How to use GUI to control Robotic Arm

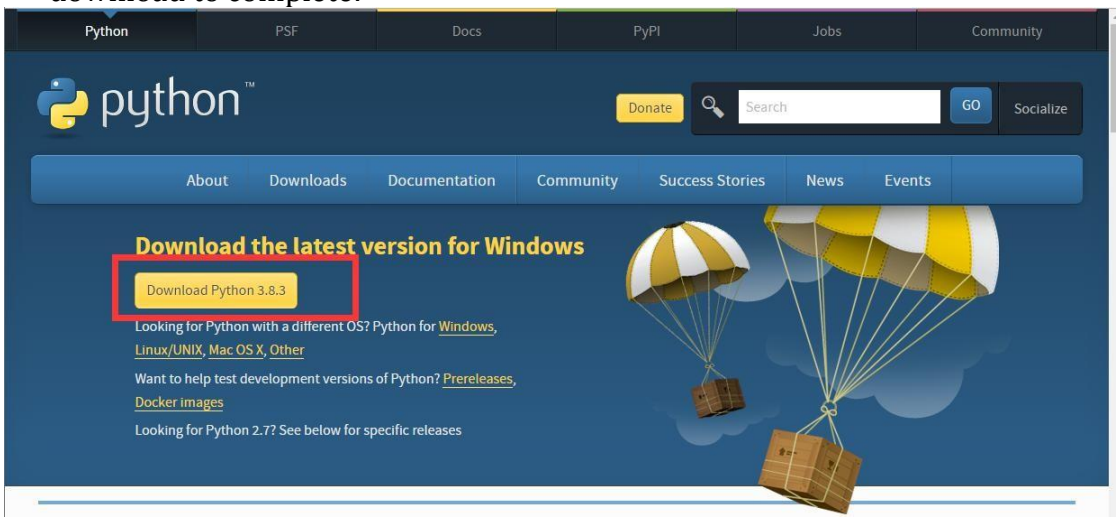
In this lesson, you will learn how to control the movement of the Robotic Arm with the GUI application.

1. Downloading and installing Python

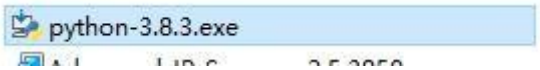
(1) Log in to the official website by browser:

https://www.python.org/downloads/

(2) Click the "Download Python 3.8.3" button to download and wait for the download to complete:

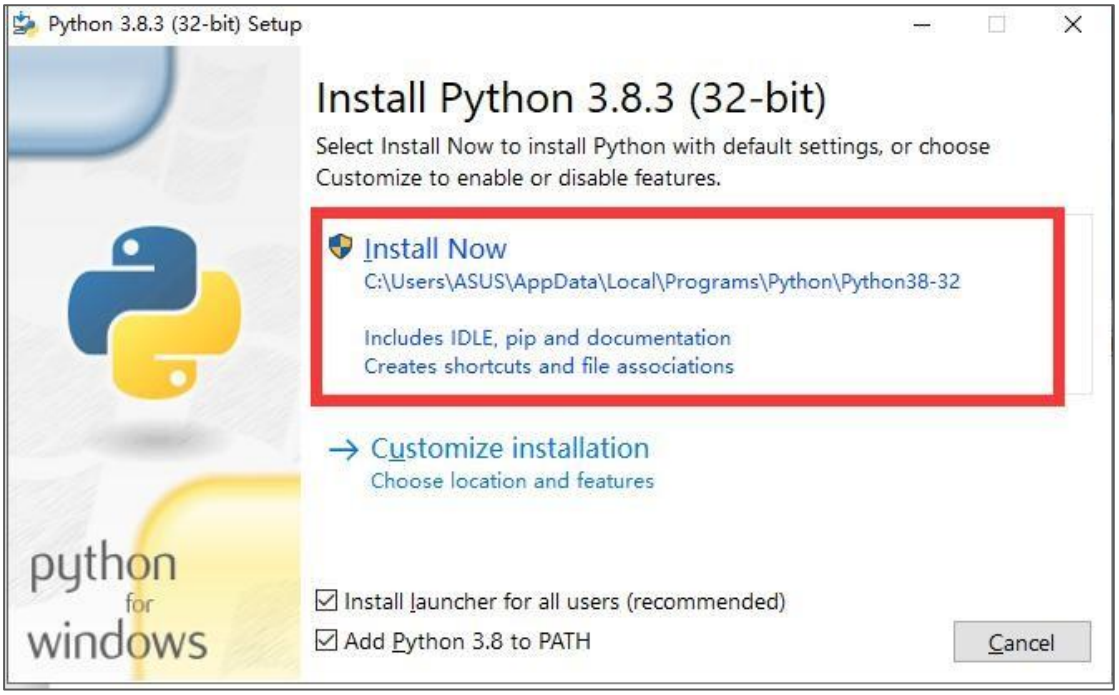


(3) Open the downloaded file, double-click to open it to install:

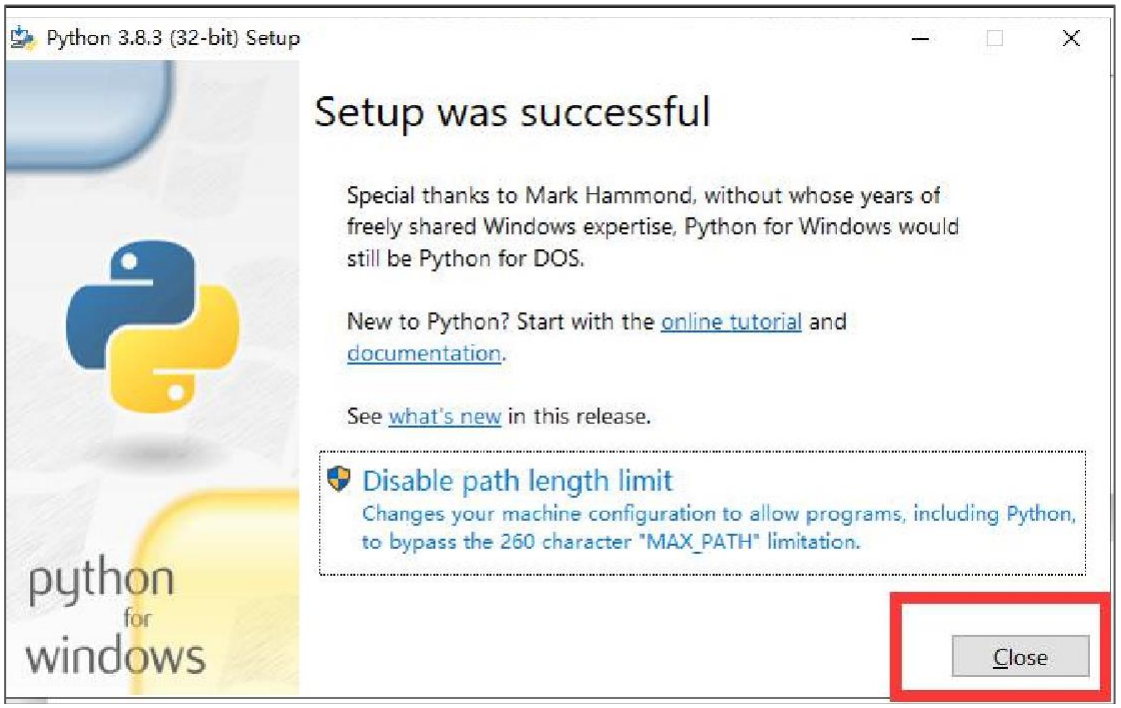


(4) Select the "Add Python 3.8 to PATH" option:

(5) Then click "Install Now" to install.



(6) Wait for the Python installation to complete and click "Close" to close.

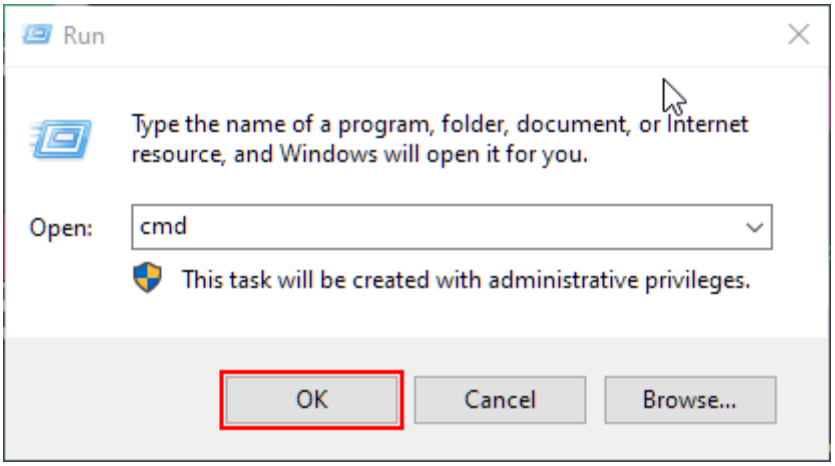


2. Installing pySerial

pySerial encapsulates the serial communication module, supporting Linux, Windows, BSD (may support all operating systems that support POSIX), Jython (Java) and IconPython (.NET and Mono). The pySerial module encapsulates access to the serial port. The port number starts from 0 by default. There is no need to know the port name in the program. APIs like file read and write, read, write(readline, etc. are also supported), support binary transmission, no null elimination, no cr-lf conversion, all programs are all done by Python, and do not depend on other packages except the standard library, except pywin32 (windows), JavaComm (Jython). POSIX (Linux, BSD) only depends on the Python standard library.

Before downloading and installing, you can connect the Adeept Arm Drive Board development board to your computer.

(1) Press Win+R shortcut key to open "Run" program window under Windows 10, enter "CMD" in its "Open" input box, and then enter the keyboard or click the "OK" button in the "Run" program window to open the CMD command box.:



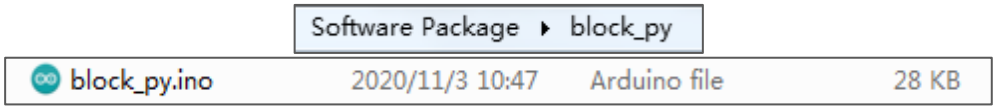
(2) Enter the command in the window:

pip install pySerial

Press the Enter and wait for the installation to complete.

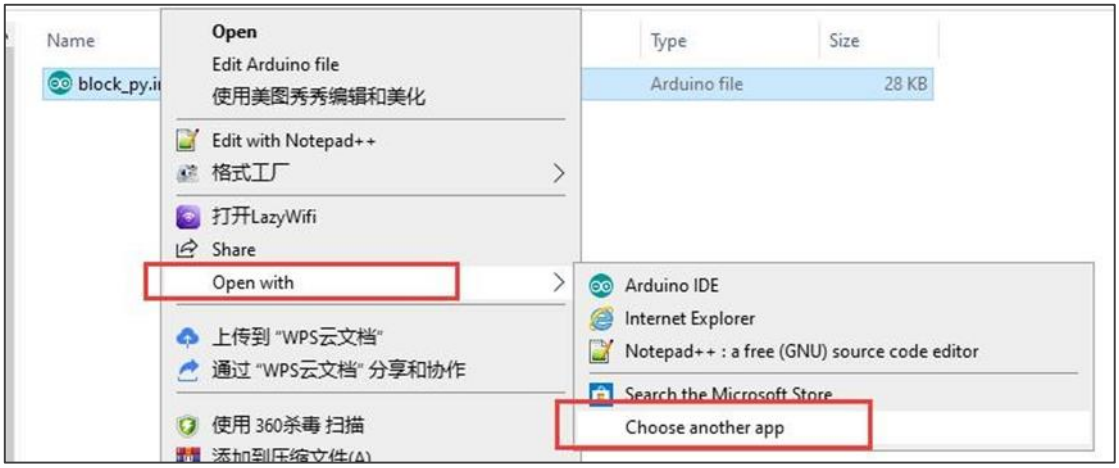
3. Opening the GUI interface

(1) Enter the Package of Documentation (Reference: Chapter: "_4 build Arduino development environment", step 2 under subsection (3) under subsection 5) that we provide to the user. Open the directory in sequence: "Software Package" -> "block_py" provided by Adeept for users, and find this file: "block_py.ino".

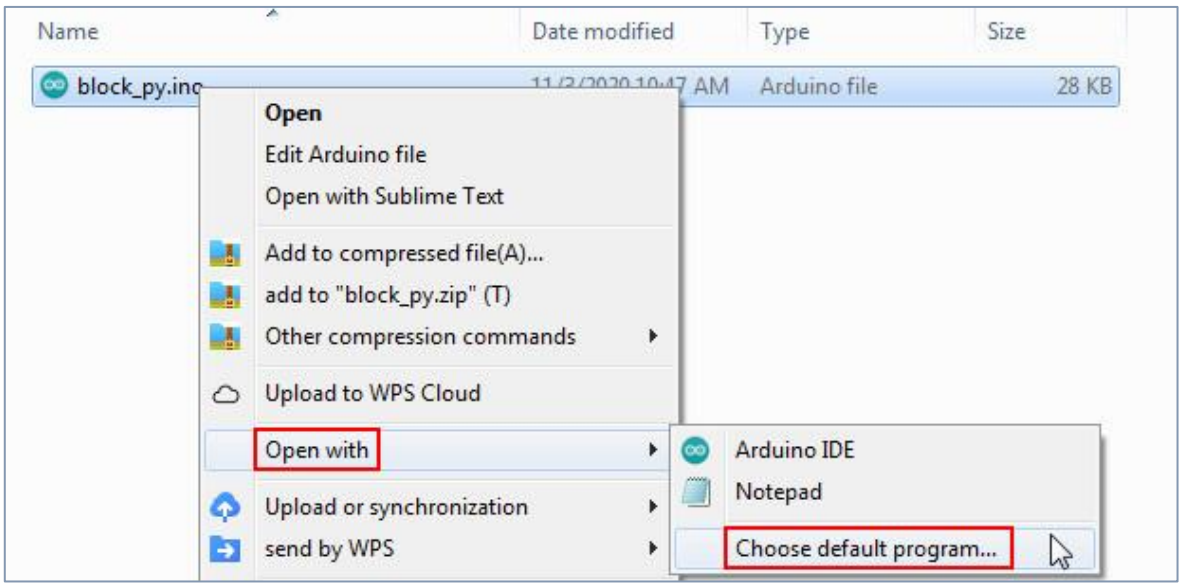


(2) Then right-click the file: "block_py.ino". Select "Open with" -> "Choose another app" (Take Windows 10 as an example, Windows 7 is similar).

Window10:



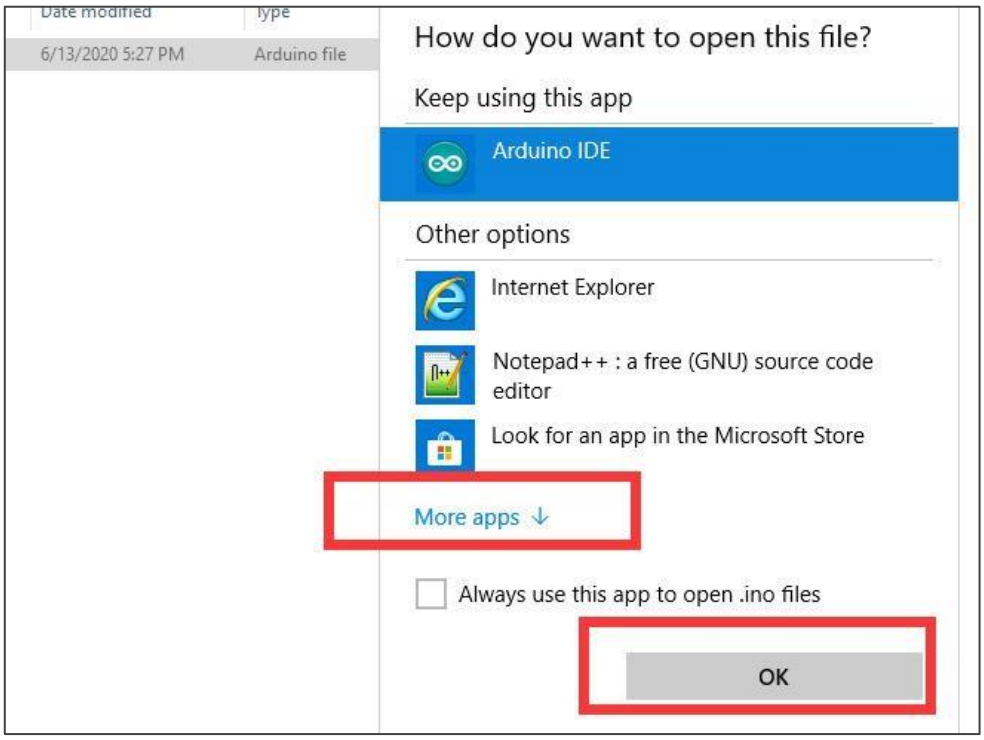
Windows 7:



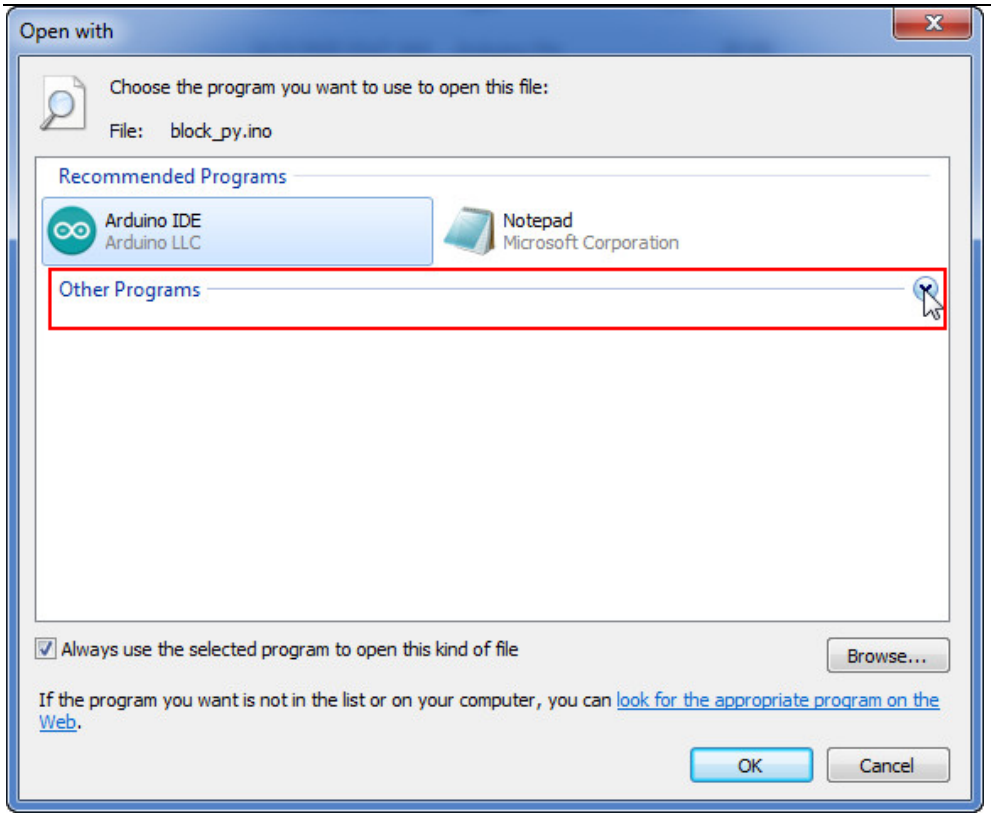
(3) Click "More apps", and then click "OK" (Take Windows 10 as an example, Windows 7 is similar).

(Note: If your Arduino file has been associated with Arduino software, you can directly click the Arduino software icon in the "Keep using this app" column, figure as follows:)

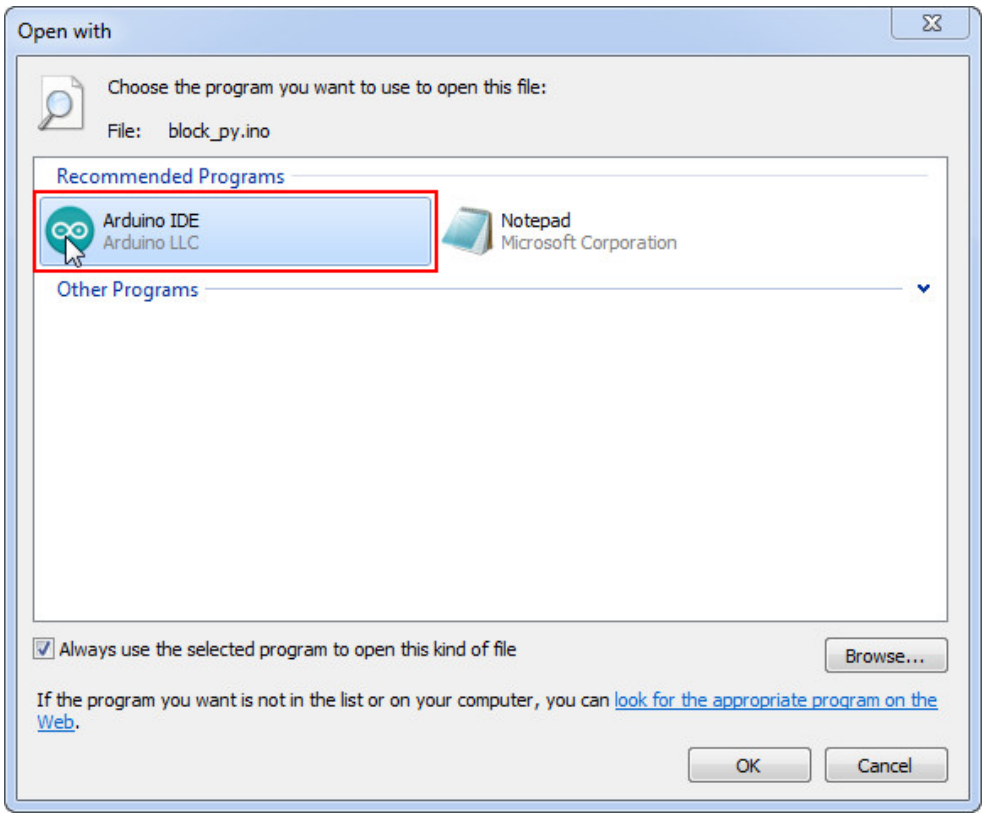
Windows 10:



Windows 7:

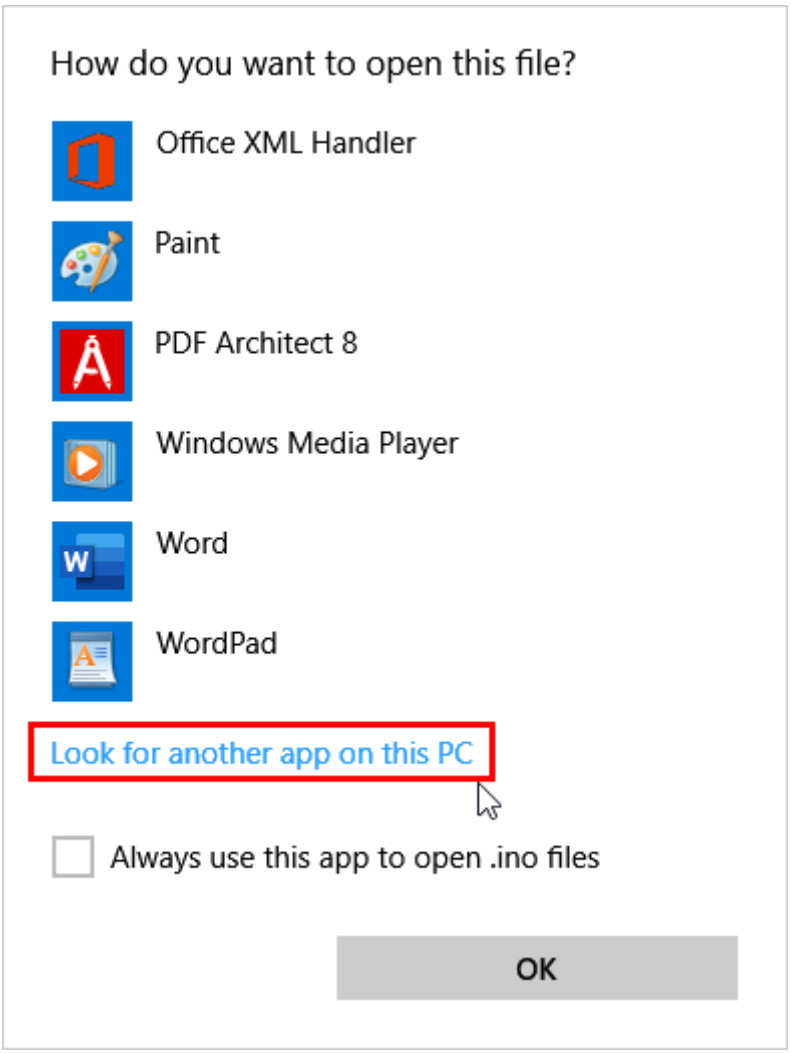


If your Arduino file has been associated with Arduino software, you can directly click the Arduino software icon in the "Recommended Programs" column, figure as follows:

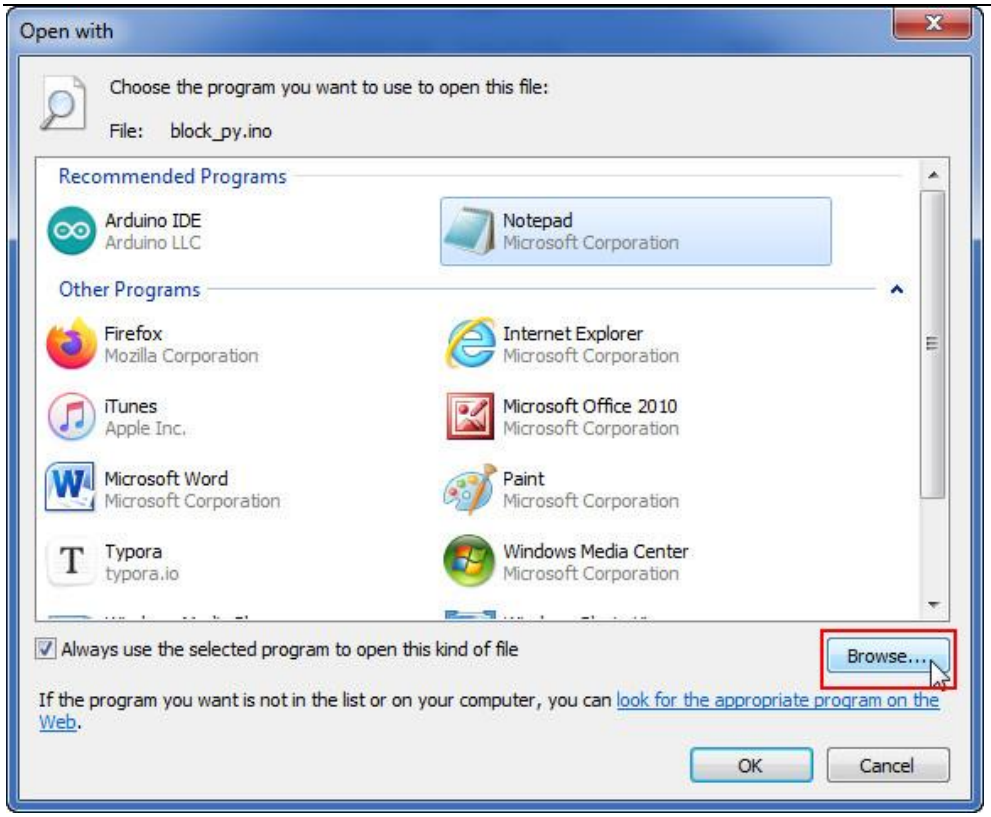


(4) Use the mouse to slide down, if the Arduino program icon is not found, please click "Look for another app on this PC", and then click "OK" (Take Windows 10 as an example, Windows 7 is similar).

Windows 10:



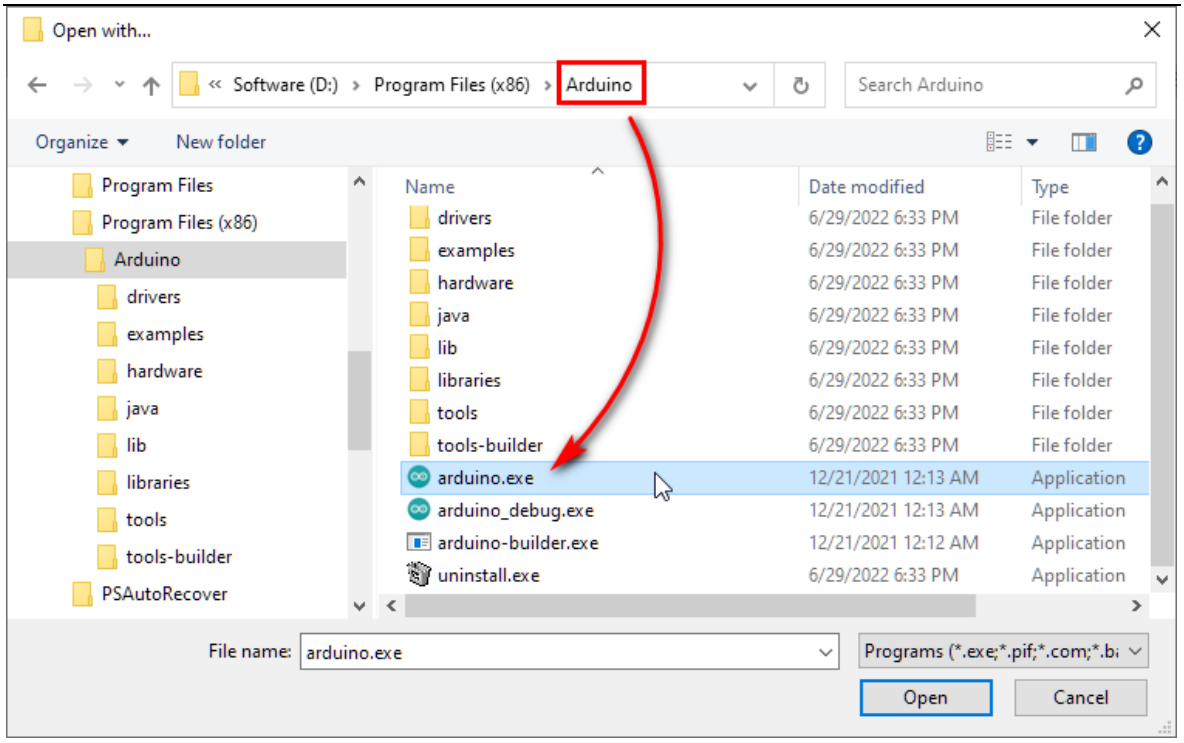
Windows 7:



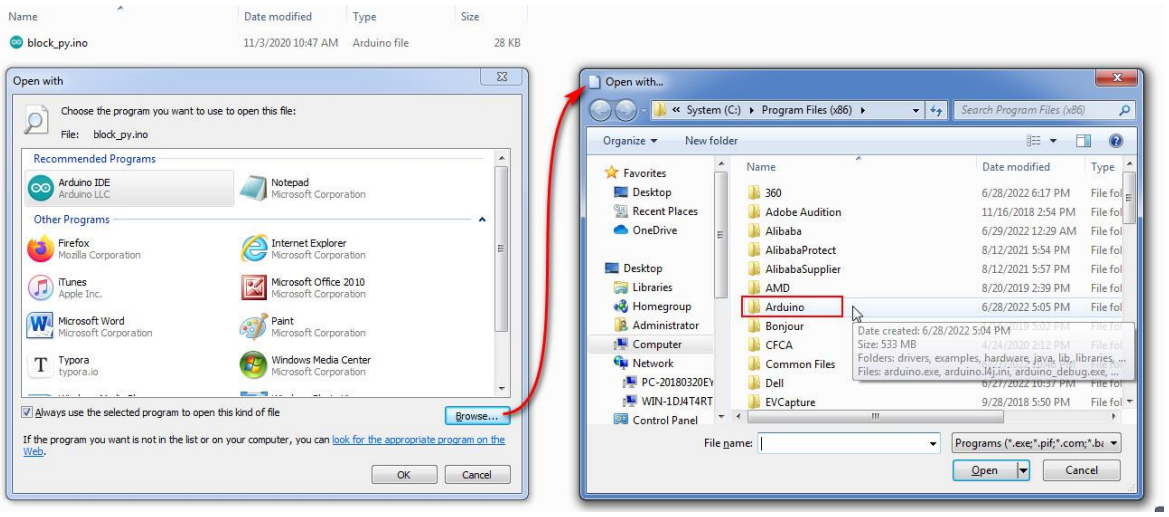
(5) Find the Arduino software on the Desktop or where you installed the Arduino software, select it, and finally click "Open" (Take Windows 10 as an example, Windows 7 is similar).

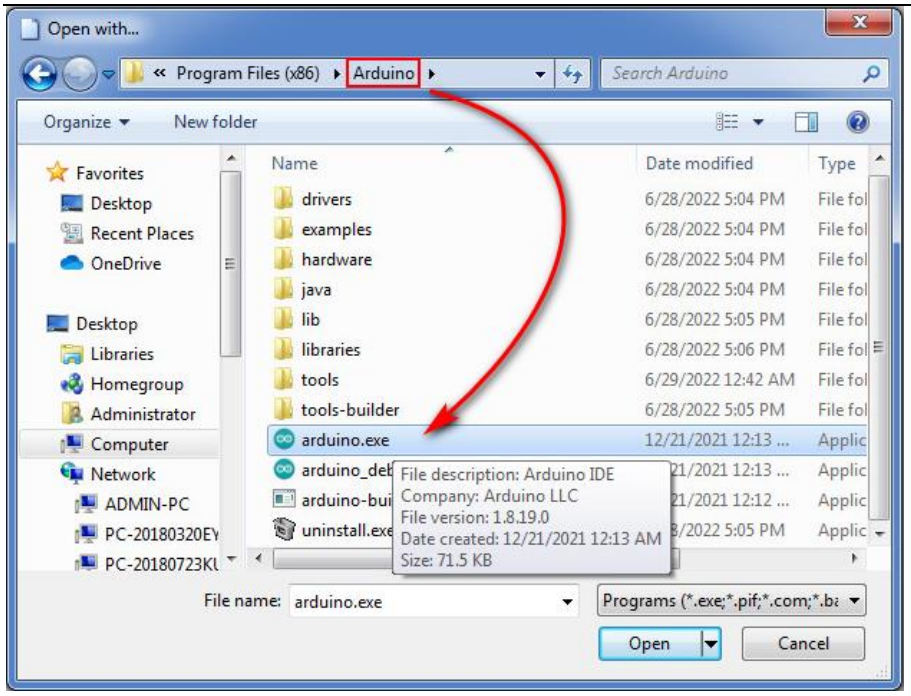
(Note: Some windows systems cannot recognize the shortcut of Arduino in the desktop folder due to settings. At this time, please find the installation path of Arduino and select the EXE program of Arduino, as follow)

Windows 10:

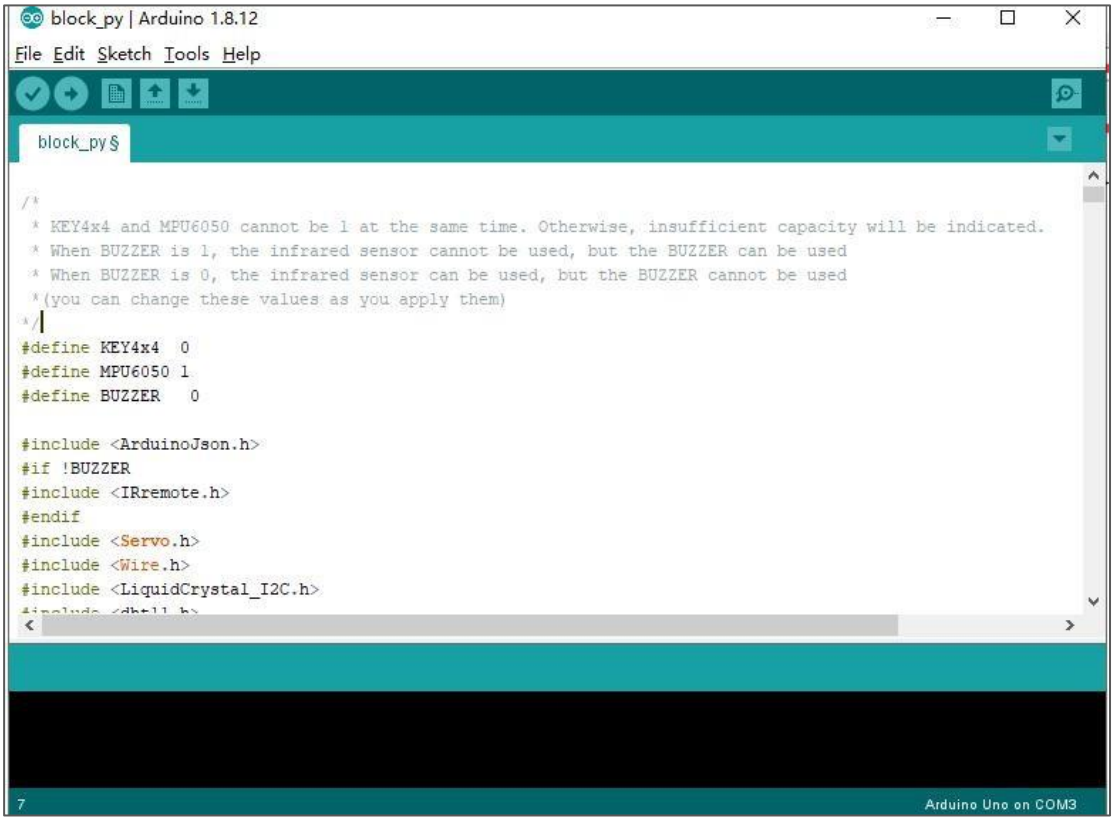

Open with...
Software (D:) › Program Files (x86) › Arduino
Search Arduino
Organize
New folder
Program Files
Program Files (x86)
Arduino
drivers
examples
hardware
java
lib
libraries
tools
tools-builder
PSAutoRecover
Name
Date modified
Type
drivers 6/29/2022 6:33 PM File folder
examples 6/29/2022 6:33 PM File folder
hardware 6/29/2022 6:33 PM File folder
java 6/29/2022 6:33 PM File folder
lib 6/29/2022 6:33 PM File folder
libraries 6/29/2022 6:33 PM File folder
tools 6/29/2022 6:33 PM File folder
tools-builder 6/29/2022 6:33 PM File folder
arduino.exe 12/21/2021 12:13 AM Application
arduino_debug.exe 12/21/2021 12:13 AM Application
arduino-builder.exe 12/21/2021 12:12 AM Application
uninstall.exe 6/29/2022 6:33 PM Application
File name: arduino.exe
Programs (*.exe;*.pif;*.com;*.bi
Open
Cancel

Windows 7:

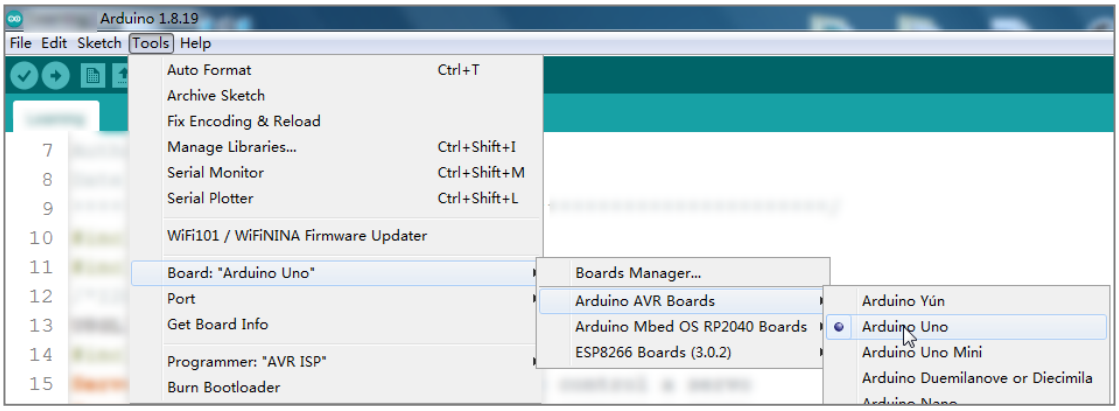

Name
Date modified
Type
Size
block_py.ino 11/3/2020 10:47 AM Arduino file 28 KB
Open with
Choose the program you want to use to open this file:
File: block_py.ino
Recommended Programs
Arduino IDE
Arduino LLC
Notepad
Microsoft Corporation
Other Programs
Firefox
Mozilla Corporation
Internet Explorer
Microsoft Corporation
iTunes
Apple Inc.
Microsoft Office 2010
Microsoft Corporation
Microsoft Word
Microsoft Corporation
Paint
Microsoft Corporation
Typora
typora.io
Windows Media Center
Microsoft Corporation
Always use the selected program to open this kind of file
Browse...
If the program you want is not in the list or on your computer, you can look for the appropriate program on the Web.
OK
Cancel
Open with...
System (C:) › Program Files (x86) ›
Search Program Files (x86)
Organize
New folder
Favorites
Desktop
Recent Places
OneDrive
Desktop
Libraries
Homegroup
Administrator
Computer
Network
Control Panel
Name
Date modified
Type
360 6/28/2022 6:17 PM
Adobe Audition 11/16/2018 2:54 PM
Alibaba 6/29/2022 12:29 AM
AlibabaProtect 8/12/2021 5:54 PM
AlibabaSupplier 8/12/2021 5:57 PM
AMD 8/20/2019 2:39 PM
Arduino 6/28/2022 5:05 PM
Bonjour
CFCA
Common Files
Dell
EVCapture 9/28/2018 5:50 PM
Date created: 6/28/2022 5:04 PM
Size: 533 MB
Folders: drivers, examples, hardware, java, lib, libraries, ...
Files: arduino.exe, arduino.l4j.ini, arduino_debug.exe, ...
File name:
Programs (*.exe;*.pif;*.com;*.bi
Open
Cancel



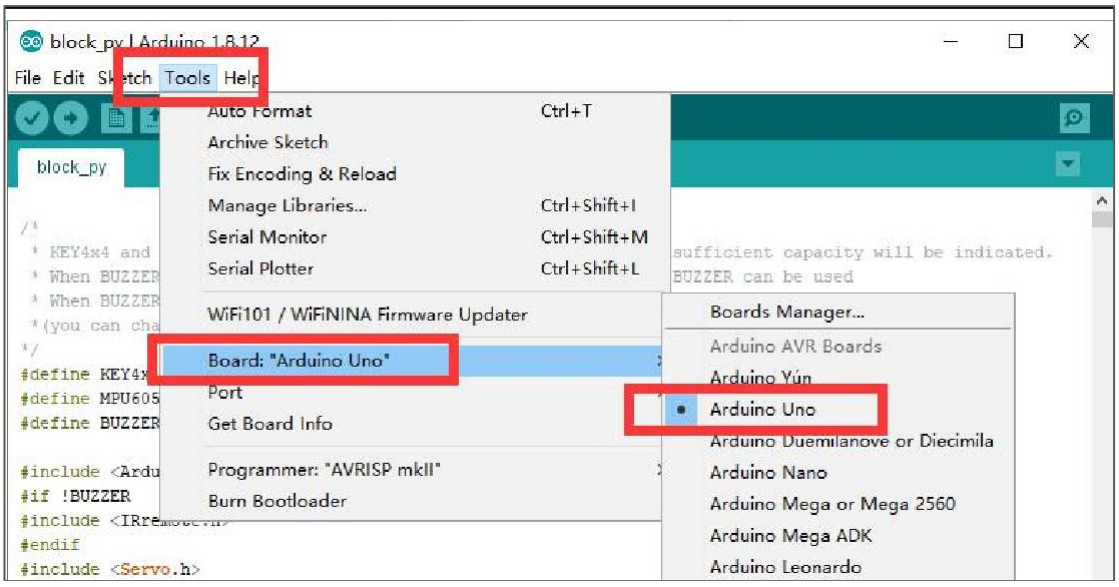
(6) At this time, the Arduino software opens the file "block_py.ino".



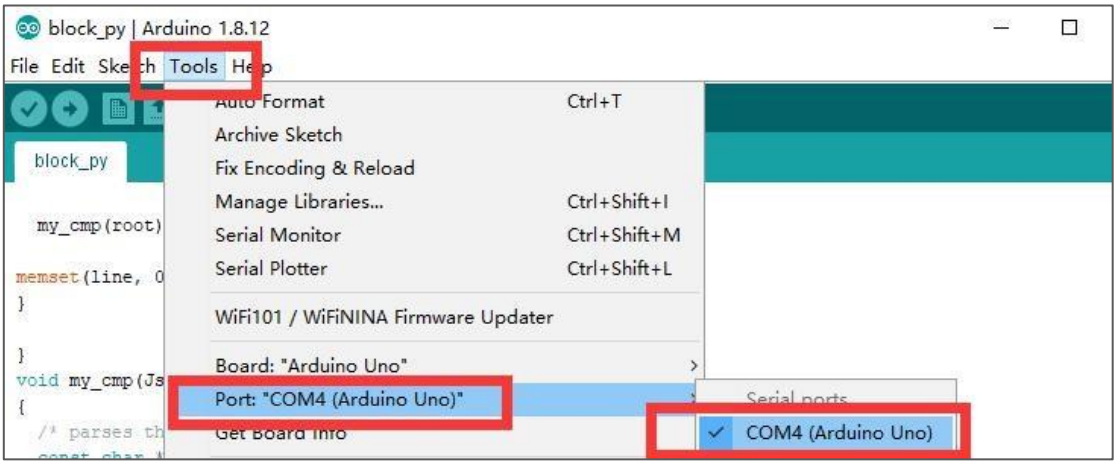
(7) First select the Arduino development board as UNO version with Tools.



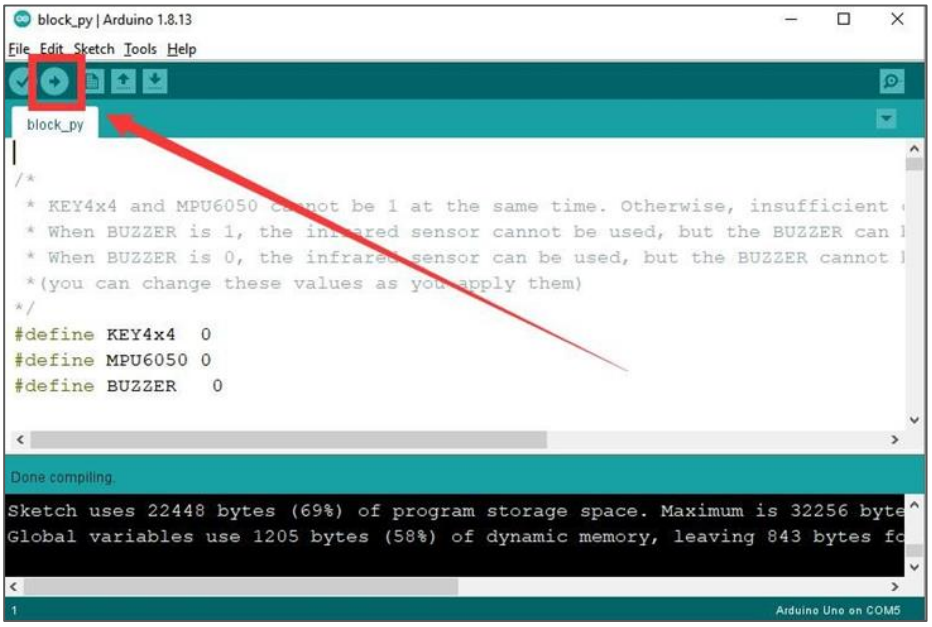
Or:



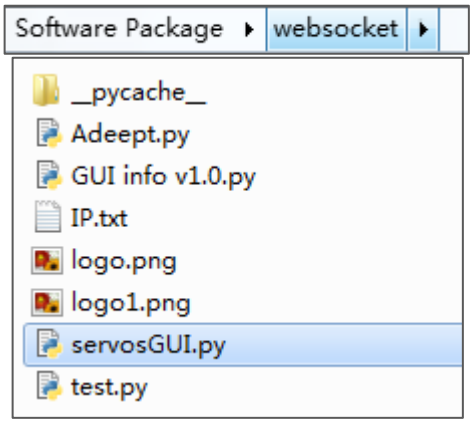
(8) Then continue to use Tools to select the port "Port" of the Adeept Arm Drive Board connected to the computer.



(9) Click the Upload button  to download the code program to the Arduino development board.

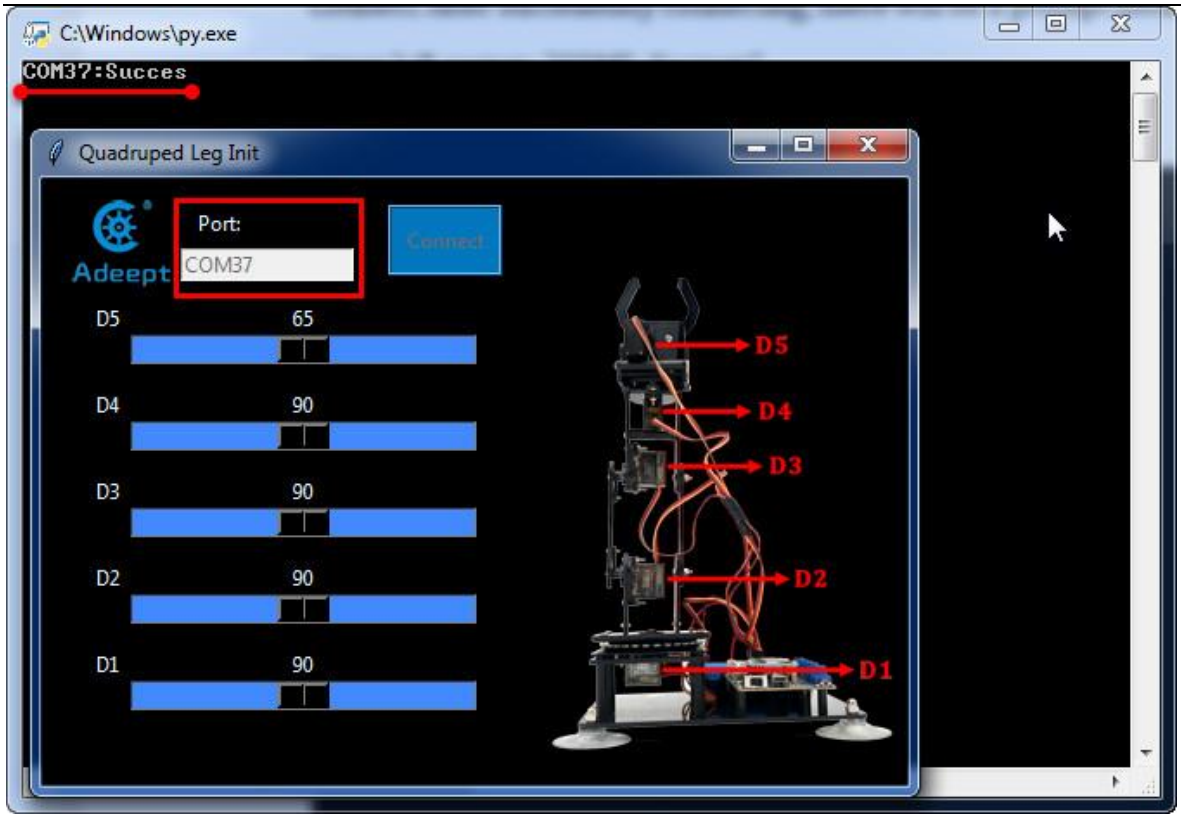


(10) Find the Package of Documentation (Reference: Chapter: "_4 build Arduino development environment", step 2 under subsection (3) under subsection 5) that we provide to the user. Open the directory in sequence: "Software Package" -> "websocket", find this file: "servosGUI.py".



(11) Double-click to open this file: servosGUI.py

(12) After the GUI is opened, as shown in the figure below, you need to fill in the Port in the Arduino IDE in the Port input field. For example, the Port connected to the Arduino IDE is COM37, then you enter COM37, and then click Connect. After successfully connecting, there will be a prompt message in the upper left corner: "COM37: Success".

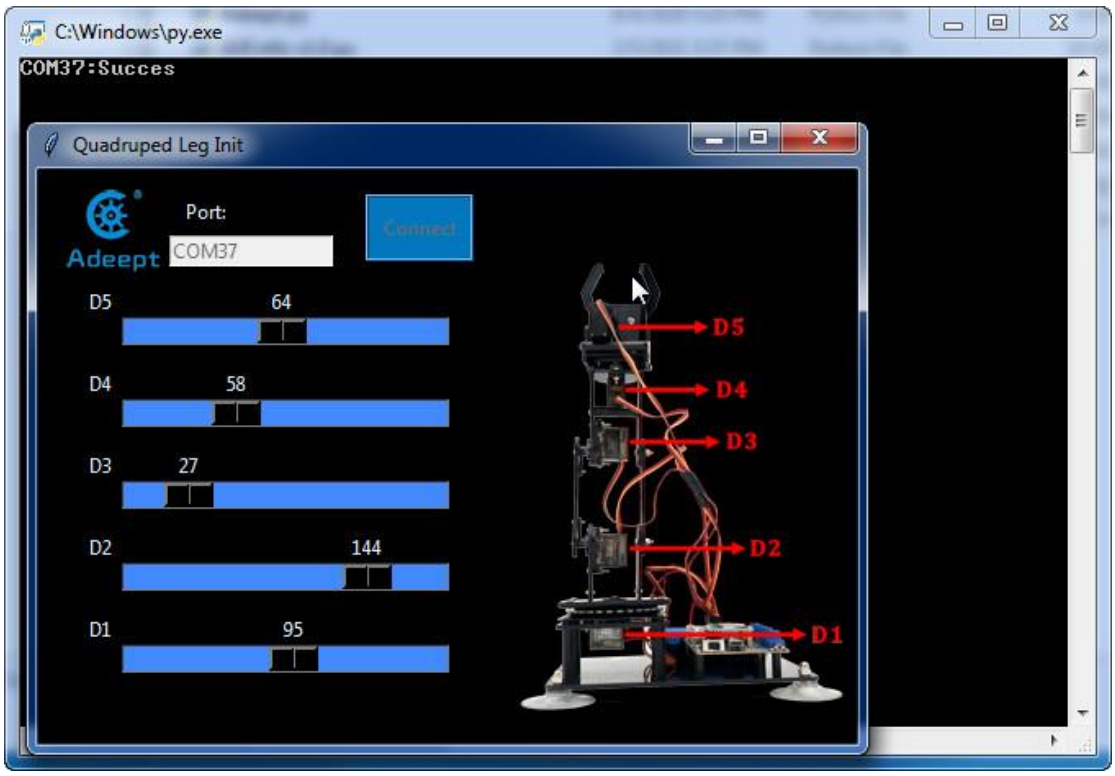


4. Controlling the robotic arm with the GUI interface

Note that the arm is still connected to the computer with the USB cable.

1. In the opened GUI interface, the left area is to control the movement of the servo D1~D5, and the right area is the structure diagram of the servo of the Robotic Arm.

2. When you need to control the Robotic Arm, you can slide the slider corresponding to the servo in the left area to control the movement of the Robotic Arm. When a certain position is slipped, a data will be displayed on the slider, this data represents the angle.


C:\Windows\py.exe
COM37:Succes
Quadruped Leg Init
Adeept
Port:
COM37
Connect
D5
64
D4
58
D3
27
D2
144
D1
95
D5
D4
D3
D2
D1