

Lesson 14 Control Air Pump

1. Working Principle

By setting the level of air pump, it can be controlled to suck the block after powering on.

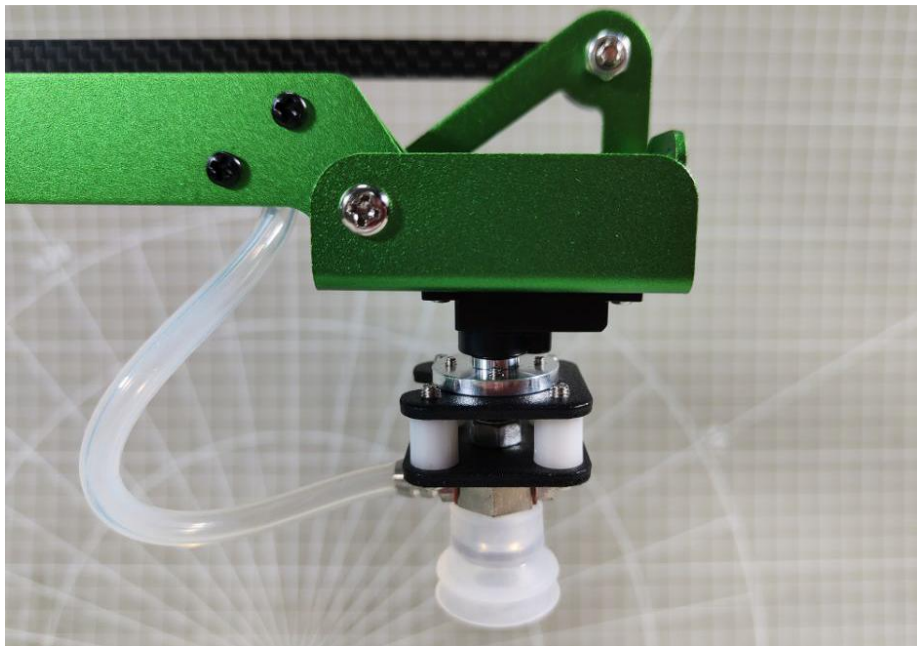
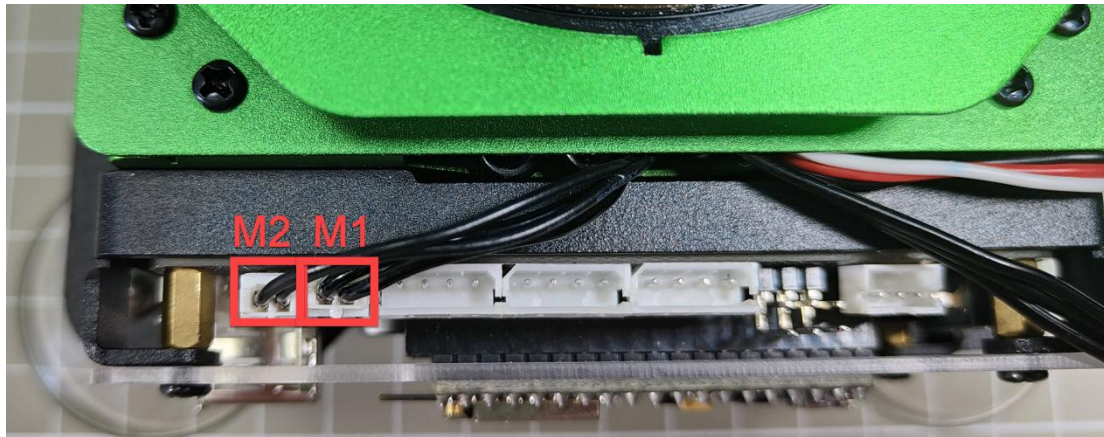
The path to the source code of the program is 5.Hardware Basic Learning/Python Development/Program Files/Control Air Pump/main.py

```
1  import time
2  from SuctionNozzle import SuctionNozzle
3
4  # Control air pump
5
6  nozzle = SuctionNozzle()
7
8  if __name__ == '__main__':
9
10     nozzle.on()      # Turn on the valve and turn off the air pump at the same time
11     time.sleep_ms(2000) # The delay of 2000ms
12     nozzle.off()     # Turn off the air pump and turn on the valve at the same time
```

The air pump is controlled to suck object by calling on() function in SuctionNozzle library file and to release object by calling off() function.

2. Preparation

Use the built-in air pump and the solenoid valve of MaxArm. (Air pump is connected to M1 port and the solenoid valve to M2 port). The position of ports are shown in the following image:

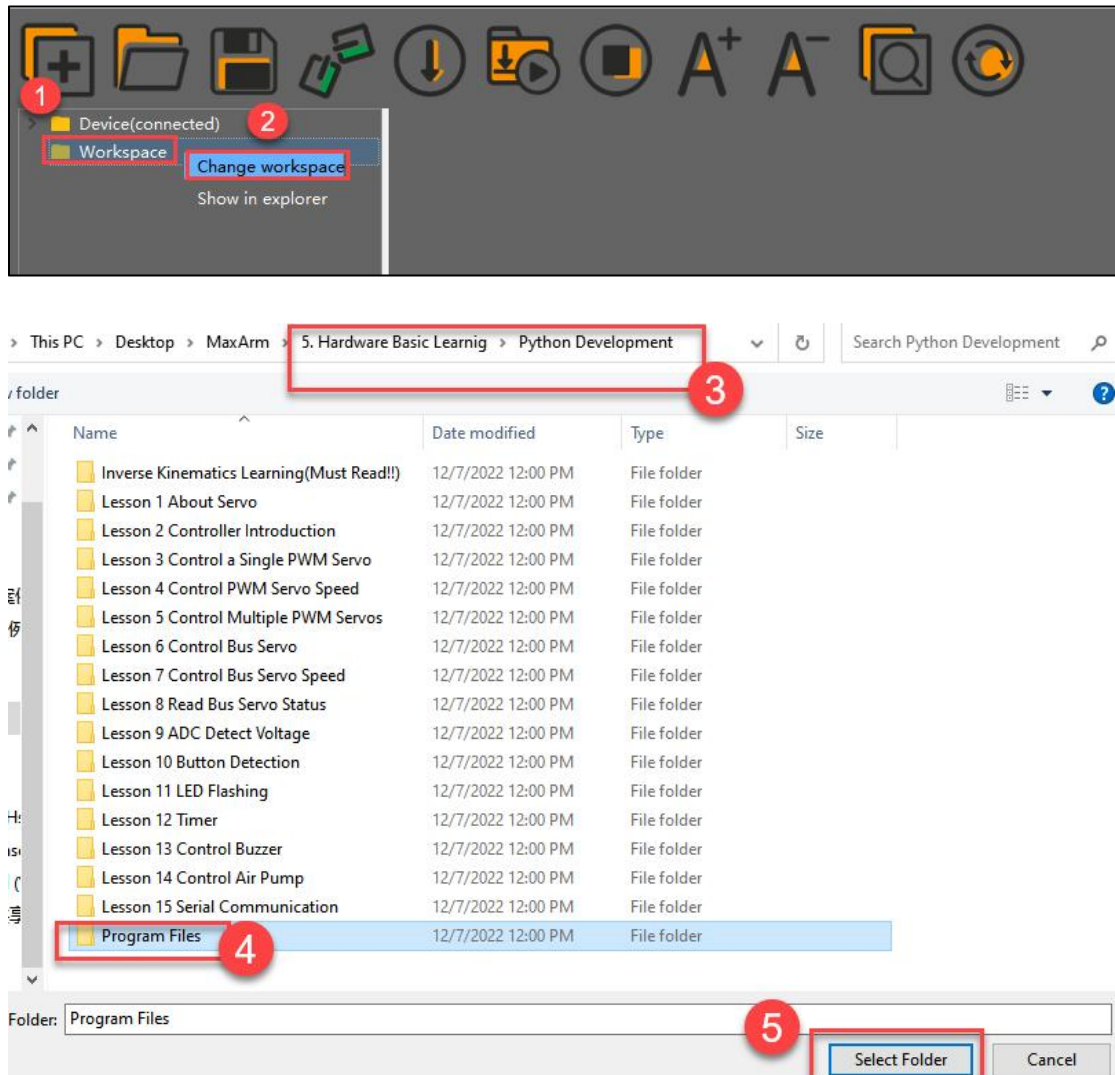


3. Operation Steps

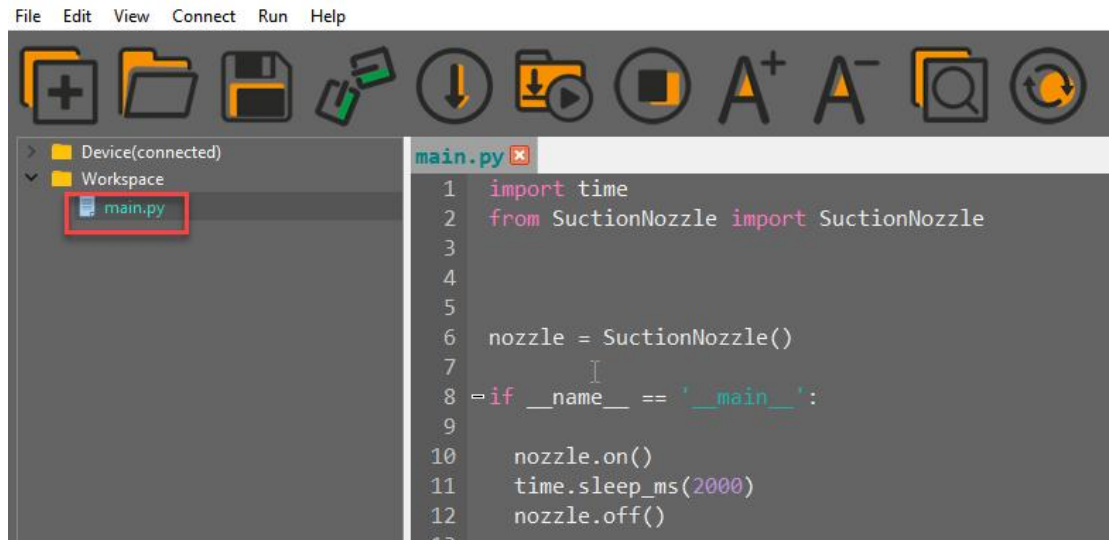
Please connect MaxArm to Python editor according to the tutorial in folder “4. Underlying Program Learning/Python Development/Lesson 1 Set Development Environment”.



- 1) After connecting, change the path of Workspace to “5.Hardware Basic Learning/Python Development” and select “Program Files”.



- 2) Double click folder “Control Air Pump”, and then double click “main.py” to open program.



3) Click on the download icon to download program to ESP32 controller.

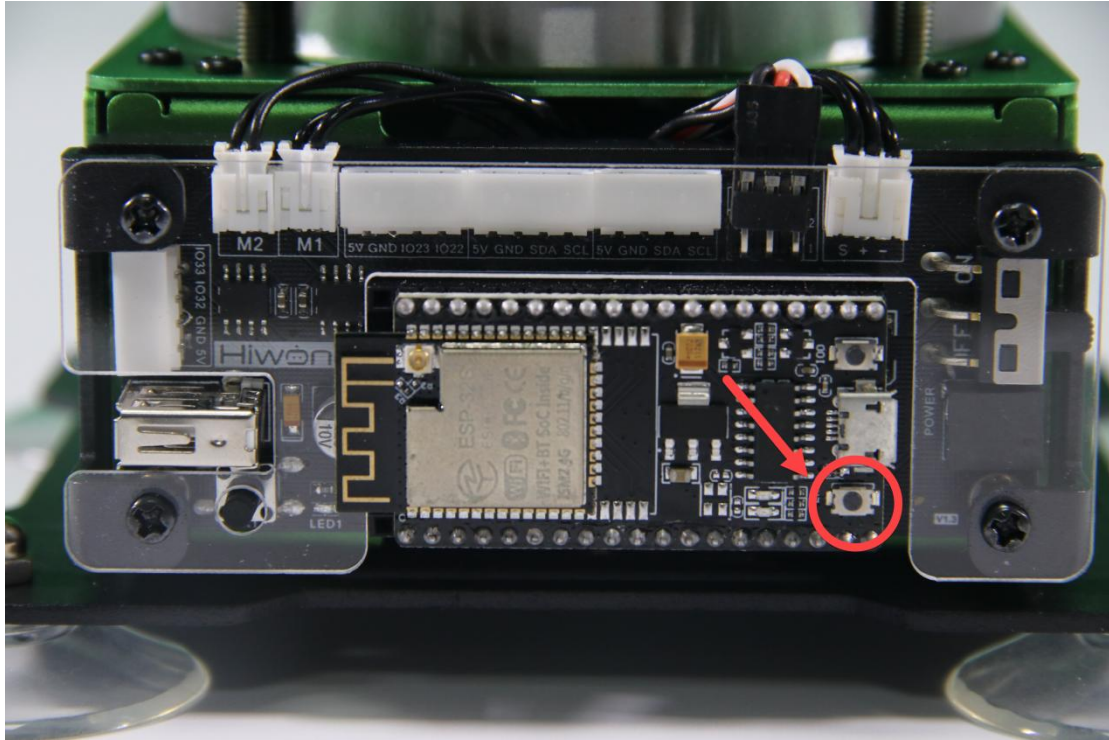


4) When the terminal prints the prompt, as shown in the image below, it means download completed.



5) After downloading, click on the reset icon or press the reset button on ESP32 controller to run program.





4. Project Outcome

When the program is running, the air pump will start pumping so that the suction cup can suck the object. Then the air pump stops pumping to release the block after 2s. After the program stops running, exit the program automatically.