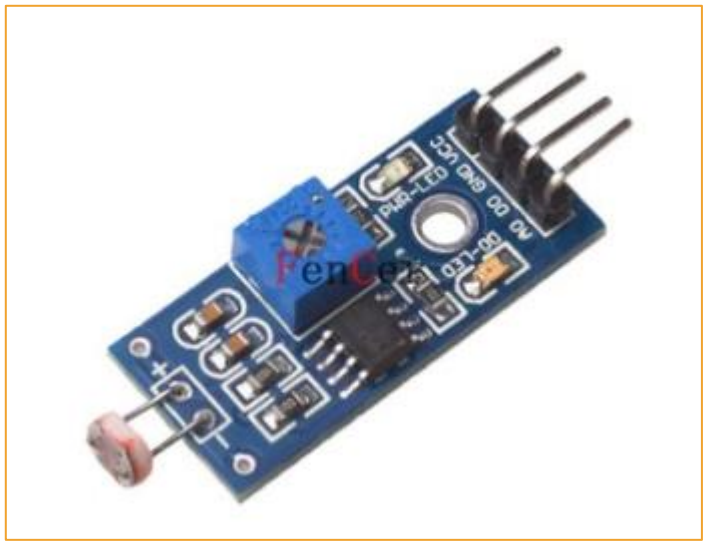
Photo-resistor module Experiment

Introduction to Photo-resistor module

As we all know, the voice control lamp in the corridor has a sensor in addition to the voice control, namely the light sensor. Photoelectric sensors are also known as photosensitive resistors. It (photosensitive resistance, or LDR for short) is usually made from cadmium sulfide. When the incident light rises, the resistance value will decrease; When the incident light goes down, the resistance goes up. Photosensitive resistors are commonly used in light measurement, control and conversion (the change between light and electricity) can change (light becomes electricity), and they can also be widely used in a variety of light control circuits, such as controlling and adjusting lights and light switches

We first conducted a relatively simple experiment using a photosensitive resistor. Since the photosensitive resistor is a component that can be controlled by the intensity of light, it is natural to read the analog value through the analog interface. According to the previous PWM interface experiment, we can change the potentiometer to a photosensitive resistor, and then the brightness of the LED will change accordingly when the light intensity is changed.



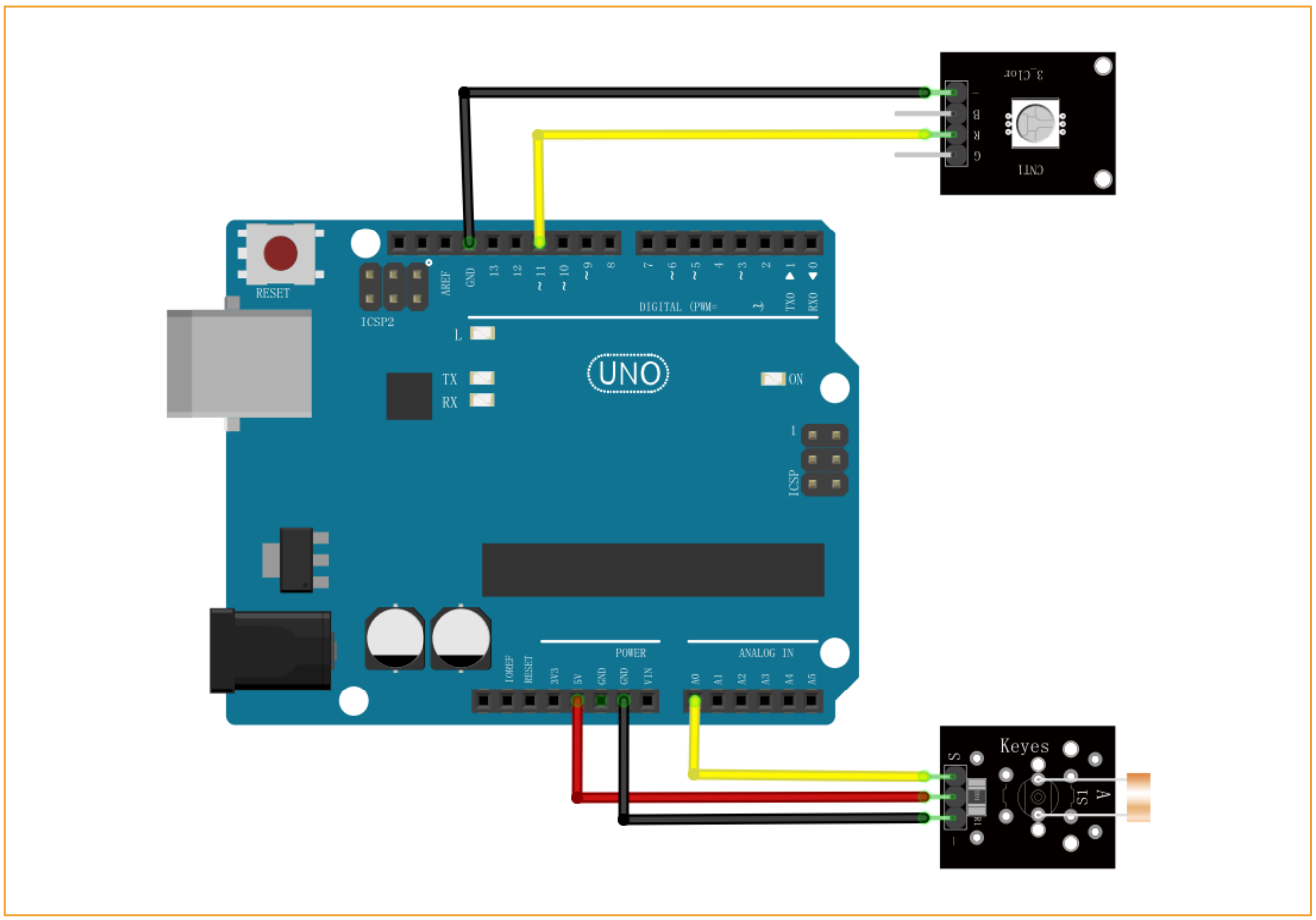
Component List

- Keywish Arduino Uno R3 mainboard
- Breadboard
- USB cable
- Photoresistor module*1

- Jumper wires
- LED Module*1

Wiring of Circuit

Arduino UNO	photoresistor module
A0	AO
GND	GND
5V	VCC
Arduino UNO	RGB LED Module
11	R
GND	GND



Experiment Principle

1. The photosensitive resistor module is the most sensitive to ambient light, which is generally used to detect the brightness of ambient light, trigger the single-chip microcomputer or relay module, etc.;

2. When the ambient light brightness fails to reach the set threshold, the do(digital port) end outputs high level. When the ambient light brightness exceeds the set threshold, the do end outputs low level;

3. The do output end can be directly connected with the single chip microcomputer to detect the high and low levels, so as to detect the changes in the light brightness of the environment;

4. The do output can directly drive the relay module, which can constitute an optical control switch.

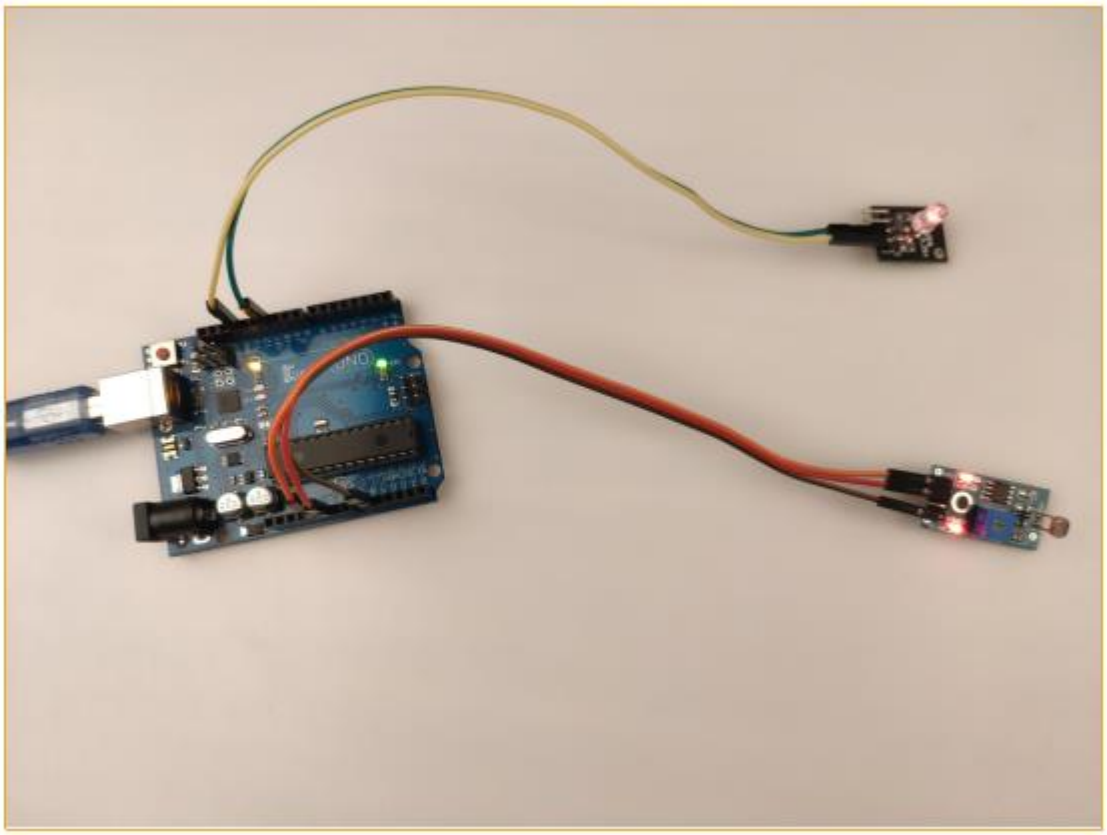
5. Ao output of analog quantity can be connected with AD module. Through AD conversion, more accurate values of ambient light intensity can be obtained.

Arduino IDE programming Code

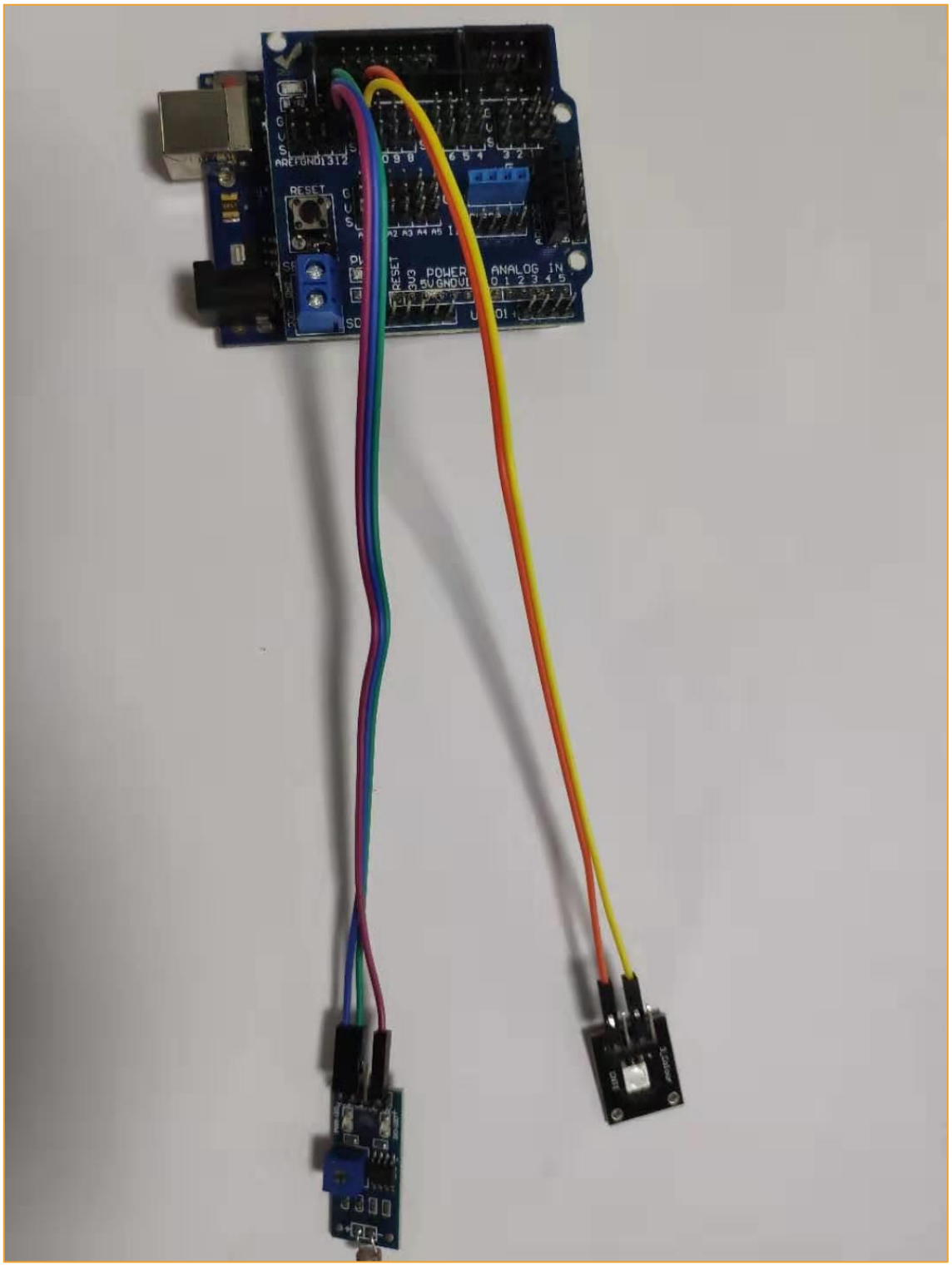
```
int  ADPIN  = A0 ;
int  LEDPIN = 11 ;
int  value = 0 ;
float voltage = 0.0 ;
void setup()
{
    pinMode(LEDPIN,OUTPUT);
    Serial.begin(9600);    //Serial Baud rate is 9600
}
void loop()
{
    value =  analogRead(ADPIN);
    voltage = ( ( float )value )/1023 ;
    value = (int)(voltage * 256) ;              //convert voltage to
value
    analogWrite(LEDPIN,value);
}
```

Now that we have covered the photosensitive resistor, we will clearly see the change in the brightness of the light.

Experiment Result



If you have a Sensor V5.0 expansion pad in your kit, you can connect it as shown in the figure below for more convenienc



MBlock graphical programming program:

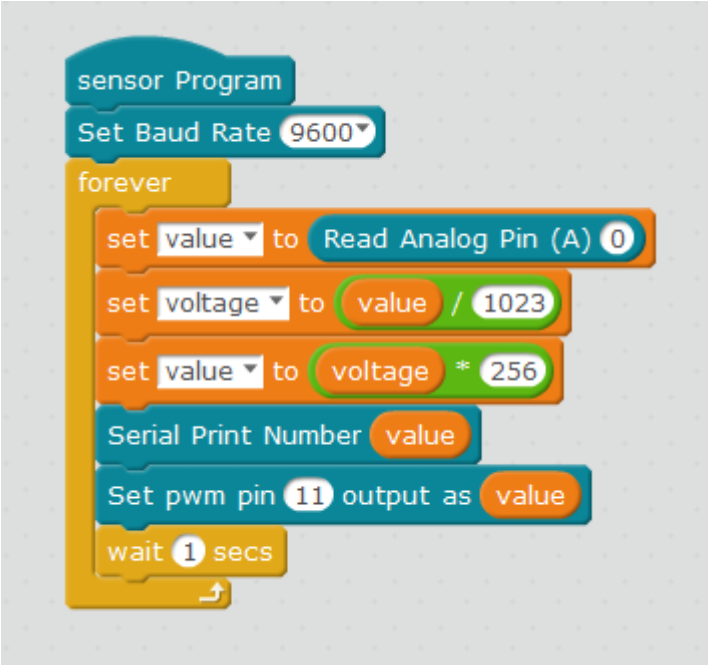
Using mBlock programming, the main blocks are:

--Read the signal pin value of the photosensitive resistor module

--Define a variable voltage to store the voltage signal of the photoresistor module read

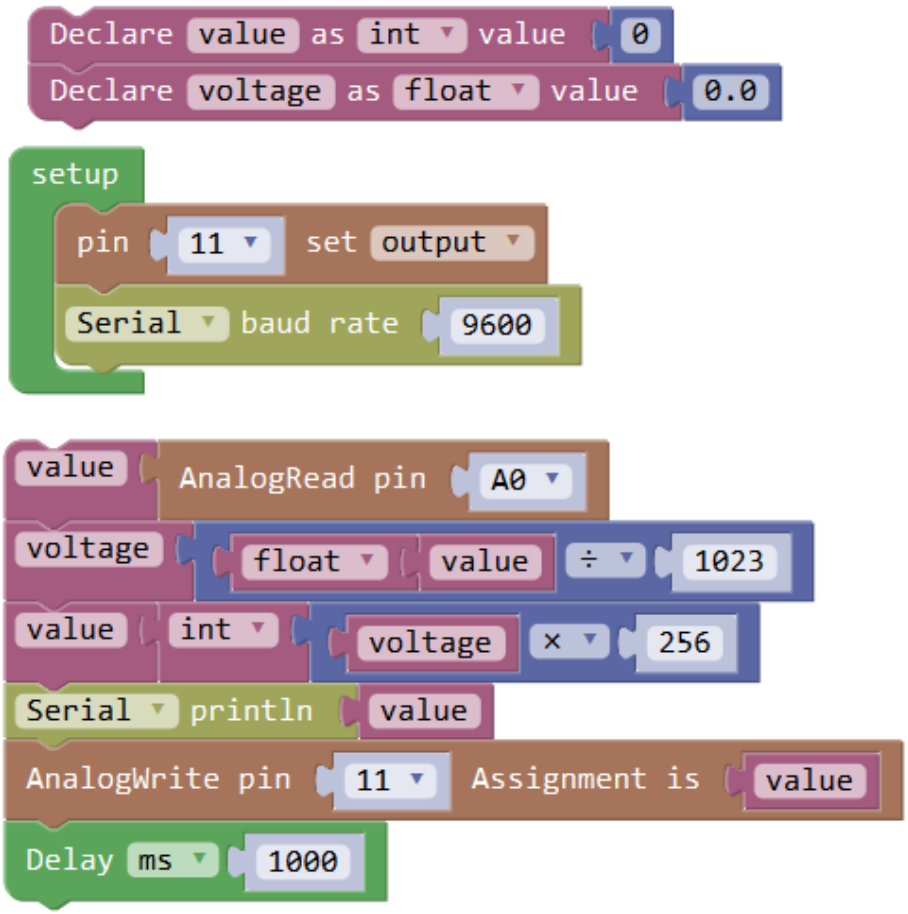
--Set digital port pin to PWM output and control LED lamp.

MBlock writes the photosensitive resistor program as shown in the figure below:



Mixly graphical programming program

Mixly program the photosensitive resistor as shown below:



MagicBlock graphical programming program