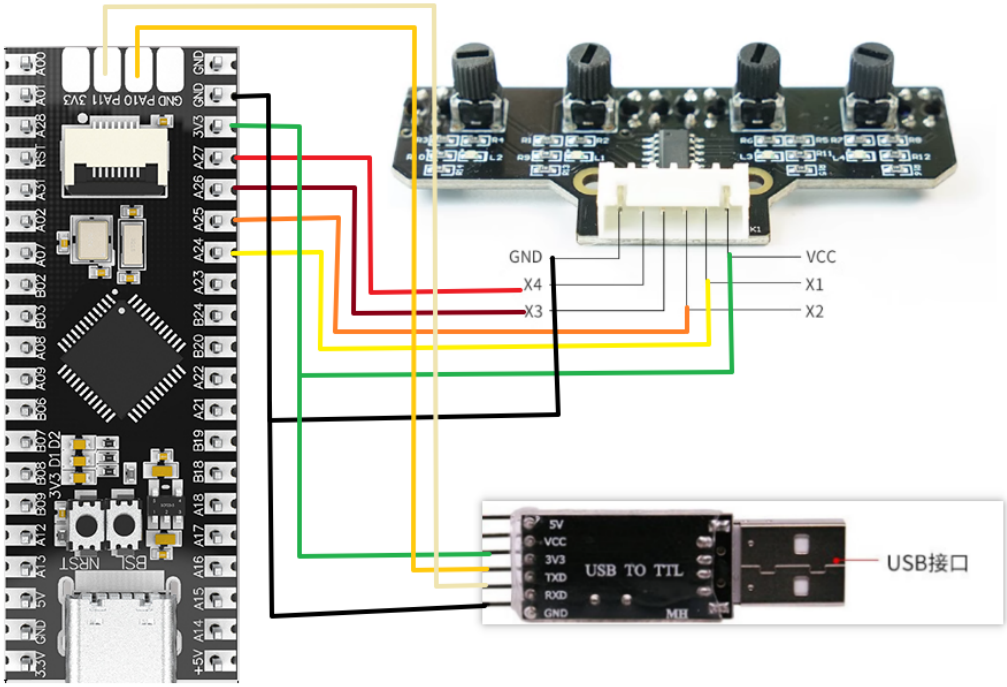
4-channel tracking module

1. Learning objectives

Read the data of each channel of the four-way patrol sensor.

2. Hardware connection

Pin connection between MSPM0G3507 and four-way patrol module



Four-way patrol module	More ActionsMSPM0G3507
VCC	3.3V-5V
X1	PA24
X2	PA25
X3	PA26
X4	PA27
GND	GND

Note: You can use the ttl module, or just use the Type-C port of MSPM0G3507 to connect to the computer.

3. Program description

- board.c

```
void board_init(void)
{
// SYSCFG initialization
SYSCFG_DL_init();
// Clear serial port interrupt flag
NVIC_ClearPendingIRQ(UART_0_INST_INT_IRQN);
// Enable serial port interrupt
NVIC_EnableIRQ(UART_0_INST_INT_IRQN);

printf("Board Init [[ ** LCKFB ** ]]\r\n");

}

//Serial port sends string
void uart0_send_string(char* str)
{
// The current string address is not at the end and the string first address is
not empty
while(*str!=0&&str!=0)
{
// Send the characters in the string first address, and the first address
increments after the sending is completed
uart0_send_char(*str++);
}
}
```

This file defines the delay function, serial communication (including the functions of sending single characters and strings, redefining the printf function, and a USART interrupt service) and related initialization functions.

- main.c

```
int main(void)
{
unsigned int LineL1 = 1, LineL2 = 1, LineR1 = 1, LineR2 = 1;//Initial value of
West patrol line module
board_init();//Related initialization
sprintf(buf,"Four_way patrol line\n");//Four-way patrol line module
uart0_send_string(buf);//Serial port sending function
while (1)
{
LineL1 = DL_GPIO_readPins(LineWalk_L1_PORT, LineWalk_L1_PIN_27_PIN) > 0 ? 1 :
0;//Read left one
LineL2 = DL_GPIO_readPins(LineWalk_L2_PORT, LineWalk_L2_PIN_26_PIN) > 0 ? 1 :
0;//Read left two
LineR1 = DL_GPIO_readPins(LineWalk_R1_PORT, LineWalk_R1_PIN_24_PIN) > 0 ? 1 : 0;
//Read the right line
LineR2 = DL_GPIO_readPins(LineWalk_R2_PORT, LineWalk_R2_PIN_25_PIN) > 0 ? 1 : 0;
//Read the right line
sprintf(buf,"LineL1 = %d,LineL2 = %d,LineR1 = %d,LineR2 =
%d\n",LineL1,LineL2,LineR1,LineR2);
uart0_send_string(buf); //Serial port sending function
```

```
delay_ms(300);
}
}
```

Initialize the value of the sensor to 1, call DL_GPIO_readPins to read the status of the four tracking sensors, and output these statuses through the serial port. For example, read the status of the left sensor. If the return value is greater than 0, the sensor detects a black line and the variable LineL1 is set to 1; otherwise, it is set to 0.

Note: The project source code must be placed in the SDK path for compilation,

For example, the path: D:\TI\M0_SDK\mspm0_sdk_1_30_00_03\1.TB6612