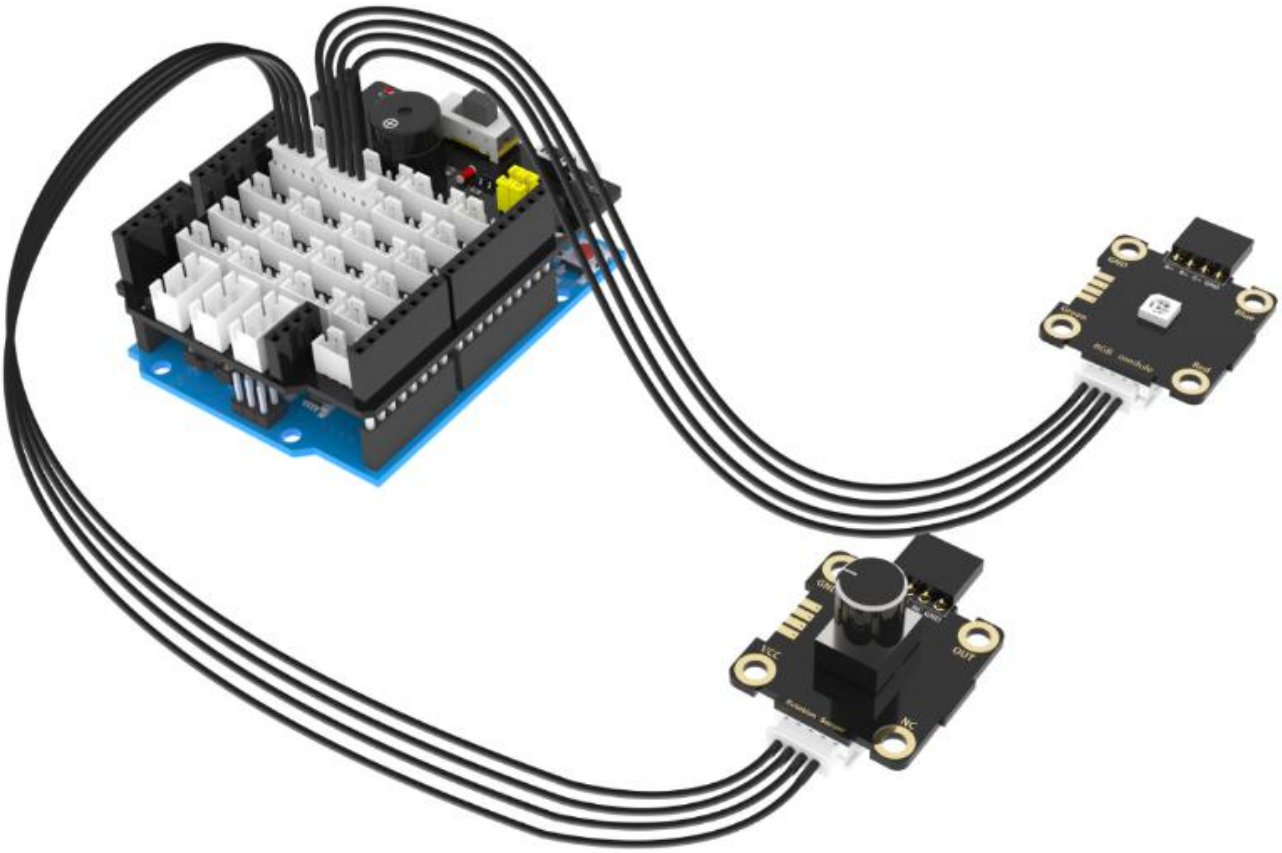
Experimental content: Adjust the brightness of the RGB light module by rotating the potentiometer

Experiment preparation: UNO board *1, Plugkit sensor expansion board *1, 4pin cable(PH2.0)*2, USB data cable *1, Potentiometer module *1, RGB light module *1

Experimental wiring:

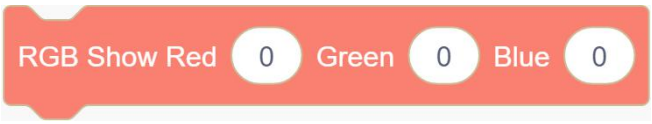


The wiring of the potentiometer module is the same as the previous experiment

The RGB light module is connected to the interface of the sensor expansion board with silk screen (GND, ~ 11, ~ 10, ~ 9), R +: ~ 10 G +: ~ 11 B +: ~ 9.

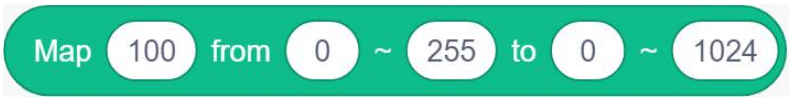
Experimental steps:

1.Select the following building blocks in the [Plugkit] and [Arduino].

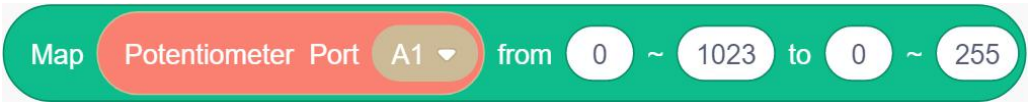


Map blocks is mainly to map the range of the first value from one range to another range (constraining one range to another range). Another range can be larger or smaller than the original range. For example, the initial value of the block is to map 100 from 0 ~ 255 to 0 ~ 1024, and the result is about 401.

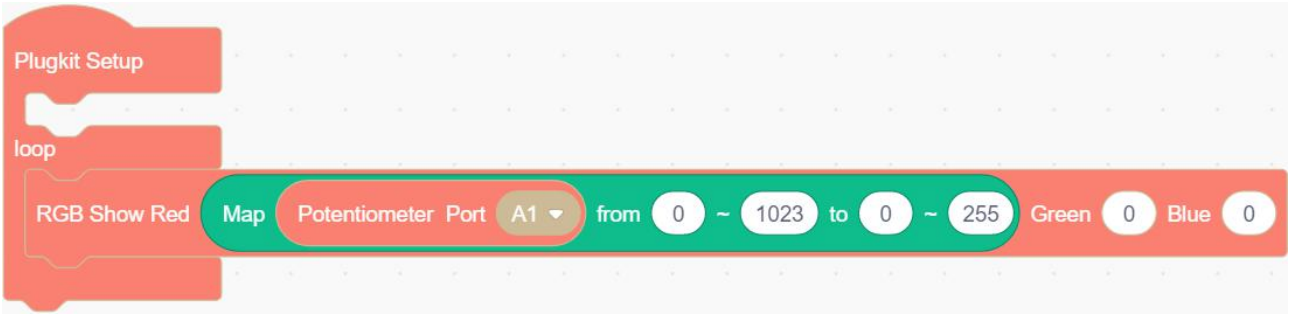
We can also print this result with the serial debugging assistant. The ratio of 100 to 255 is 20/51, so mapping to 1024 also occupy the same ratio, so 1024 * (20/51) ≈401



2.Since the actual analog value of the potentiometer module is 0 ~ 1024, but the color value of the RGB light module is only 0 ~ 255, we need to use the map blocks. Put the potentiometer module at this position (the first position) of the map block initialization 100, and modify the range from 0 ~ 1024 to 0 ~ 255.

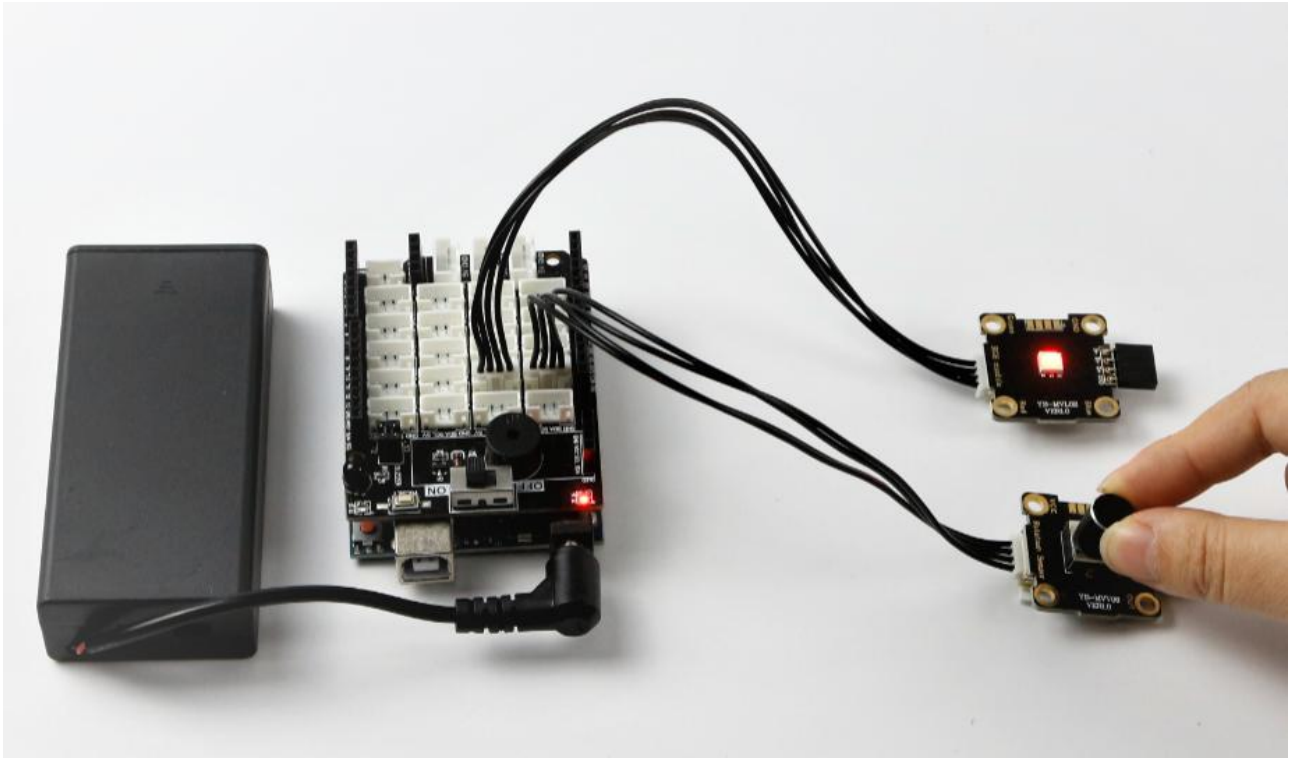


3.Put the combination of step 2 blocks into the input position of RGB light any color value block



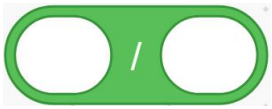
4.Compiling and uploading programs.

Experimental phenomena: The brightness is rotated clockwise from high to low, and the brightness is rotated counterclockwise from low to high.



Expand: In addition, we can also use arithmetic methods to constrain the range of the potentiometer module to 0 ~ 255.

1.Select the following blocks in the [Operator].



2.Put the potentiometer module to the left of the block and fill it with 4 on the right. This block function is that the original range of the potentiometer module by dividing it from 0 to 1024 by 4 (reduced by 4 times). The new range is 0 ~ 1024/4 (0 ~ 256).

3.This block combination is the same as the map block used in previous steps, both of which have the same effect.