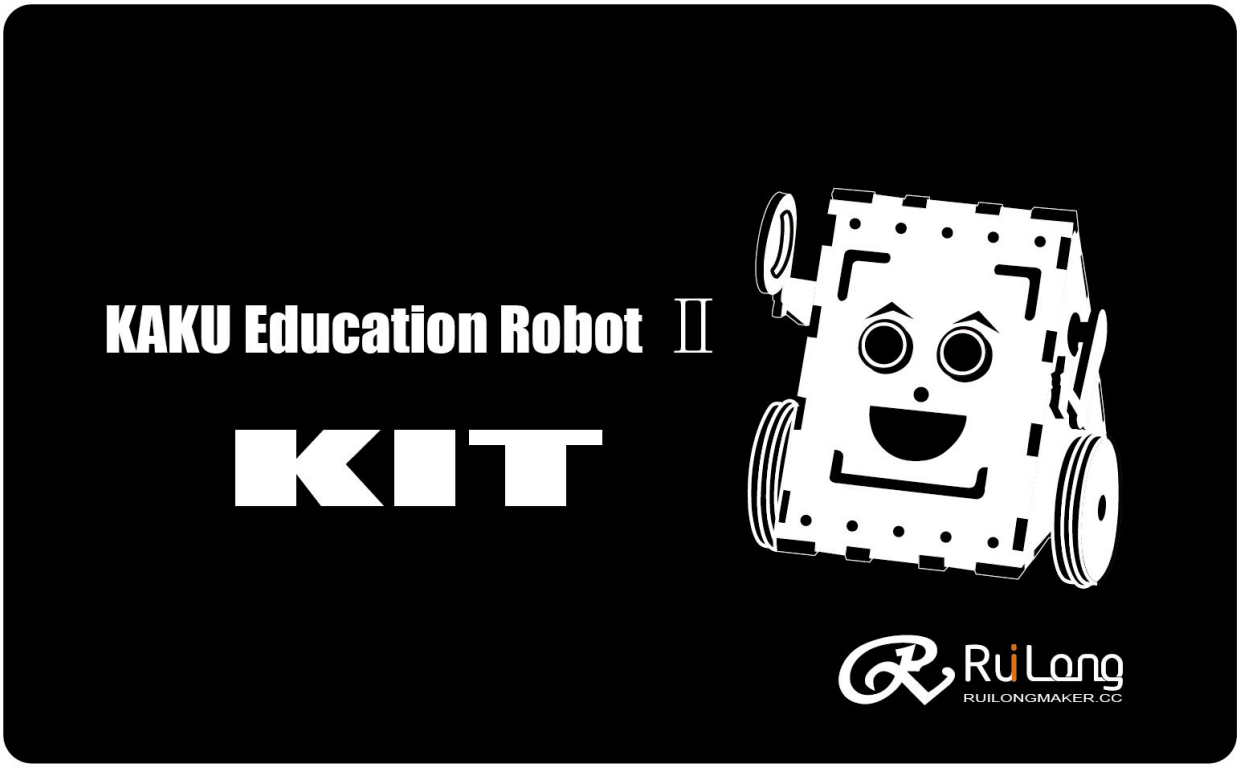


KAKU R2 Programming guide

Rev 1.0

Rev	Changes	Date	Remark
Rev1.0	Guide Release	2015/5/4	--

1.Introduction to programming

Step1:Software download (used the software in folder)

You can download the Arduino IDE form the Link:

http://www.arduino.cc/en/Main/Software

Then install the software normally.

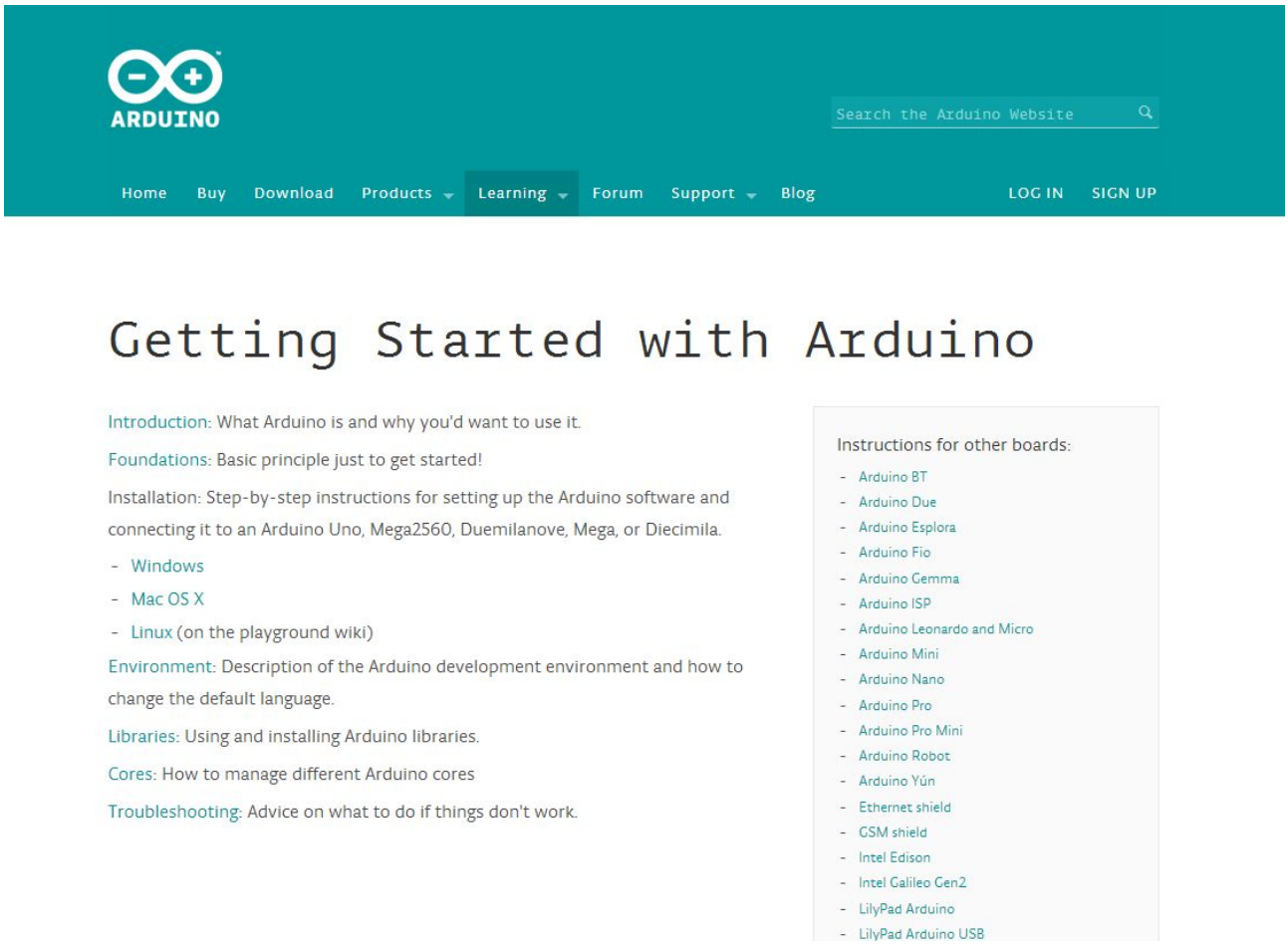
Step2:Get start with the arduino

You can reference the link:

http://www.arduino.cc/en/Guide/HomePage

Notice:

- Nano Robot Controller should select Boards Arduino nano &Processor ATmega328
- Micro Robot Controller should select Boards Arduino micro



2. Case1:shake,When the KAKU robot's eyes have obstacles ahead, will swing back and forth and began waving his arms up and down!

```
#include <Servo.h>

int ardublockUltrasonicSensorCodeAutoGeneratedReturnCM(int trigPin, int echoPin)
{
  long duration;
  pinMode(trigPin, OUTPUT);
  pinMode(echoPin, INPUT);
  digitalWrite(trigPin, LOW);
  delayMicroseconds(2);
  digitalWrite(trigPin, HIGH);
  delayMicroseconds(20);
  digitalWrite(trigPin, LOW);
  duration = pulseIn(echoPin, HIGH);
  duration = duration / 59;
  if ((duration < 2) || (duration > 300)) return false;
  return duration;
}
```

```
int _ABVAR_1_i = 0 ;
void setRomeoMotor(int motorId, int speed)
{
  int speedPin, directionPin;
  if (motorId == 1)
  {
    speedPin = 5;
    directionPin = 4;
  }
  else
  {
    if (motorId == 2)
    {
      speedPin = 6;
      directionPin = 7;
    }
    else
    {
      return;
    }
  }


  if (speed == 0)
  {
    digitalWrite(speedPin, LOW);
  }
  if (speed > 0)
  {
    digitalWrite(directionPin, HIGH);
    analogWrite(speedPin, speed);
  }
  else
  {
    digitalWrite(directionPin, LOW);
    analogWrite(speedPin, -speed);
  }
}
Servo servo_pin_9;
Servo servo_pin_10;

void stop();
void shake();
```

```
void setup()
{
  pinMode( 7, OUTPUT);
  pinMode( 6, OUTPUT);
  pinMode( 5, OUTPUT);
  pinMode( 4, OUTPUT);
  digitalWrite( 2 , LOW );

  digitalWrite(4, LOW);

  digitalWrite(5, LOW);

  digitalWrite(6, LOW);

  digitalWrite(7, LOW);

  servo_pin_9.attach(9);
  servo_pin_10.attach(10);
}

void loop()
{
  if (( ( (          ardublockUltrasonicSensorCodeAutoGeneratedReturnCM( 2 , 3 ) ) < ( 5 ) ) && ( (
                     ardublockUltrasonicSensorCodeAutoGeneratedReturnCM( 2 , 3 ) ) != ( 0 ) ) ))
  {
    shake();
  }
  else
  {
    stop();
  }
}

void shake()
{
  for (_ABVAR_1_i= 1; _ABVAR_1_i<= ( 2 ); _ABVAR_1_i++ )
  {
    setRomeoMotor(1, 100);
    setRomeoMotor(2, 100);
    servo_pin_9.write( 60 );
    servo_pin_10.write( 60 );
    delay( 200 );
    setRomeoMotor(1, -100);
```

```
        setRomeoMotor(2, -100);
        servo_pin_9.write( 120 );
        servo_pin_10.write( 120 );
        delay( 200 );
        stop();
    }
}

void stop()
{
    setRomeoMotor(1, 0);
    setRomeoMotor(2, 0);
}
```

3.Case2:IR Remote,Number "2" infrared remote control, infrared remote control figure "8" retreat, infrared remote control number "4" turn left, infrared remote control number "6" right, infrared remote control number "5" to stop,Others you can custom.

```
#include <IRremote00.h>
#include <ctype.h>
#include <Wire.h>

IRrecv __ab_irrecv(12);
void __ab_setupIrReceiver()
{
    __ab_irrecv.enableIRIn();
    __ab_irrecv.resume();
}
void charsToUpper(char *str)
{
    int p=0;
    while(str[p] != 0)
    {
        str[p] = toupper(str[p]);
        ++p;
    }
}
void __ab_getIrCommand(char *receivedCommand)
{
    decode_results result;
    if (__ab_irrecv.decode(&result))
```

```
    {
      ltoa(result.value, receivedCommand, 16);
      charsToUpper(receivedCommand);
      __ab_irrecv.resume();
    }
    else
    {
      receivedCommand[0] = '\0';
    }
}
char _ABVAR_1_HY[64] = "";
void setRomeoMotor(int motorId, int speed)
{
    int speedPin, directionPin;
    if (motorId == 1)
    {
      speedPin = 5;
      directionPin = 4;
    }
    else
    {
      if (motorId == 2)
      {
        speedPin = 6;
        directionPin = 7;
      }
      else
      {
        return;
      }
    }


    if (speed == 0)
    {
      digitalWrite(speedPin, LOW);
    }
    if (speed > 0)
    {
      digitalWrite(directionPin, HIGH);
      analogWrite(speedPin, speed);
    }
    else
    {
```

```
    digitalWrite(directionPin, LOW);
    analogWrite(speedPin, -speed);
  }
}

void setup()
{
  pinMode( 7, OUTPUT);
  pinMode( 6, OUTPUT);
  pinMode( 5, OUTPUT);
  pinMode( 4, OUTPUT);
  __ab_setupIrReceiver();
  Serial.begin(9600);
  digitalWrite(4, LOW);

  digitalWrite(5, LOW);

  digitalWrite(6, LOW);

  digitalWrite(7, LOW);

}

void loop()
{
  __ab_getIrCommand(_ABVAR_1_HY);
  Serial.print(_ABVAR_1_HY);
  Serial.println();
  if (strcmp(_ABVAR_1_HY, "FF18E7") == 0)
  {
    setRomeoMotor(1, 150);
    setRomeoMotor(2, -150);
  }
  if (strcmp(_ABVAR_1_HY, "FF4AB5") == 0)
  {
    setRomeoMotor(1, -150);
    setRomeoMotor(2, 150);
  }
  if (strcmp(_ABVAR_1_HY, "FF10EF") == 0)
  {
    setRomeoMotor(1, -75);
    setRomeoMotor(2, -75);
  }
  if (strcmp(_ABVAR_1_HY, "FF5AA5") == 0)
```

```
  {
    setRomeoMotor(1, 75);
    setRomeoMotor(2, 75);
  }
  if (strcmp(_ABVAR_1_HY, "FF38C7") == 0)
  {
    setRomeoMotor(1, 255);
    setRomeoMotor(2, 255);
    delay( 200 );
    setRomeoMotor(1, -255);
    setRomeoMotor(2, -255);
    delay( 200 );
    setRomeoMotor(1, 0);
    setRomeoMotor(2, 0);
  }
}
```

4.Case3:Bluethooth Remote,install app on android mobile phone ,then you can touch different faces to control the robot to move, the Others you can custom.

```
char _ABVAR_1_x;
void setRomeoMotor(int motorId, int speed)
{
  int speedPin, directionPin;
  if (motorId == 1)
  {
    speedPin = 5;
    directionPin = 4;
  }
  else
  {
    if (motorId == 2)
    {
      speedPin = 6;
      directionPin = 7;
    }
    else
    {
      return;
    }
  }
```

```
  if (speed == 0)
  {
    digitalWrite(speedPin, LOW);
  }
  if (speed > 0)
  {
    digitalWrite(directionPin, HIGH);
    analogWrite(speedPin, speed);
  }
  else
  {
    digitalWrite(directionPin, LOW);
    analogWrite(speedPin, -speed);
  }
}
void Stop()
{
   setRomeoMotor(1, 0);
    setRomeoMotor(2, 0);
}

int ardublockUltrasonicSensorCodeAutoGeneratedReturnCM(int trigPin, int echoPin)
{
  long duration;
  pinMode(trigPin, OUTPUT);
  pinMode(echoPin, INPUT);
  digitalWrite(trigPin, LOW);
  delayMicroseconds(2);
  digitalWrite(trigPin, HIGH);
  delayMicroseconds(20);
  digitalWrite(trigPin, LOW);
  duration = pulseIn(echoPin, HIGH);
  duration = duration / 59;
  if ((duration < 2) || (duration > 300)) return false;
  return duration;
}

bool _ABVAR_2_flag= false ;
int _ABVAR_3_i = 0 ;

void shake();

void setup()
{
```

```
  pinMode( 7, OUTPUT);
  pinMode( 6, OUTPUT);
  pinMode( 5, OUTPUT);
  pinMode( 4, OUTPUT);
  Serial1.begin(9600);
  digitalWrite(4, LOW);
  digitalWrite(5, LOW);
  digitalWrite(6, LOW);
  digitalWrite(7, LOW);

}

void loop()
{
 if ((( ( (                ardublockUltrasonicSensorCodeAutoGeneratedReturnCM( 2 , 3 ) ) < ( 10 ) ) &&
( (                ardublockUltrasonicSensorCodeAutoGeneratedReturnCM( 2 , 3 ) ) != ( 0 ) ) ))
   {
    shake();
    Stop();
   }
  while (Serial1.available() > 0)
 {
  _ABVAR_1_x = Serial1.read();
  if ( _ABVAR_1_x   ==   '2' )
  {
    setRomeoMotor(1, -100);
    setRomeoMotor(2, 100);
  }
 else if ( _ABVAR_1_x == '8')
  {
    setRomeoMotor(1, 100);
    setRomeoMotor(2, -100);
  }
 else if (_ABVAR_1_x == '5')
  {
    shake();
    setRomeoMotor(1, 0);
    setRomeoMotor(2, 0);
  }
 else if ( _ABVAR_1_x   == '6')
  {
    setRomeoMotor(1, -80);
    setRomeoMotor(2, -80);
  }
```

```
 else if (_ABVAR_1_x  == '4')
   {
     setRomeoMotor(1, 80);
     setRomeoMotor(2, 80);
   }
 else if (_ABVAR_1_x  == '9')
   {
     setRomeoMotor(1, 0);
     setRomeoMotor(2, -200);
   }
   else if ( _ABVAR_1_x  == '7')
   {
     setRomeoMotor(1, 200);
     setRomeoMotor(2, 0);
   }
 else if (_ABVAR_1_x  == '1')
   {
     setRomeoMotor(1, -200);
     setRomeoMotor(2, 0);
   }
 else if (_ABVAR_1_x  == '3')
   {
     setRomeoMotor(1, 0);
     setRomeoMotor(2, 200);
   }
 }
}

void shake()
{
   if (_ABVAR_2_flag)
   {
     for (_ABVAR_3_i= 1; _ABVAR_3_i<= ( 2 ); _ABVAR_3_i++ )
     {
       setRomeoMotor(1, 200);
       setRomeoMotor(2, 200);
       delay( 200 );
       setRomeoMotor(1, -200);
       setRomeoMotor(2, -200);
       delay( 200 );
     }
     _ABVAR_2_flag = LOW ;
   }
   else
```

```
  {
    for (_ABVAR_3_i= 1; _ABVAR_3_i<= ( 2 ); _ABVAR_3_i++ )
    {
      setRomeoMotor(1, -200);
      setRomeoMotor(2, -200);
      delay( 200 );
      setRomeoMotor(1, 200);
      setRomeoMotor(2, 200);
      delay( 200 );
    }
    _ABVAR_2_flag = HIGH ;
  }
}
```

6.Others you can login http://ruilongmaker.cc/bbs/

Arduino->arduino Robot or Kaku Robot

Disclaimer

1, Please read the instructions carefully before using this product, if not in accordance with the instructions to guide the operation of adverse consequences shall be borne by the user;
2, When using this product do you any application (such as experiment, contests, secondary development), to the user's own risk;
3, Due to the use of the products produced by the direct, indirect or incidental damages (including loss of personal safety, credibility loss profits, etc.), not be responsible;
4, Persons under the age of 14 children should be accompanied by adult below this

After-sales service

1, this shop sell all goods (except for imported products), before delivery, all pass strict quality test, to ensure the quality.
2, please buyer in a timely manner after receipt, check whether the parts is complete, and testing of goods, determine the correct installation again after use;
3, our sales will provide the relevant instructions, is limited to product information and technical support, for technical support within the scope of beyond the product itself has the right to not be provided, in case of technical problems in the process of using the product, can be registered login to our public community ruilongmaker. Cc/BBS posts, 24 hours a day with engineer solution for you;
4, where the company product warranty scope, such as non-artificial reason damaged, belong to the product itself quality problem, the company will timely according to your request for a refund, replacement or repair;Such as damage caused by man-made factors, enjoy life-long free maintenance (including material cost), the buyer should will products sent to qc inspection company, produced by postage borne by the buyer;

About us

哈尔滨极趣客科技有限公司
Harbin Greatest Interest Maker Technology Co.,Ltd

Web：www.ruilongmaker.cc
Add：No. 52 Diantan Road Xiangfang District,Harbin City,Heilongjiang Province,China
Tel：+86-0451-55132154 +86-13836123892
E-mail：ruilongmaker@163.com