LED Matrix

1. Basic knowledge of LED matrix

LED Matrix is also called Expression Panel. Its surface is covered with an acrylic white panel, at the back of which there are 128 aligned LEDs. By receiving data from the main board, it controls the display of numbers, letters, or symbols. There are mounting holes for assembly at the top of the panel, used for assembly and construction, as shown in Figure 1.

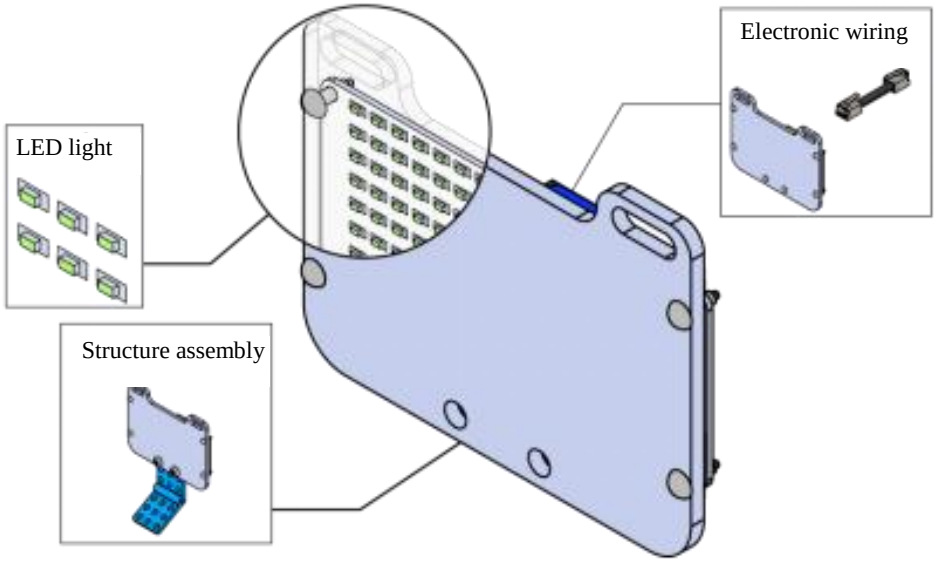

Figure 1: LED Matrix (Expression Panel)

2. Technical Specifications of LED matrix

Working voltage: 5V DC
Communication mode: I2C
Module size: 73 x 31 x 15 mm (L x W x H)

3. Properties of LED matrix

Show the numbers, strings or symbols that are programmed from the motherboard.
The white area of the module is a reference area that contacts with the metal beam.
Anti-reverse protection so that reverse power will not damage IC.
The RJ25 interface is used, and the connection is convenient.
A pin that provides access to the Arduino series development board;

4. LED Matrix Program and Example

(1) The use of graphical programming module instructions of LED Matrix is as shown in Figure 2.

statement blocks	Description
	Parameter 1: Select the port to which the module is connected; Parameter 2: Enter the number to display;
	Parameter 1: Select the port to which the module is connected; Parameter 2: Enter the origin position to display; Parameter 3: Enter the letter to display;
	Parameter 1: Select the port to which the module is connected; Parameter 2: Enter the hour; Parameter 3: Enter the minute;
	Parameter 1: Select the port to which the module is connected; Parameter 2: Enter the origin position to display; Parameter 3: Enter the pattern painted

Figure 2: LED Matrix Instruction

(2) Figure 3 is a program example for LED Matrix displaying countdown using an IR remote control.

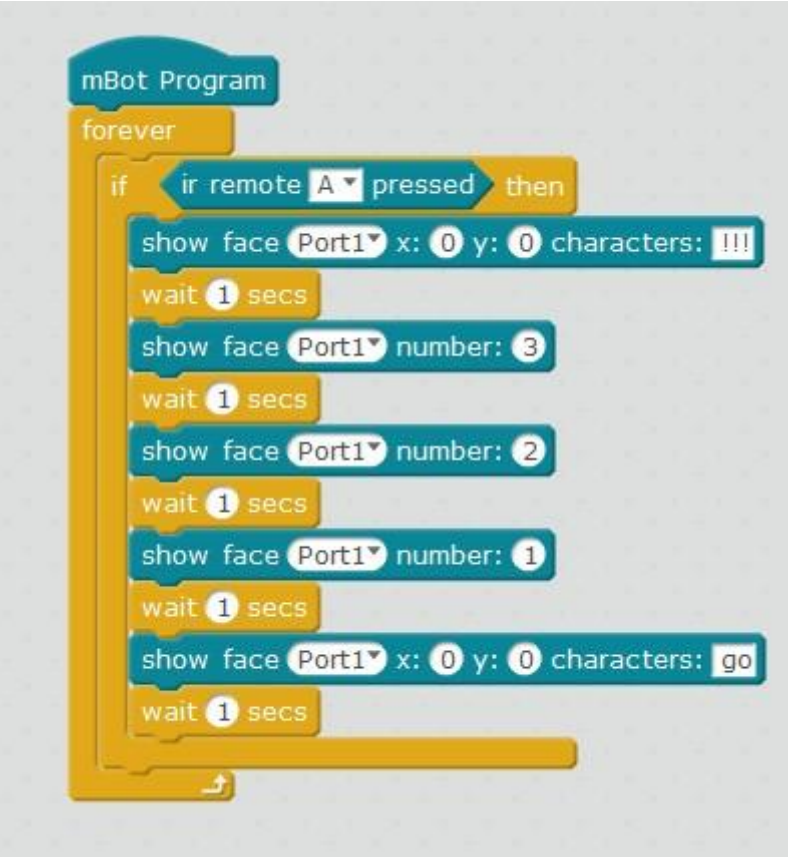

Figure 3：LED Matrix Program and Example

(3) With the color sensor, when mBot meets cardboards of different colors, LED Matrix will show different expressions.

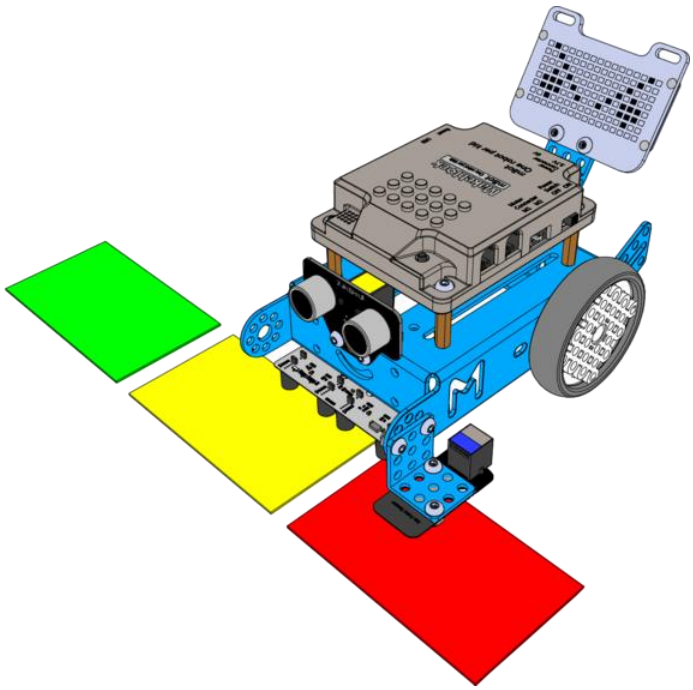

Figure 4: LED Matrix display different expressions

(4) In the Blue Planet competition, the function of LED Matrix is used to display the number of cards.

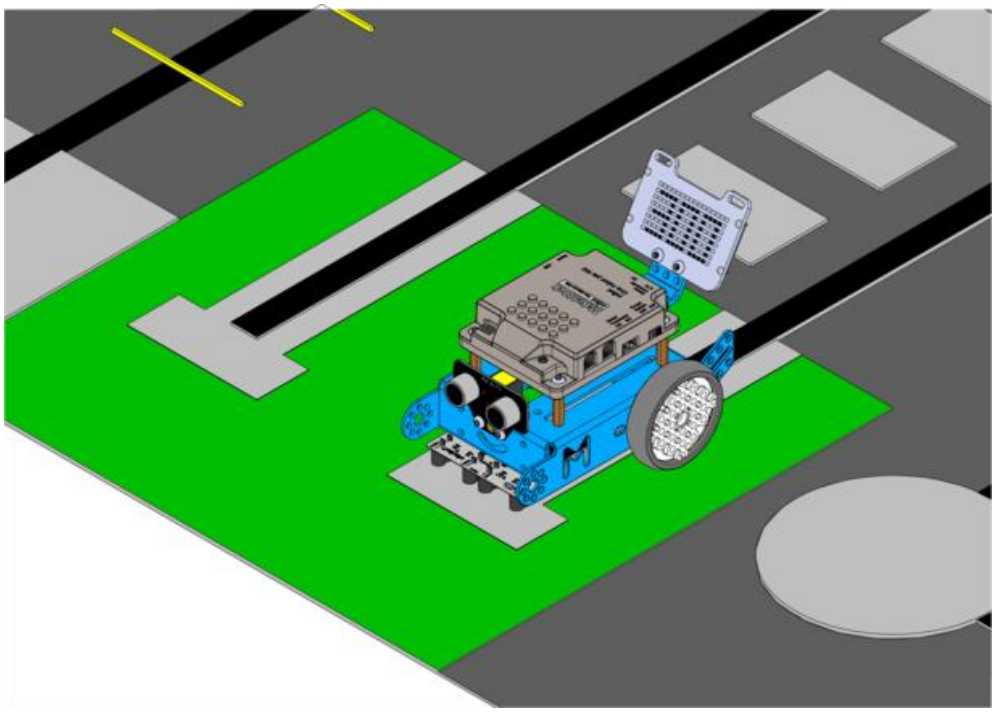

Figure 5: LED Matrix display the number of cards