How to use Processing IDE controls Robotic arm

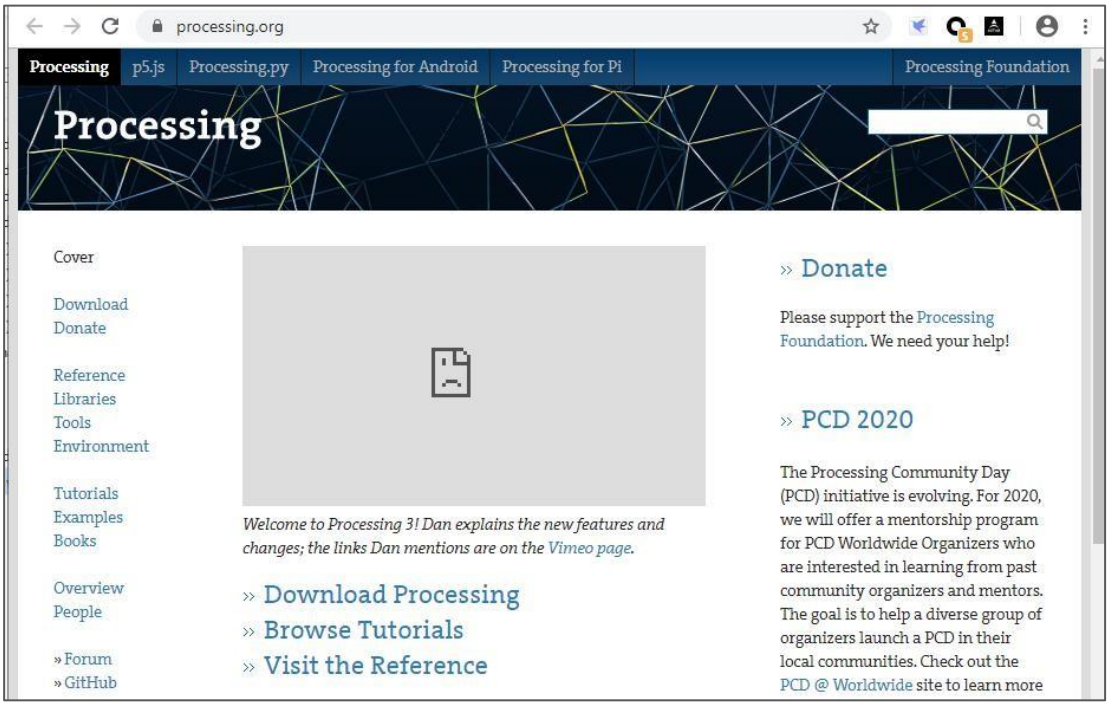
In this course, we will learn how to use Processing software to control robotic arms.

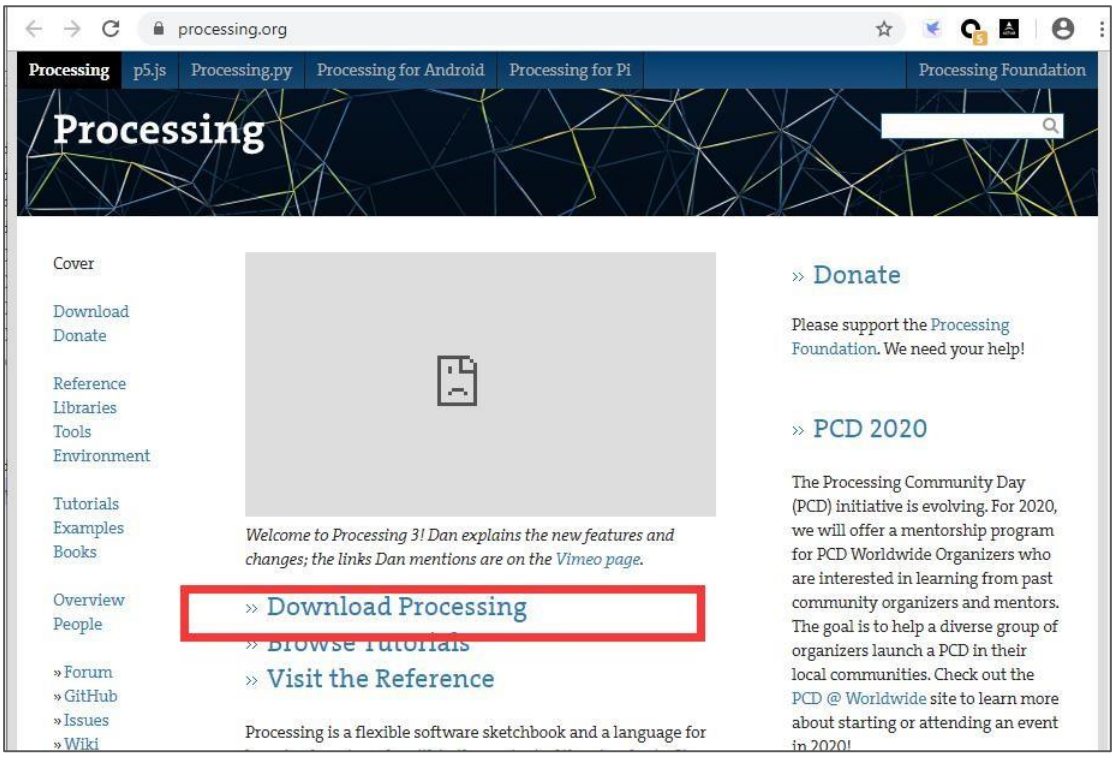
1. Download Processing

Processing is a revolutionary and forward-looking new computer language. Its concept is to introduce programming languages in the environment of electronic art and introduce the concept of electronic art to programmers. It is an extension of the Java language and supports many existing Java language architectures. It is not only much simpler in syntax, but has many intimate and user-friendly designs. Processing can be used on Windows, MAC OS X, MAC OS 9, Linux and other operating systems. The latest version is Processing 3. The work done in Processing can be used on the personal computer side or exported to the Internet in the form of Java Applets.

How to download Processing?

1. Enter this URL with Google Chrome: https://processing.org/ .



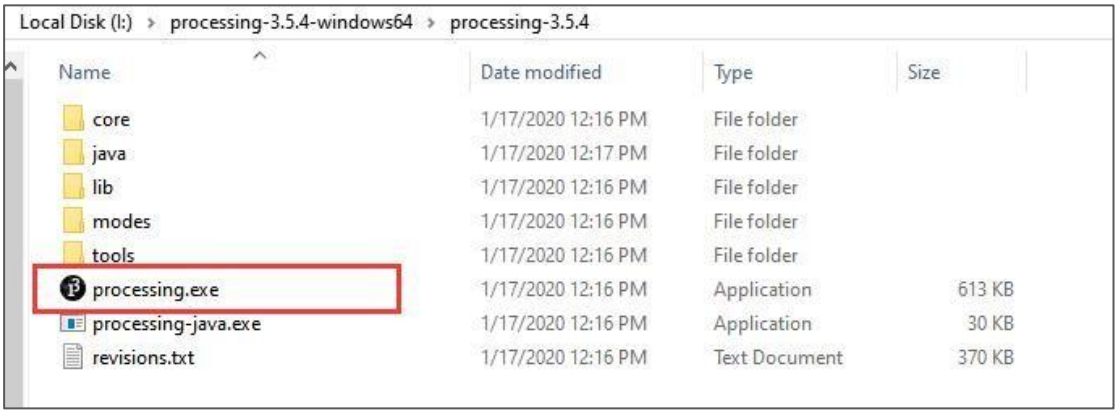


2. Click Download Processing, as shown below:

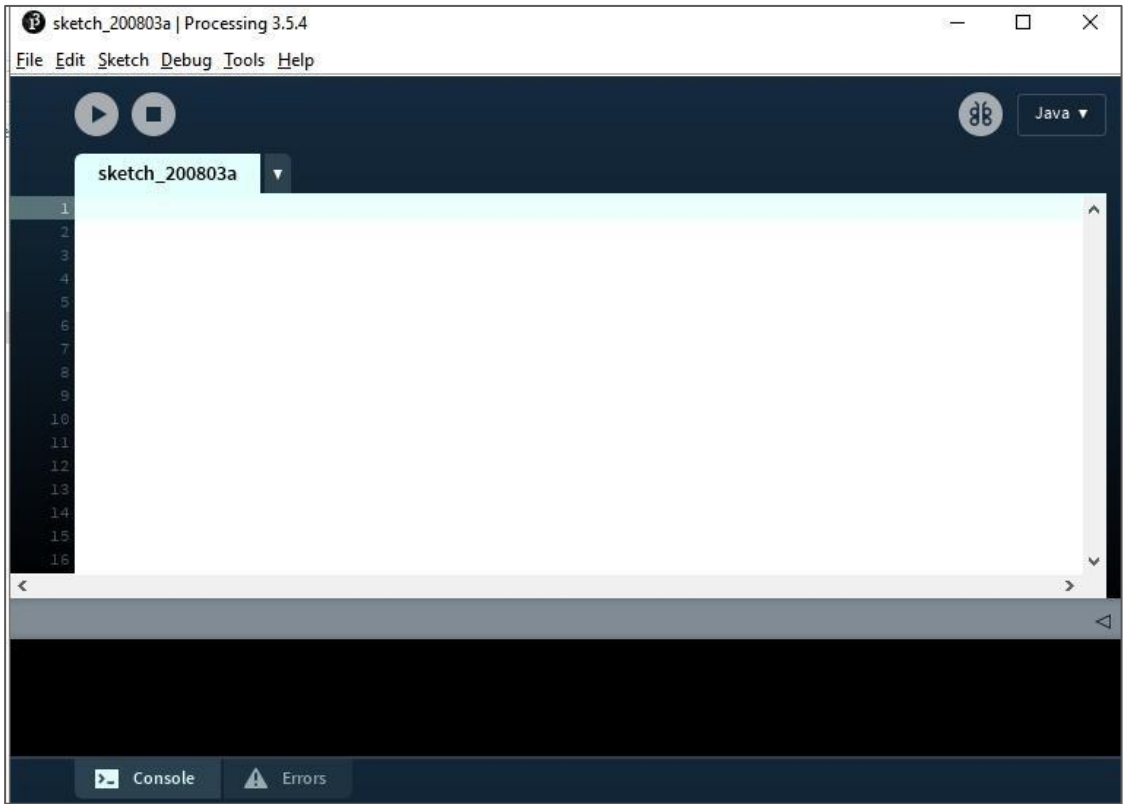
3. The operating system we choose to use here is windows 64-bit, select "Windows 64-bit".

4. When finish downloading, you will get a compressed file "processing-3.5.4-windows64.zip".

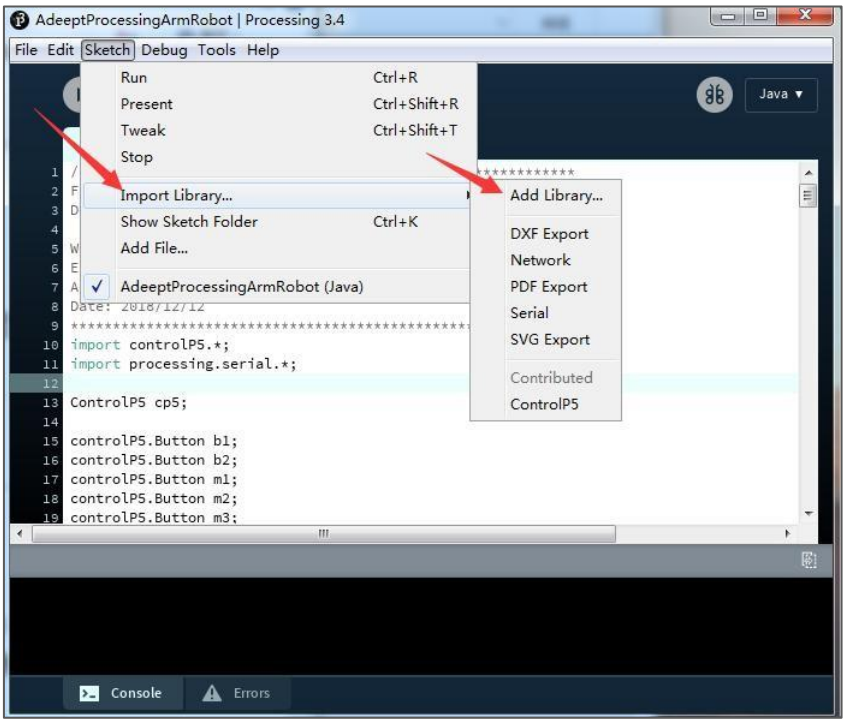
5. After extracting this file, you can get the following file, just click to run processing, it can be run directly without installation.



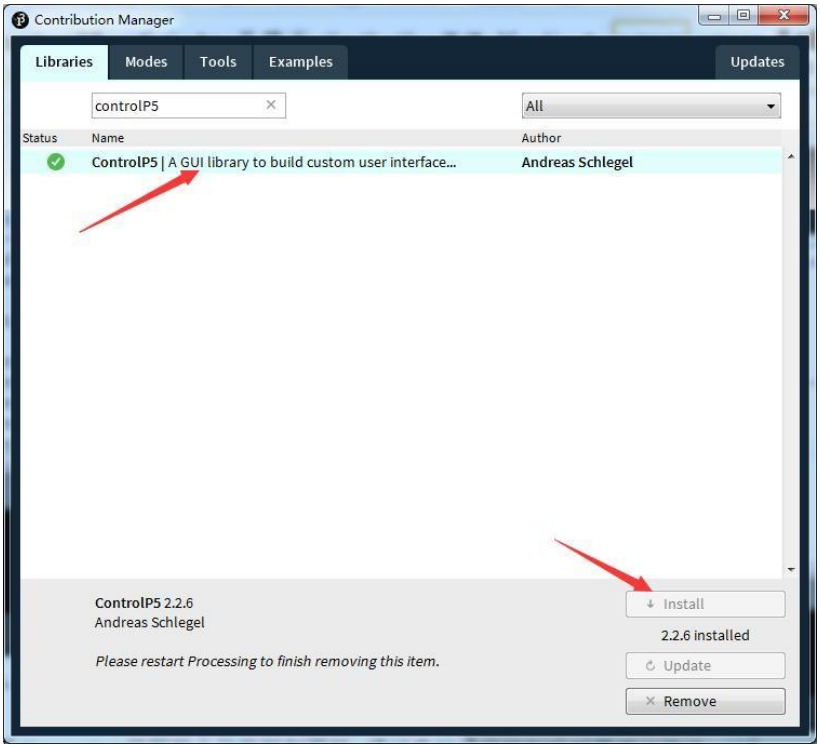
6. The interface is as follows after the Processing runs.



7. the library file controlP5 needs to be added.



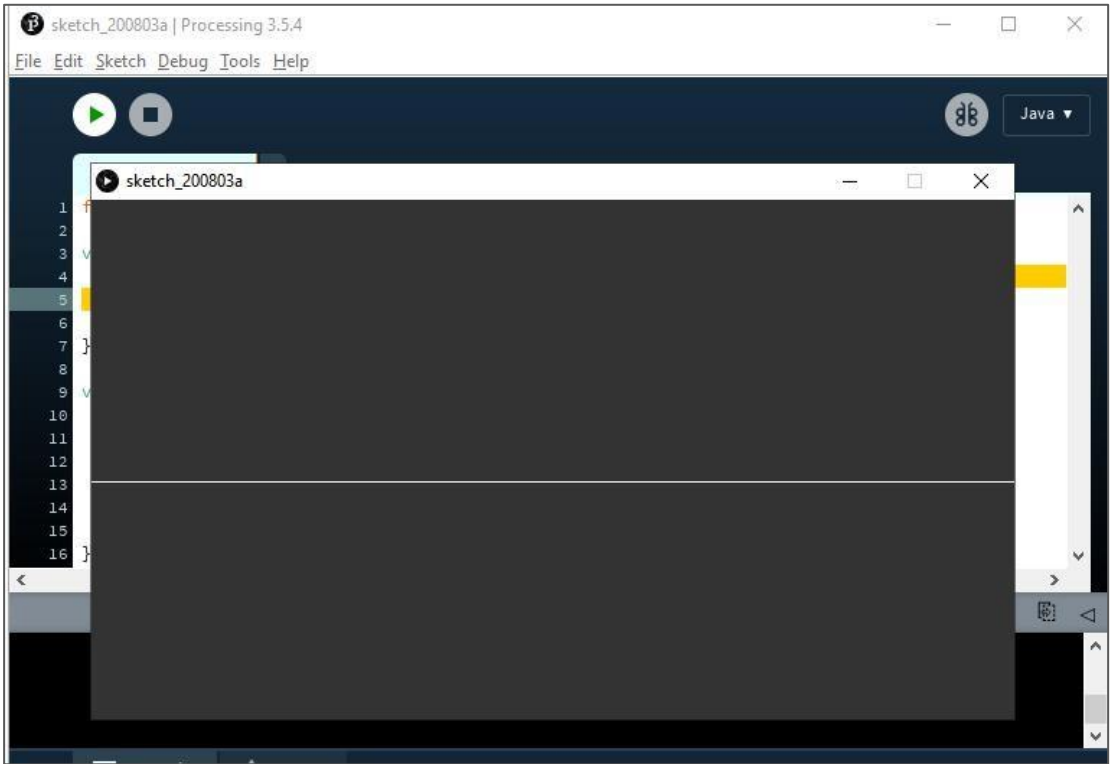
Then search controlP5（If you do not find it in the list, please close this window, reopen it, and search again. Finally click Install



8. Let's write a simple code that implements the following functions "Change the variable to create a moving line. When the line moves out of the window edge, the variable becomes 0 and the line goes back to the bottom of the screen.

9. Click “Run”.

10. Running effect is as follow.

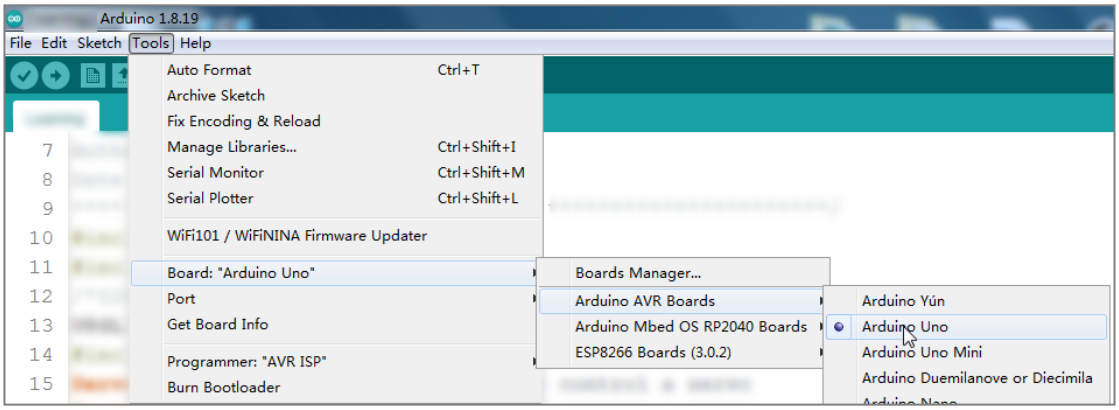


2. Upload the AdeeptArmRobot.ino

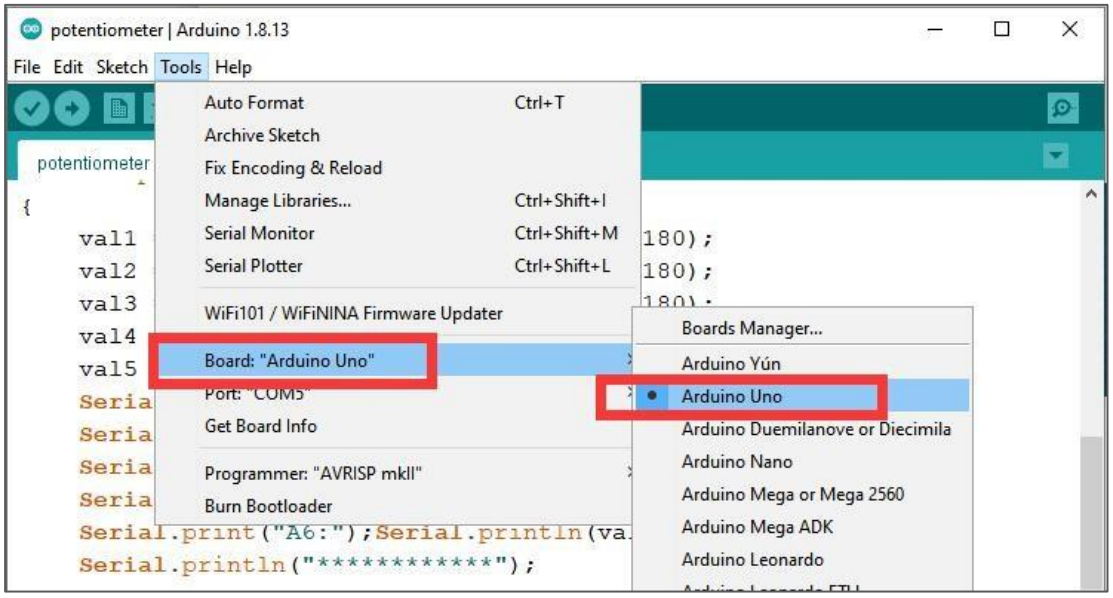
The AdeeptArmRobot.ino is a program to control the robotic arm servo.

1. Open the Arduino IDE software, as shown below:

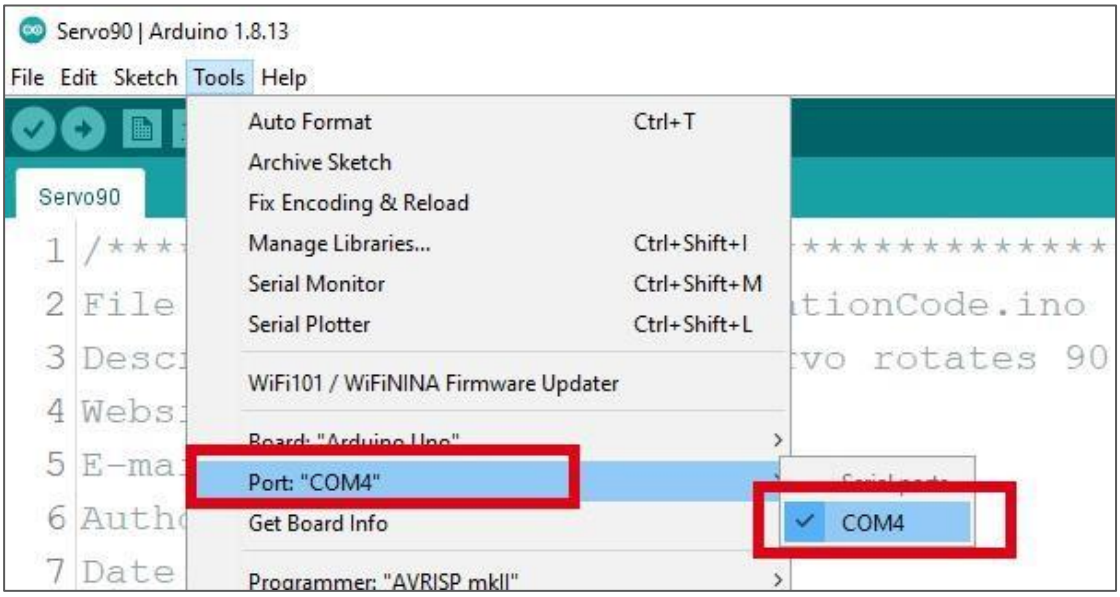
2. In the Tools toolbar, find Board and select Arduino Uno, as shown below:



Or:

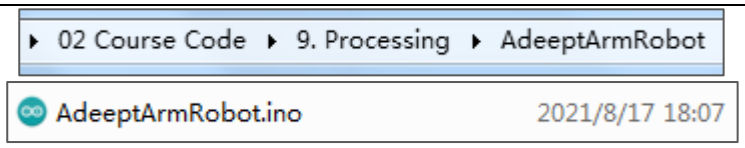


3. In the Tools toolbar, find “Port” and Select the port number of The Adeept Arm Drive Board, as shown below:

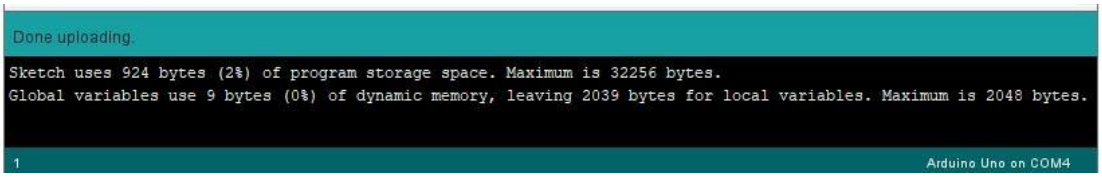


4. Click Open in the File drop-down menu:

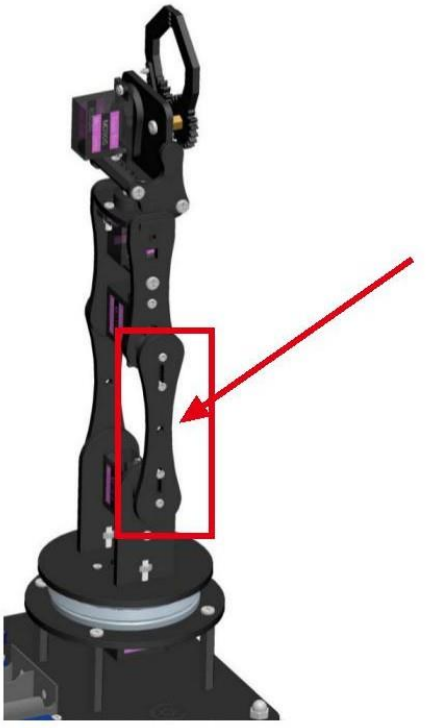
5. Find **the Package of Documentation** (Reference: Chapter 4, near Page 12 of this section, subsection 5, step (4)) that we provide to the user. Open the directory in sequence: “02 Course Code” -> “9. Processing” -> “AdeeptArmRobot”. Then select the code file "AdeeptArmRobot.ino" and click the "Open" button.

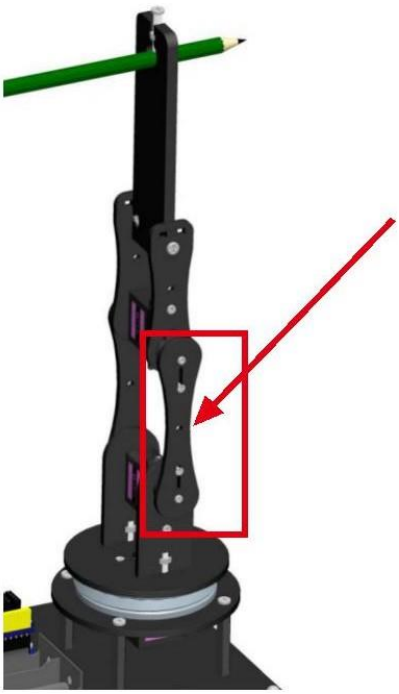


6. After opening, click  to upload the code program to the Adeept Arm Drive Board. If there is no error warning in the console below, it means that the Upload is successful.



7. After downloading, close AdeeptArmRobot.ino
8. Note that the arm is still connected to the computer with the USB cable. Rotate the arm to the position as shown in the figure below (Manually remove and adjust without power supply)





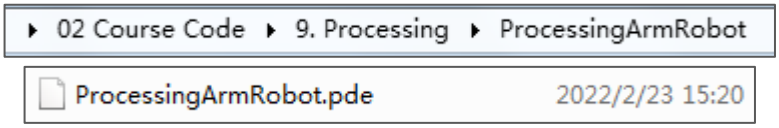
3. Run the ProcessingArmRobot.pde

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

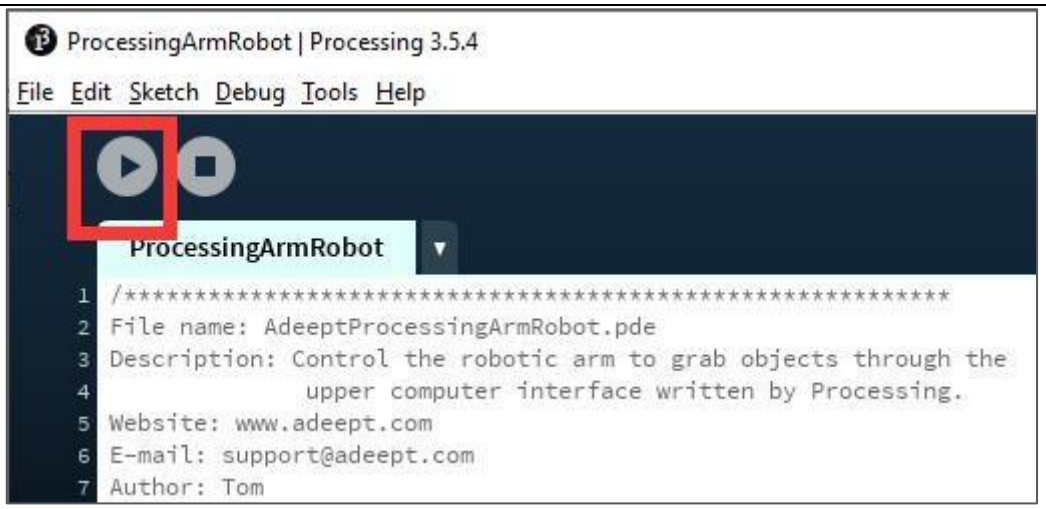
1. Open the Processing software, as shown below:

2. Click Open in the File drop-down menu:

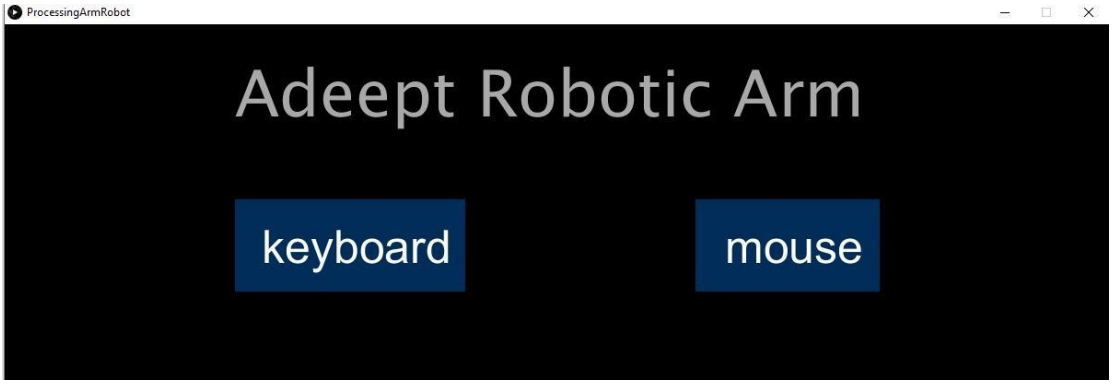
3. Find the folder AdeeptRoboticArmforArduinoV3_5 that we provide to the user. Open the directory in sequence: “02 Course Code” -> “9. Processing” -> “ProcessingArmRobot”. Then select the code file "ProcessingArmRobot.pde" and click the "open" button.



4. After opening, click  to run the code, as shown below:



5. The interface of successful running is as below, provides two ways to control the robotic arm: keyboard and mouse.



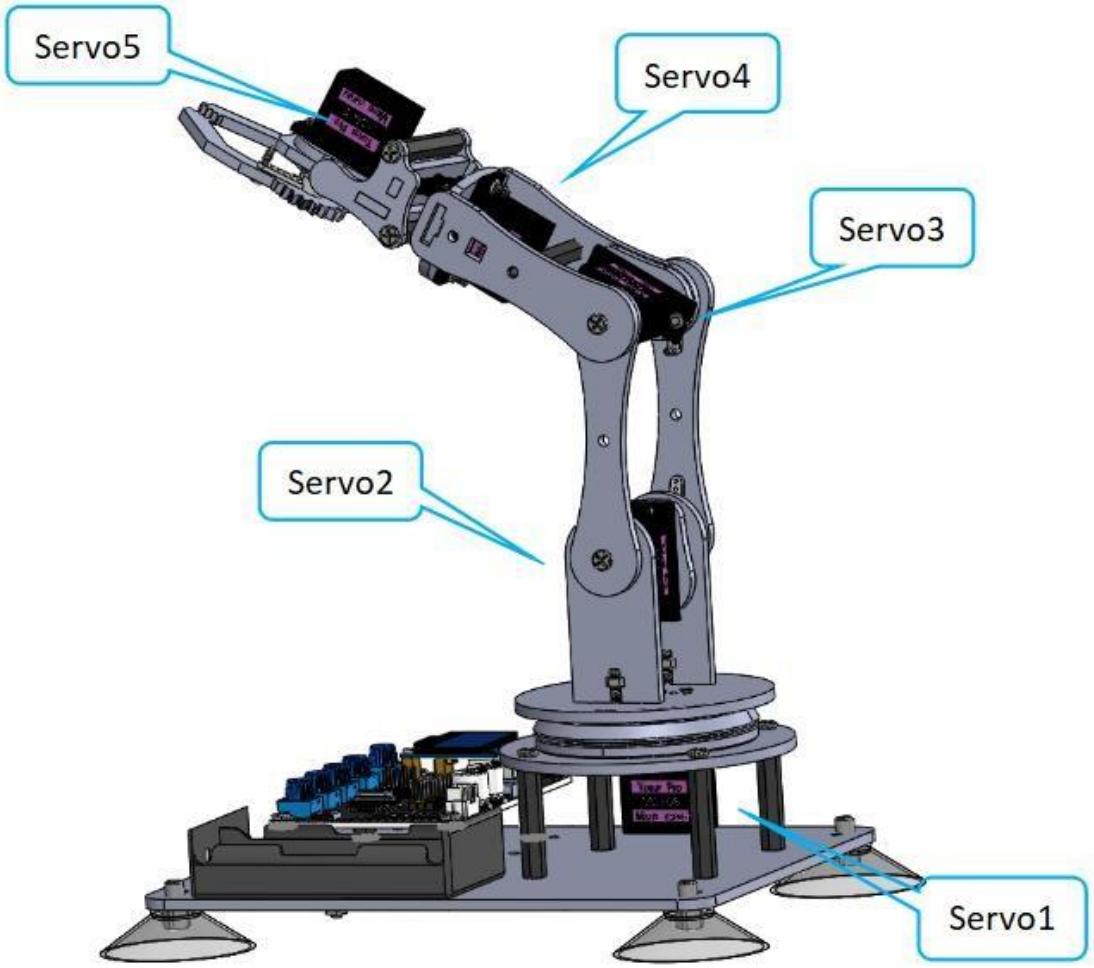
6. Click "keyboard" the following interface will appear. Next, press the corresponding button on the keyboard to control the arm.

1."Q" and "W" control servo5 (Gripper), The “Q” button is to control the gripper to open; the “W” button is to control the gripper to close.

2."E" and "R" control servo4 (Rotate),"E" button is to turn to the left,"R" button is to turn to the right.

3."T" and "Y" control servo3 (Elbow).

4."U" and "I" control servo2 (Shoulder). 5."O" and "P" control servo1 (Base).



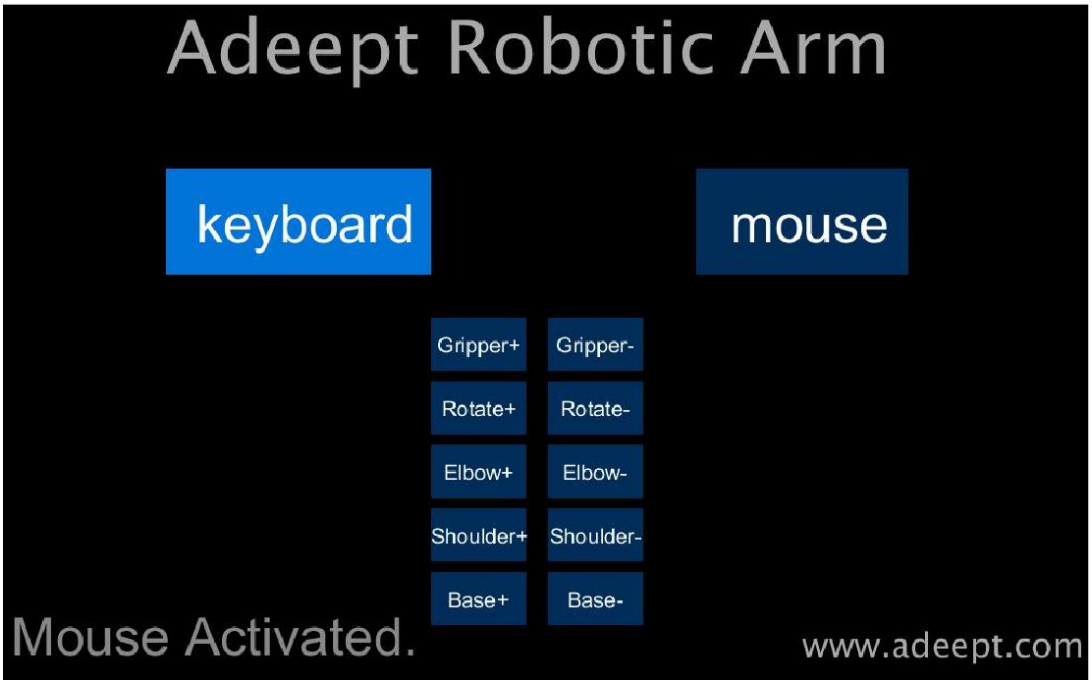
7. Click "mouse" and the following interface will appear. click the corresponding button, the robotic arm will make the corresponding movement.

1."Gripper+" and "Gripper-" control the servo5,

2."Rotate+" and "Rotate-" control the servo4,

3."Elbow+" and "Elbow-" control the servo3,

4."Shoulder+" and "Shoulder-" control the servo2, 5." Base+" and "Base-" control the servo1.


Adeept Robotic Arm
keyboard
mouse
Gripper+
Gripper-
Rotate+
Rotate-
Elbow+
Elbow-
Shoulder+
Shoulder-
Base+
Base-
Mouse Activated.
www.adeept.com