MagicBlock
Software Instruction Manual
V.1.0

Version Modification History

Date	Version	Description	Author
2020-09-14	V.1.0	Create	Joey

Contents

Chapter 1 Introduction to Magicblock SoftwareMagicBlock

1.1 Graphic Programming Software：MagicBlock

Magicblock is a building block programming and code programming software produced by Shenzhen e-creation Space Technology Co., Ltd and developed based on scratch3.0 and oriented to steam education field. Magicblock adds various graphical programming methods for open source hardware based on Scratch 3.0. Through the construction of graphic blocks for electronic hardware programming, it is a software that allows teenagers to learn programming in the process of showing their creativity and giving full play to their creativity.

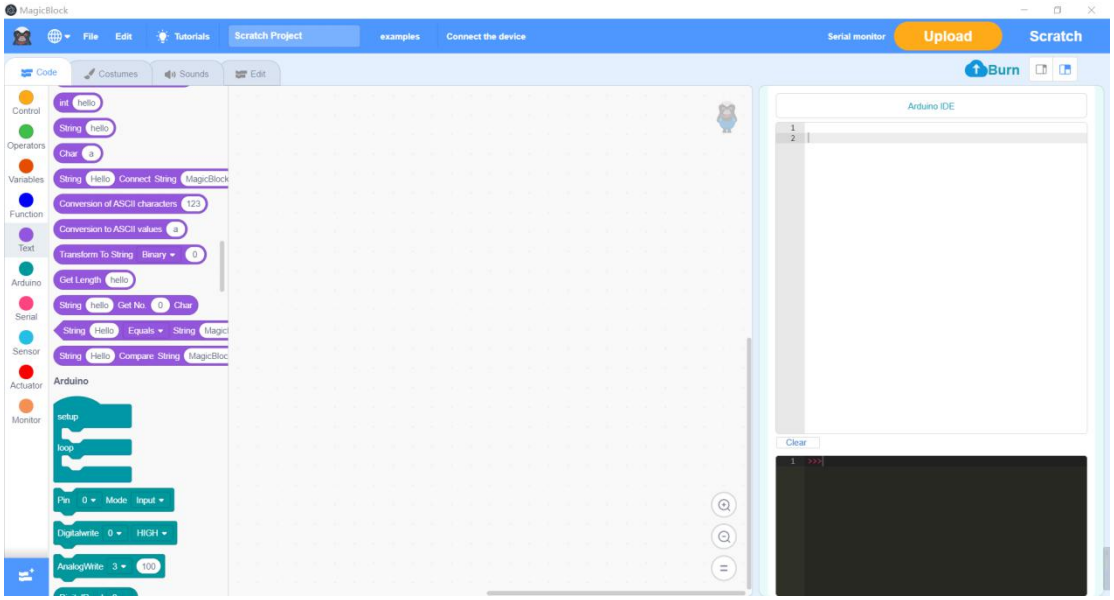


Figure 1-1 Software Interface of MagicBlock

1.2 Software Installation(Take windows as an example)

1. According to your own computer system, install the corresponding version of software. There is a corresponding software installation package (as shown in Figure 1-2) in the data package. You can also download it from our official website (as shown in Figure 1-3). The download address is:

Figure 1-2

Figure 1-3

2. Double click directly MagicBlockSetup.exe to install Magicblock, and the following installation wizard appears.

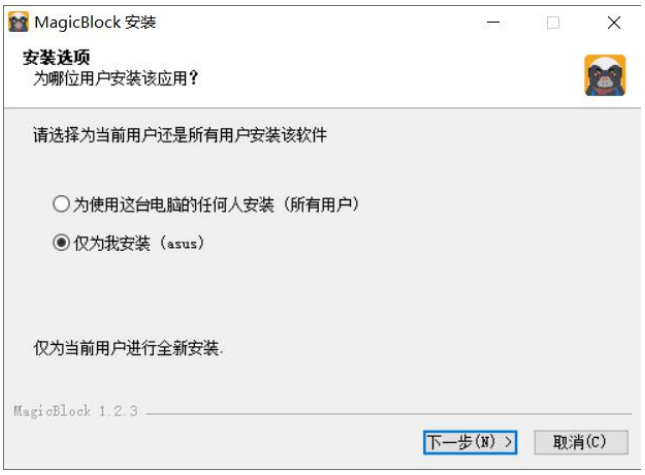


Figure 1-4

Click “next”; the following selection box appears (as shown in Figure 1-5), and click “Browse” to select your software installation path. (Windows users should try not to install to the system disk).

Figure 1-5

After selecting, click “install”. The installation window will appear, as shown in the following figure:

Figure 1-6

After installation, the following window appears:

Figure 1-7

Run the check box "√" and click "finish" to enter Magicblock.

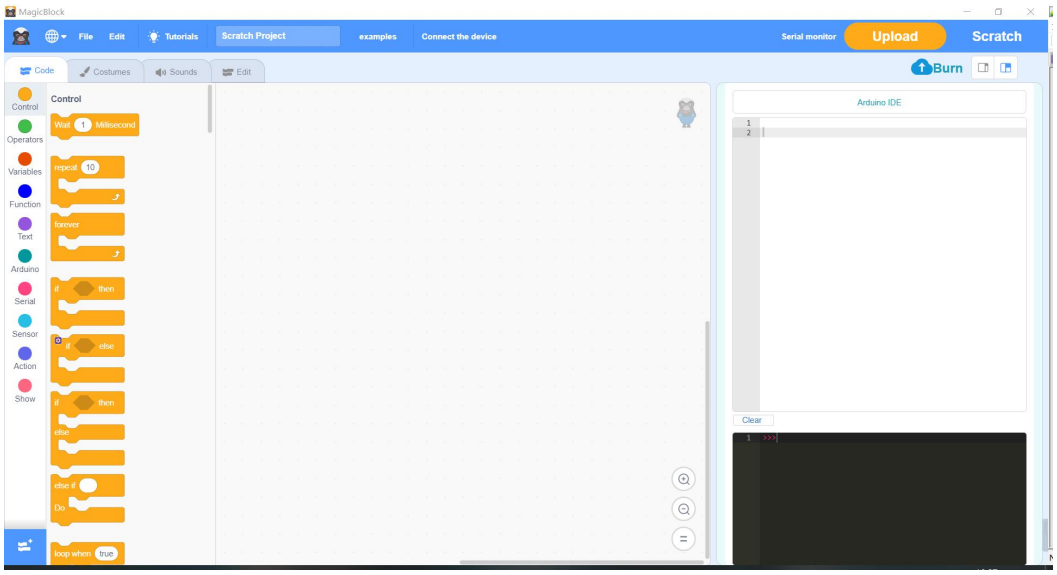


Figure 1-8

Enter the MagicBlock interface, the default is "upload mode", and the product is Arduino. At this moment, we can experience MagicBlock programming happily.

1.3 Introduction to Compiling Environment

The software interface of MagicBlock is shown in Figure 1-9.

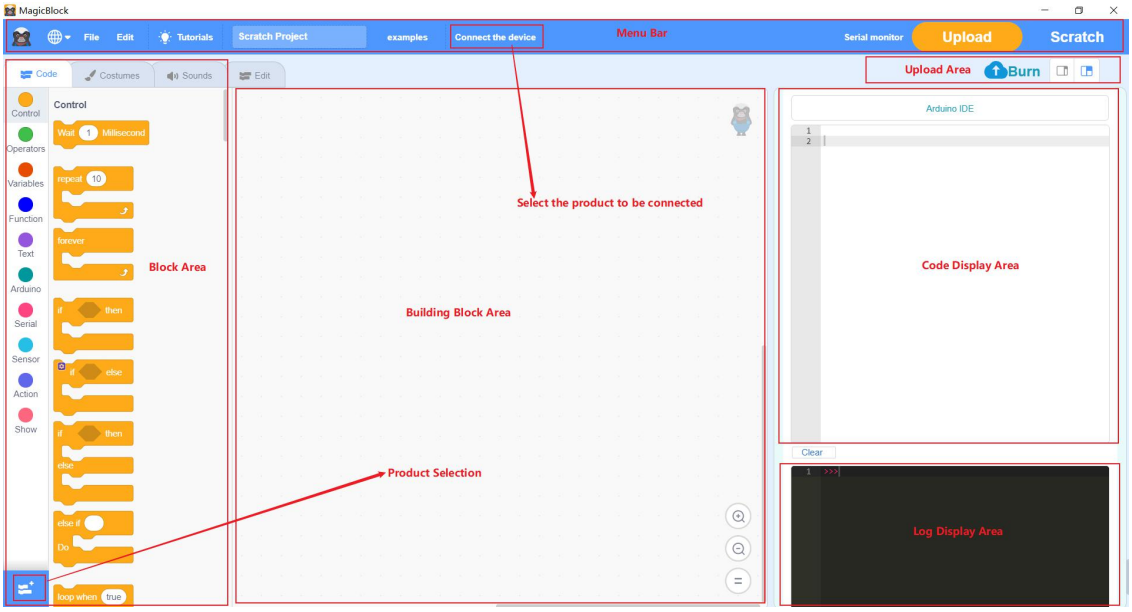


Figure 1-9

- **Block Area:** blocks of the same type are divided into the same module and given the same color. Each block represents a control instruction.
- **Building Block Area:** It is the place where the blocks dragged from the building block area are placed.
- **Code Display Area:** After the building block is pulled out, the code corresponding to the module you drag can be seen in this area. The program uploaded to the mainboard is the program in this area.
- **Menu Bar:** language switch (earth), upload and download (file), version view (bear), connection device, serial port monitor, mode switch and other functions.
- **Connect Device:** select device connection.
- **Product Selection:** When you click the product selection button,

Chapter 2 Introduces Programming

2.1 Compile and Print Hello World Program

If we want the main control board to perform relevant actions or react according to our intention, we need to store the instructions (programs) in its brain (UNO main control board) in advance. How to compile instructions for the robot? Let's lead you to compile a program to print Hello world.

2.1.1 Products Selection

Before programming, we need to select the product (take Arduino as an example), and the specific steps are as follows:

1) Click the product selection button;

2) Select the product we need (Arduino), as shown in Figure 2-1;

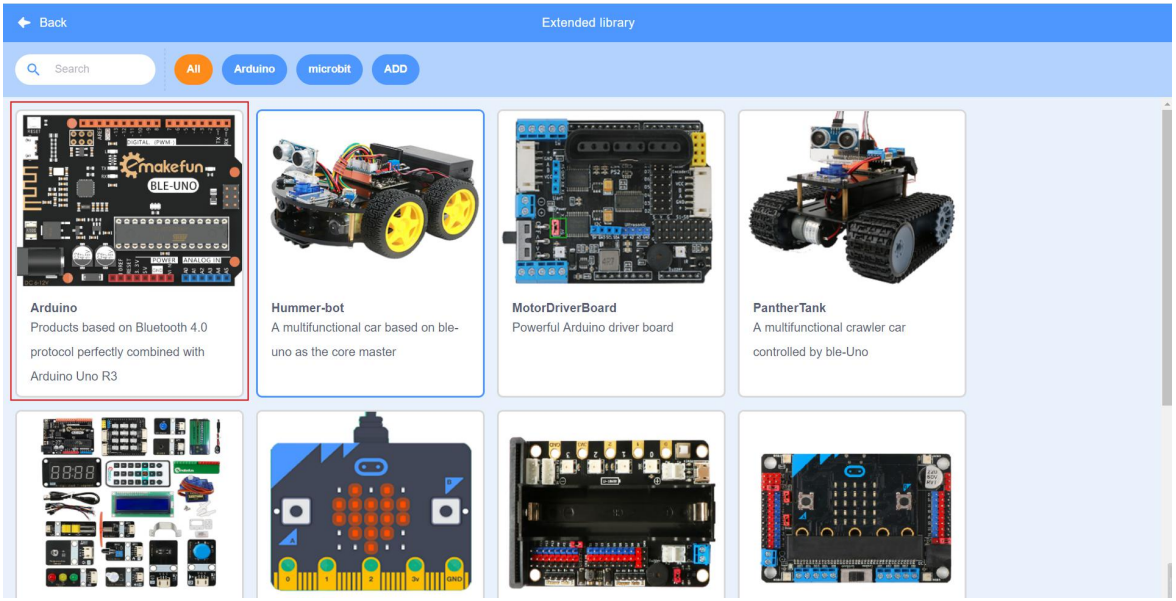


Figure 2-1

After selection, it will jump to Arduino product, as shown in the following figure:

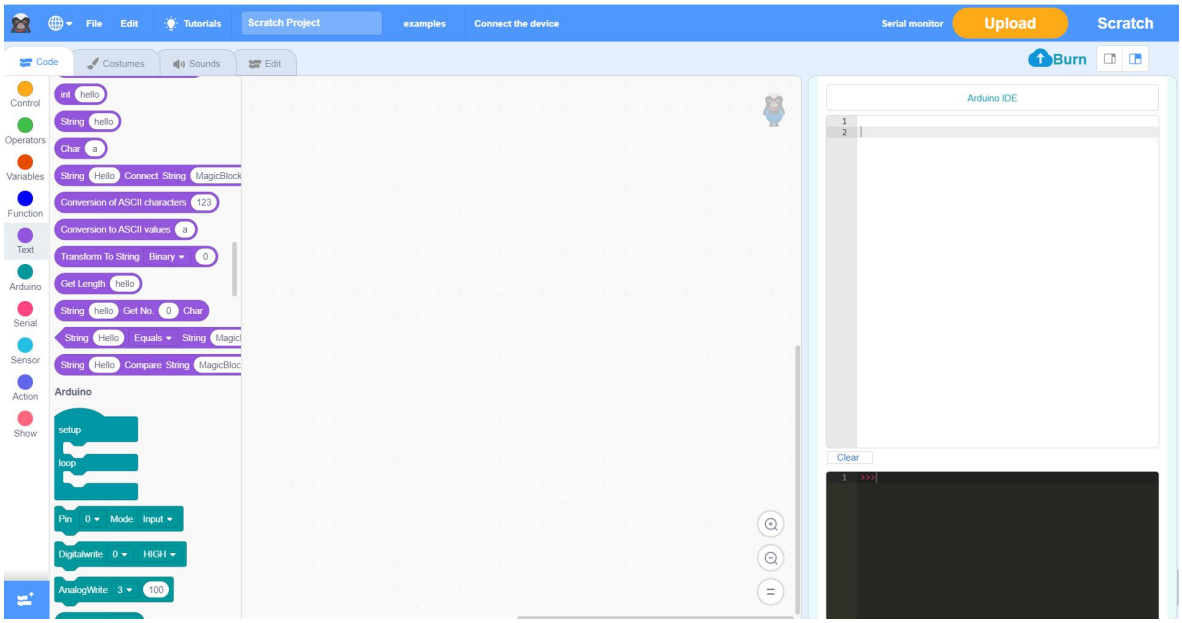


Figure 2-2

2.1.2 Experience Programming

After choosing the product, we can start our programming journey;

1)We put the mouse in the first building block  of Arduino class, then hold down the left mouse button, drag this building block to the "building block area", and then release the left mouse button. In

this way, the building block area has the first block, and we can see the corresponding C language code in the code area. This block is the basic block of Arduino series products, which must be used to realize the functions of Arduino. The “setup” area represents that the building blocks of this area will be executed at the beginning of the main board startup with only once; The “loop” area represents that the building blocks in the area will be executed all the time. As shown in Figure 2-2:

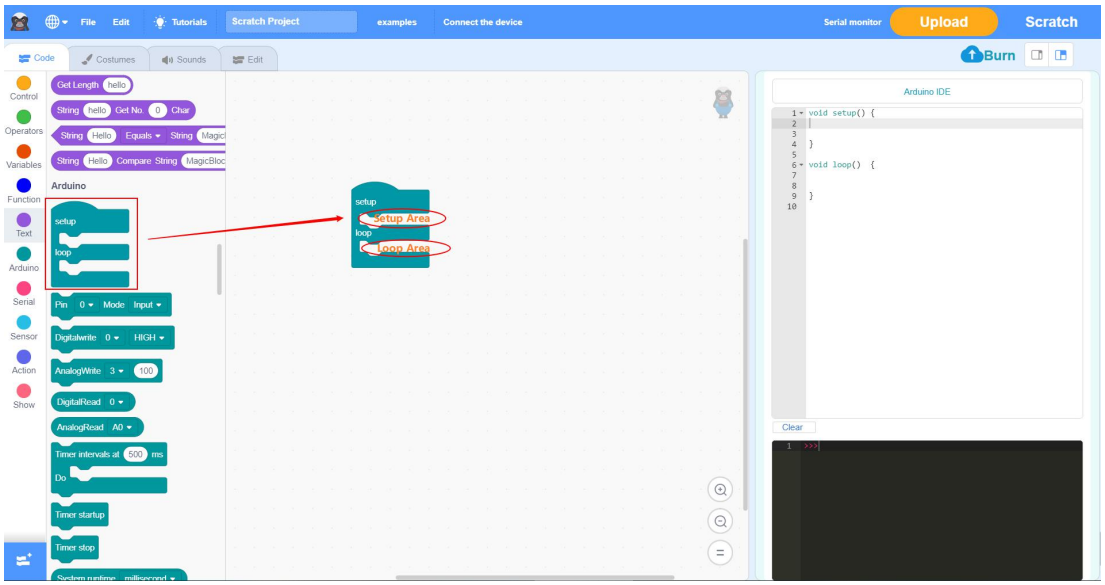
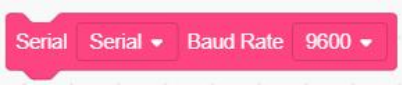
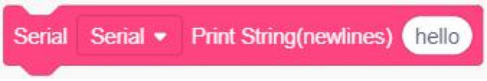


Figure 2-2

2) In the block area on the left, select the blocks we want to build, and place them between the “setup” or “loop” of the first block. Drag the building 

block under the serial port label to the space between “setup” or “loop”, drag the building 

block to the space under “loop” , and change “hello” to “Hello world”, as shown in Figure 2-3;

Figure 2-3

The above is through the UNO main board print Hello Word program. The code area on the right can see the C language program of our selected building block conversion.

After the program is written, we need to transfer the program to the brain of the main board (take the BLE-UNO control board as an example), and it will do what we want according to the program we write.

How can we transfer the program to the BLE-UNO mian board? Only when the MagicBlock and the robot main control board are connected together, we can transfer the program written on the computer to the BLE-UNO main board. The connection method of MagicBlock and BLE-UNO main board is introduced below.

2.2 Connection Steps for MagicBlock and BLE-UNO Board

1) Connect the BLE-UNO main board to the computer by using a USB data cable, one end of which is plugged into the computer and the other end is inserted into the BLE-UNO main control board;

2) Connect the computer and Arduino main board through the cable, and check the port in the device manager of our computer (right click “my computer”, “properties” and “device manager” to view “port (COM and LTP)”) (as shown in the figure below). We can see that “COM33” is the serial port of communication between the computer and BLE-UNO main board.

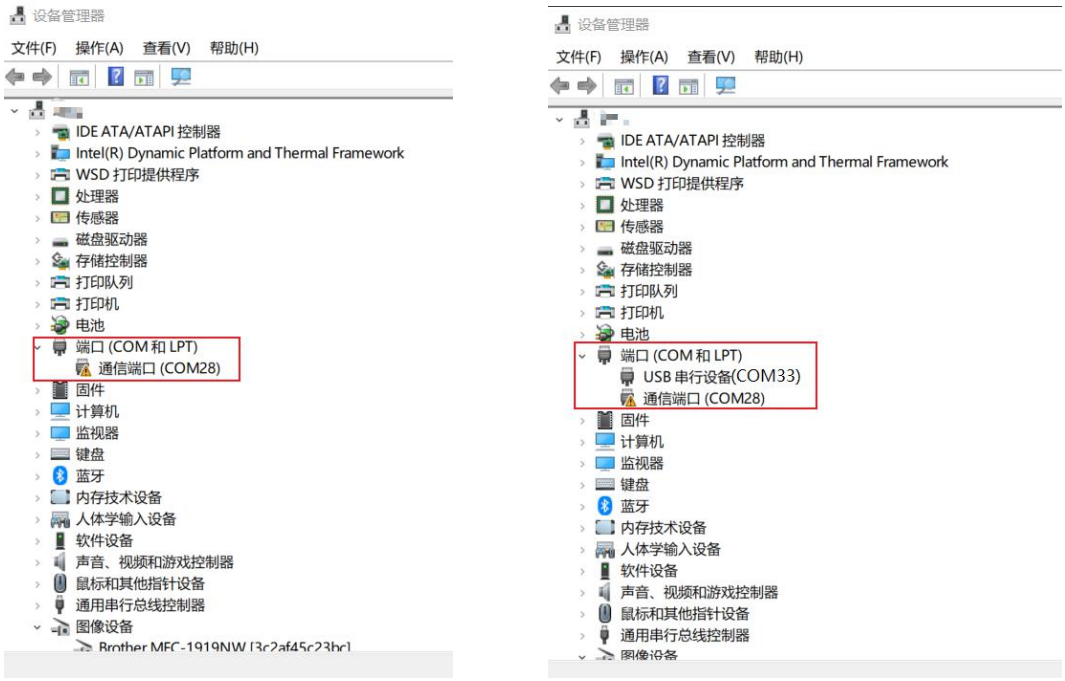


Figure 2-4

Click “connect device” in our magic block menu bar, as shown in the following figure:

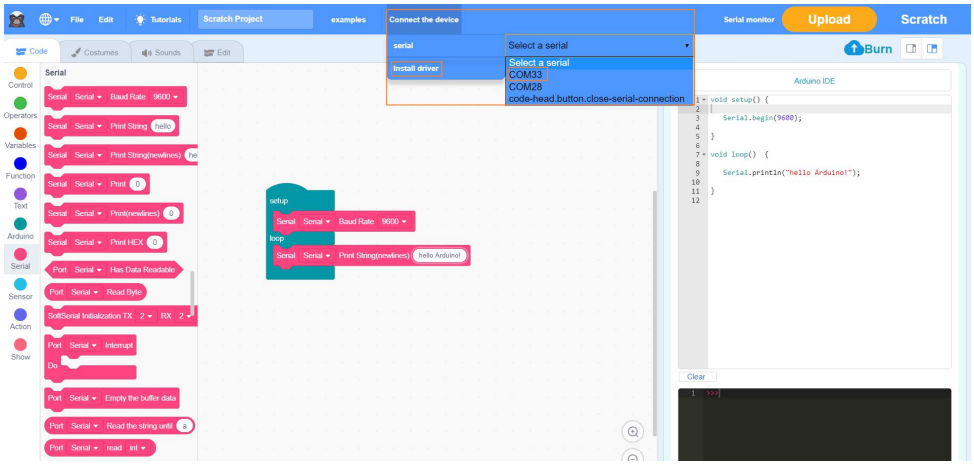


Figure 2-5

Select the serial port corresponding to the device manager. If the serial port is not displayed in the device manager, please click “one click to install driver”.

2.3 Upload Program to BLE-UNO Main Control Board

1) After selecting the serial port, the serial port will be displayed in the menu bar. Then, we can upload the code. The specific operation steps are as follows: Click the “Upload” button in the upper right corner, and the following pop-up box will appear, indicating that our program is downloading. The print area in the lower right corner will also print the uploaded log, as shown in Figure 2-6;

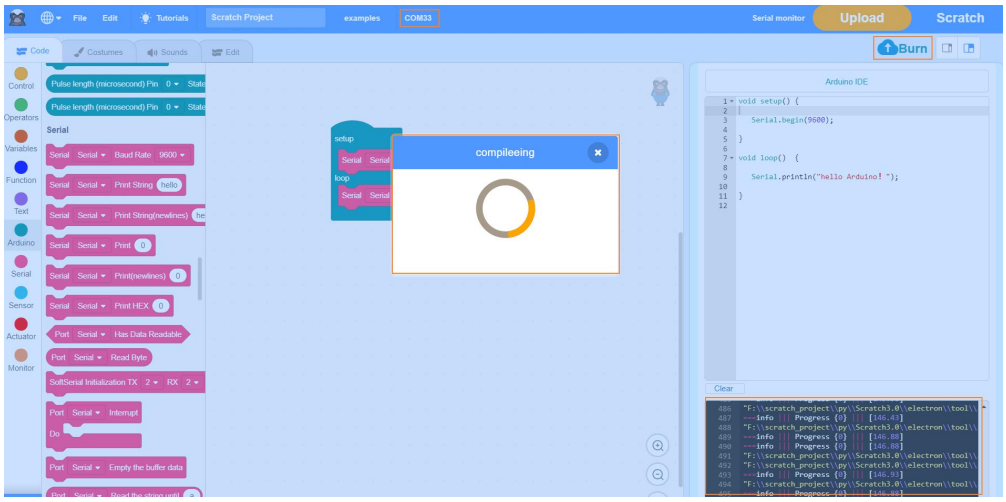


Figure 2-6

When the upload is completed, the upload completed flag will appear, as shown in the following figure:

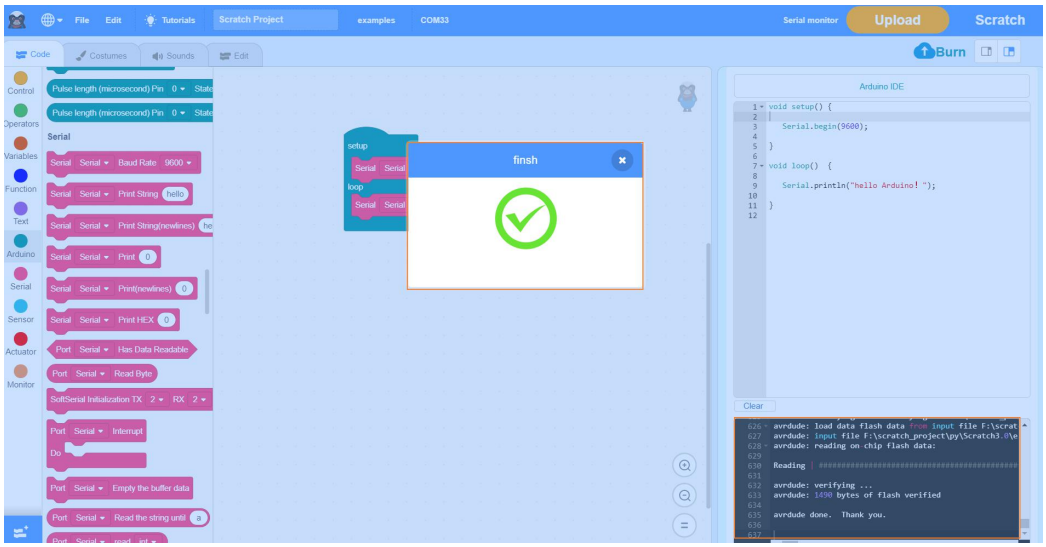


Figure 2-7

Turn off the pop-up box and click “serial port monitor” in the menu bar to see the printed information (as shown in the figure below).

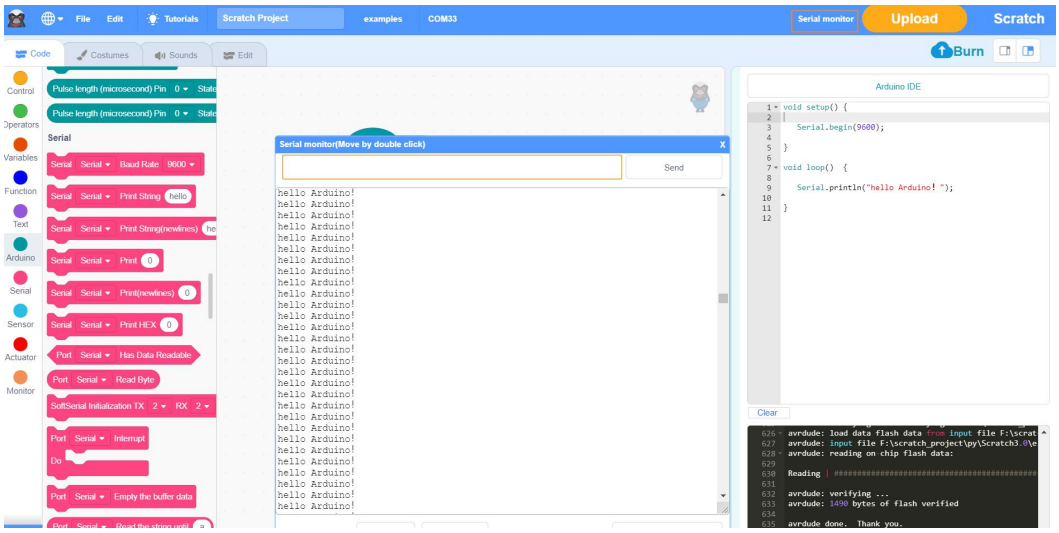


Figure 2-8

The effect is exactly what we expected before. If we achieve the desired effect, we can save the program to our computer for future use. Click the “file” button in the menu bar, select “save to the computer”, select the path to save to, modify the file name, and click Save to see our works in the directory.

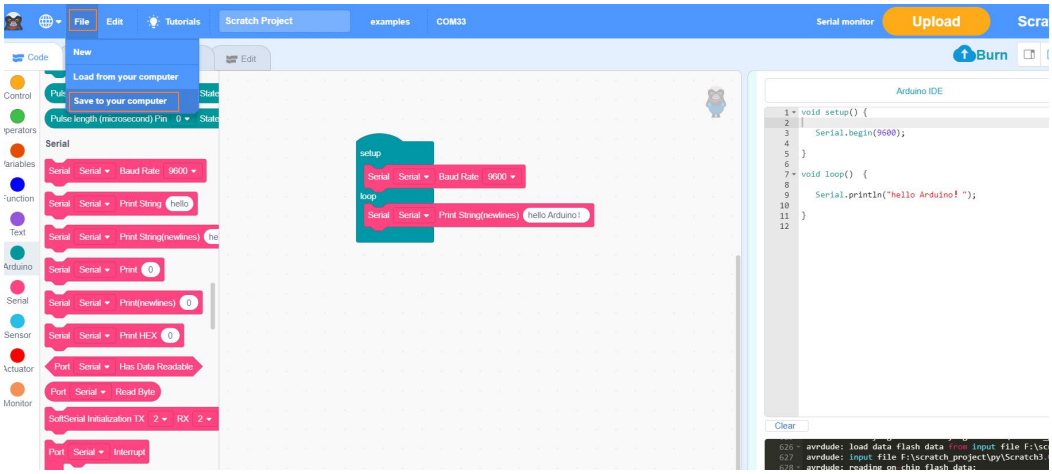


Figure 2-9

Smart students will soon find that they can upload our previous works from the computer, and the function will be handed over to you! So far, our first MagicBlock small program is written, and see the effect, is not very simple? Come to our MagicBlock and use your talents.