Me Joystick

Overview

Including a cross joystick, Me Joystick Module is used to control the moving direction of cart and the interactive video game. Its black ID means that it has an analog port and should be connected to the port with black ID on Makeblock Orion.

Technical specifications

- Operating voltage: 5V DC
- Signal node: 2-shaft analog output
- Cross joystick: comprising two potentiometers and a gimbal
- Module size: 51 x 24 x 32 mm (L x W x H)

Functional characteristics

- White area of module is the reference area to contact metal beams
- The gimbal separates displacement of joystick into horizontal (X) and vertical(Y) components
- Collect analog signal of potentiometer voltage to identify the position of joystick
- Anti-reverse protection – connecting the power supply inversely will not damage IC
- Support mBlock GUI programming, and applicable to users of all ages
- Adopt RJ25 port for easy connection
- Provide pin type ports to support most Arduino Baseboards

Pin definition

The port of Me Joystick Module has four pins, and their functions are as follows:

No.	Pin	Function
1	GND	Grounding
2	VCC	Power supply
3	X	X-axis analog output
4	Y	Y-axis analog output

- Connecting with RJ25

Since the port of Me Joystick Module has black ID, you need to connect the port with black ID on Makeblock Orion when using RJ25 port. Taking Makeblock Orion as example, you can connect to ports No. 6, 7, and 8 as follows:

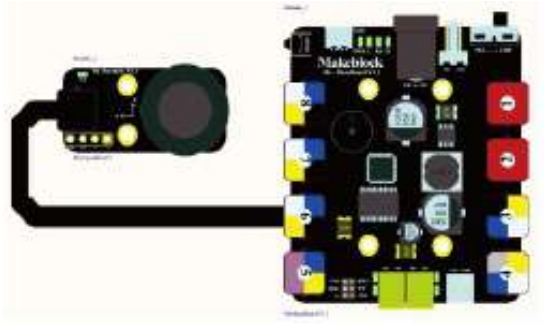


Figure 1 Connecting Me Joystick Module to Makeblock Orion

- Connecting with Dupont wire

When the Dupont wire is used to connect the module to the Arduino UNO Baseboard, its X and Y pins should be connected to analog pin as follows:

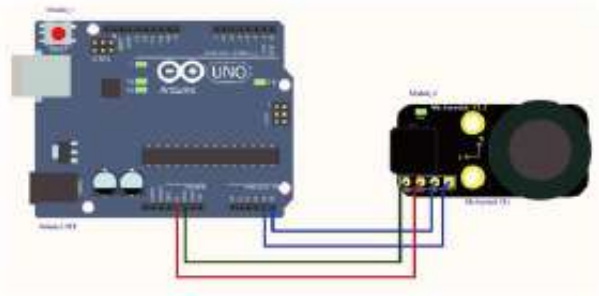


Figure 2 Connecting Me Joystick Module to Arduino UNO
Note: When Dupont wire is used, pin header should be welded on the module.

Guide to programming

- Arduino programming

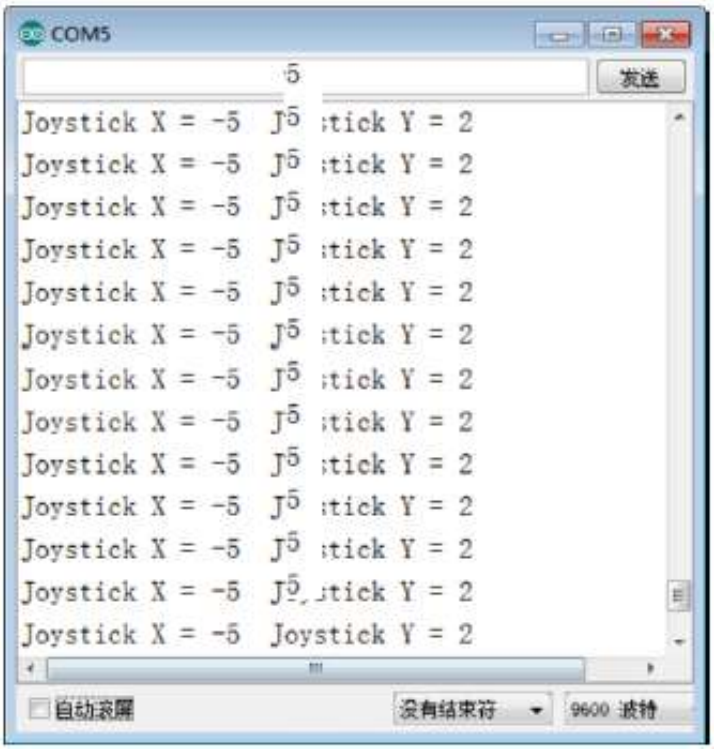
If you use Arduino to write a program, the library Makeblock-Library-master should be invoked to control the Me Joystick Module. This program serves to read the X- and Y-axis position and output to the serial port monitor in the cycle of 10 ms through Arduino programming.

```
#include "MeOrion.h"
#include <Wire.h>
#include <SoftwareSerial.h>
MeJoystick joystick(PORT_6);
int x = 0;
int y = 0;
void setup()
{
    Serial.begin(9600);
}
void loop()
{
    x = joystick.readX();
    y = joystick.readY();
    Serial.print("Joystick X = ");
    Serial.print(x);
    Serial.print("\t Joystick Y = ");
    Serial.println(y);
    delay(10);
}
```

Function List of Me Joystick Module

Function name	Function
MeJoystick(uint8_t port)	Select a port
int16_t readX()	Read the X-axis analog output (0~980)
int16_t readY()	Read the Y-axis analog output (0~980)

The function of the code segment is to read the value of X- and Y-axis and output the result to serial monitor in the cycle of 10 ms. Upload the code segment to Makeblock Orion, click the serial monitor, and then you will see the running result as follows:



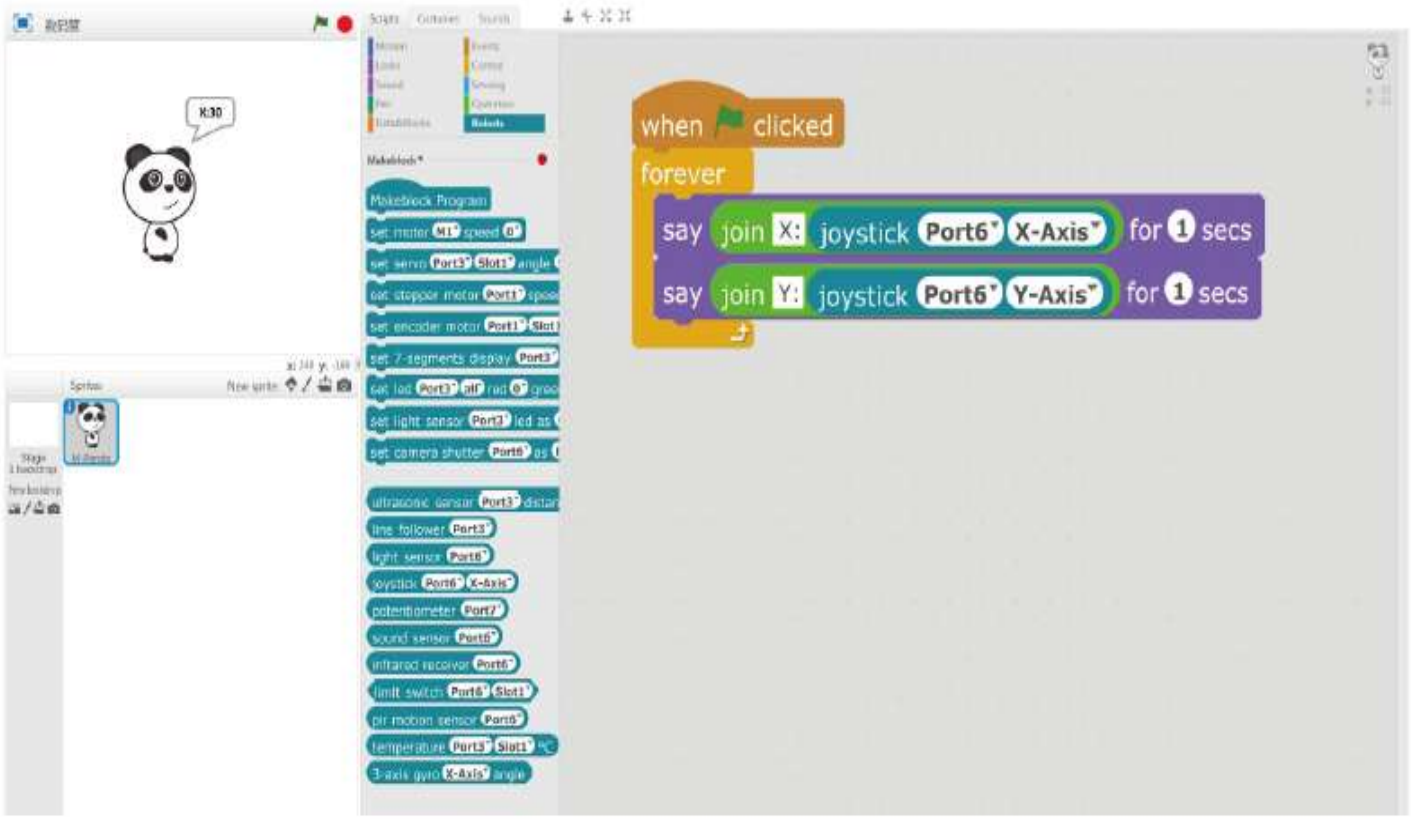
We can see that the output data range of the X- and Y-axis is 0~980. When the joystick is released, the output values are within the range 478~479. When the joystick moves in the direction identified by the arrow on the module, the value increases; and when it moves in the reverse direction, the value decreases.

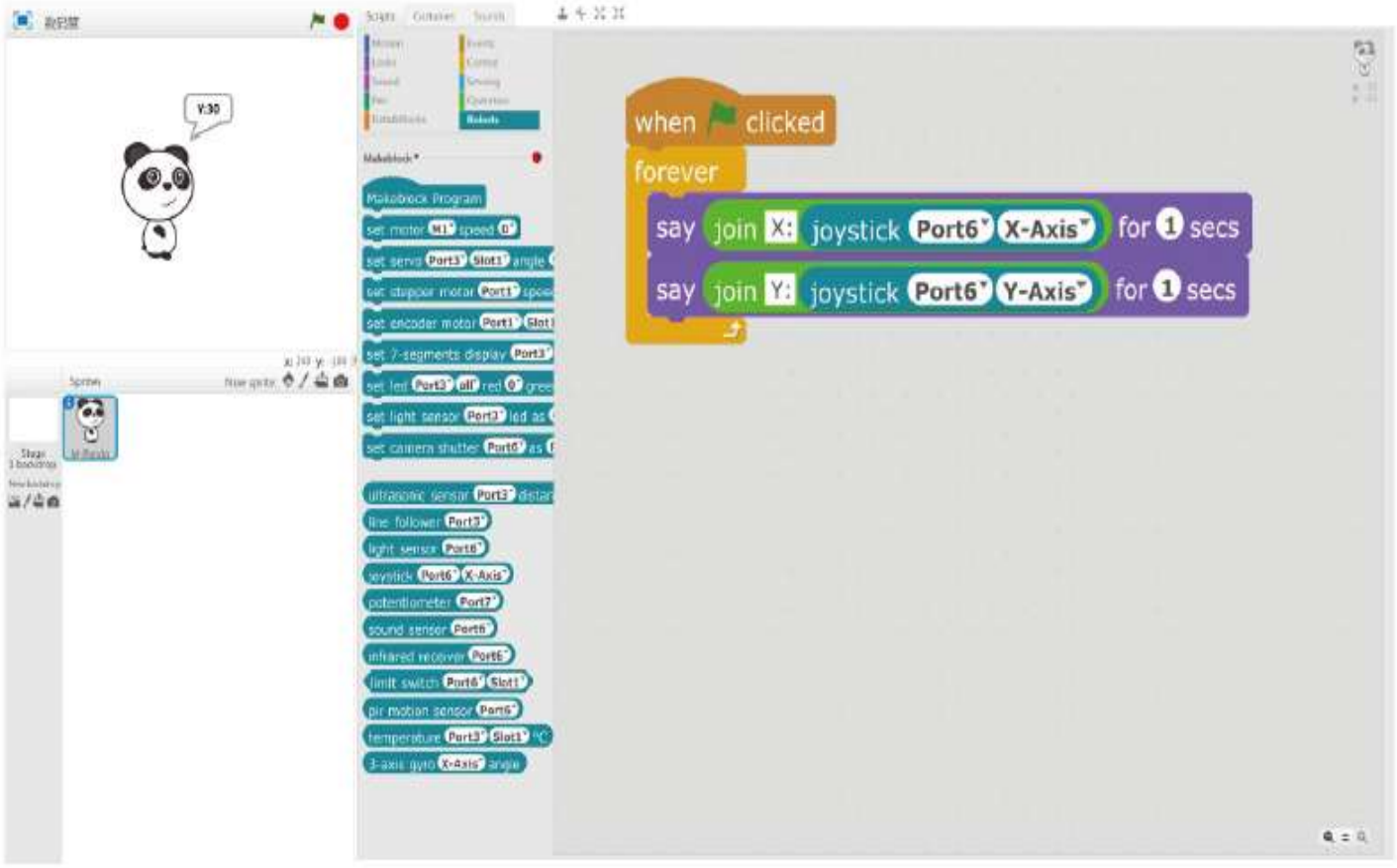
● mBlock programming

Me Joystick Module supports the mBlock programming environment and its instructions are introduced as follows:

Programming description	Introduction
	Parameter 1: Select a port Parameter 2: Choose to read the coordinate axis (X/Y) Function: Return the coordinates (0-980)

This is the result to make the panda speaking out the X/Y coordinates.





Principle analysis

Me Joystick Module contains a cross joystick which comprises two potentiometers and a gimbal. When the joystick is pushed, the resistance of potentiometer changes and its corresponding voltage also changes. The module is supplied with 5V voltage, and the X, and Y voltage are about 2.5V in initial state. When the joystick is pushed in the X or Y direction of the arrow, the voltage readings increase to the maximum 5V. When it is pushed in opposite direction of arrow, the voltage readings decrease to the minimum 0V. Therefore, you can collect the analog signal of potentiometer
voltage to identify where the joystick is pushed.

Schematic