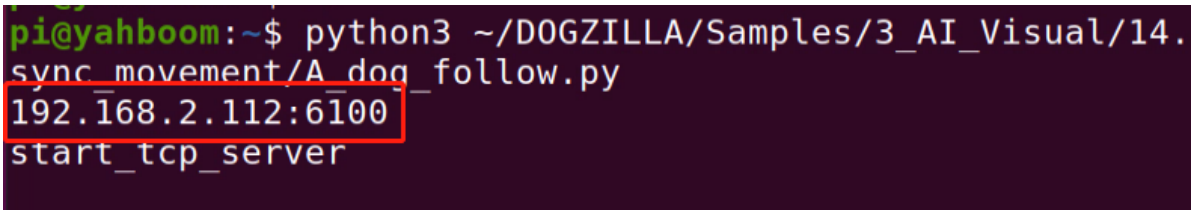
```
~/DOGZILLA/Samples/3_AI_Visual/14.sync_movement/B_dog_ctrl.py
```

4. Steps

Objective: to control a robot dog remotely by using B robot dog.

1.Open the terminal of a robot dog and run a_ dog_ Follow.py program. Then write down the printed IP address.

```
python3 ~/DOGZILLA/Samples/3_AI_Visual/14.sync_movement/A_dog_follow.py
```

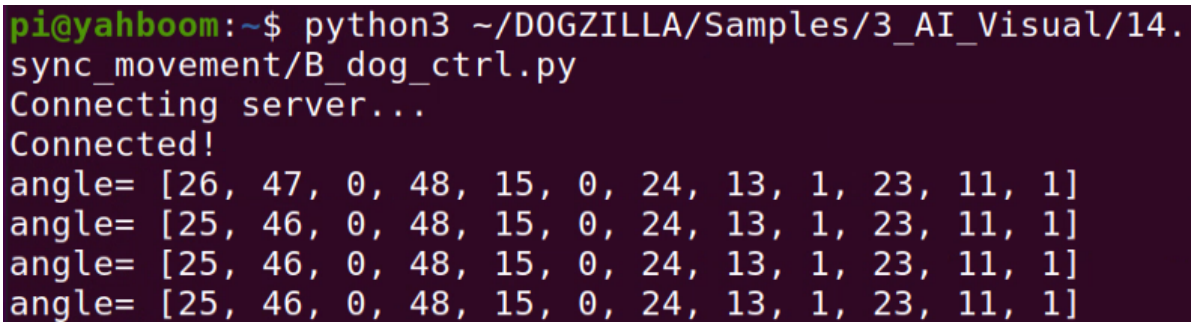


2.Open the terminal of the robot dog B,Replace the IP address recorded in the previous step with the IP address in B_dog_ ctrl.py.

```
if __name__ == '__main__':
    # 根据A_DOG的IP地址修改以下参数
    # Modify the following parameters based on the IP address of A DOG
    ip = '192.168.2.112'
    port = 6100
    leg = 1
    try:
        ctrl_Leg(leg)
        connect_tcp_server(ip, port)
    except:
        g_dog.load_motor(leg)
        g_dog.action(0xff)
        waitClose(g_sock)
        del g_dog
        print(" Program closed! ")
```

3.After modification, save and exit, and then run B_ dog_ Ctrl.py program.

```
python3 ~/DOGZILLA/Samples/3_AI_Visual/14.sync_movement/B_dog_ctrl.py
```



Note: be sure to run a of a robot dog first_ dog_ Follow.py program, and then run B of B robot dog_ dog_ ctrl. Py program. B robot dog terminal will print the connection information and print the sent data, and the communication between the two robot dogs will officially start.

At this time, it can be seen that the state of robot dog a is the same as that of robot dog B, and the posture of robot dog a can be modified by rotating the left front leg of robot dog B. Through such a TCP transmission command, the synchronous action of two machine dogs can be achieved. When turning the angle of the steering gear of the robot dog, please note that the angle

range does not exceed the control range of the steering gear.