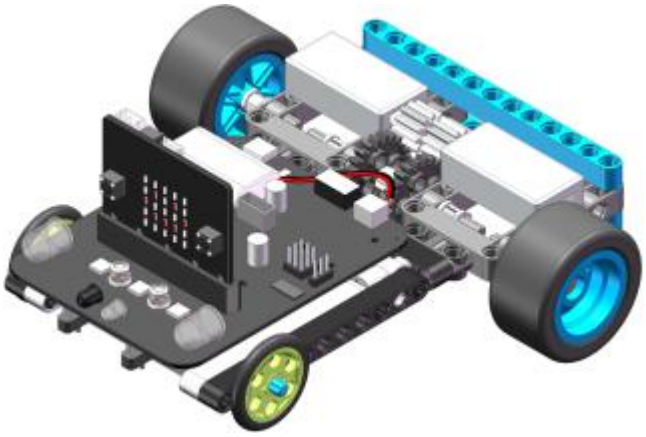
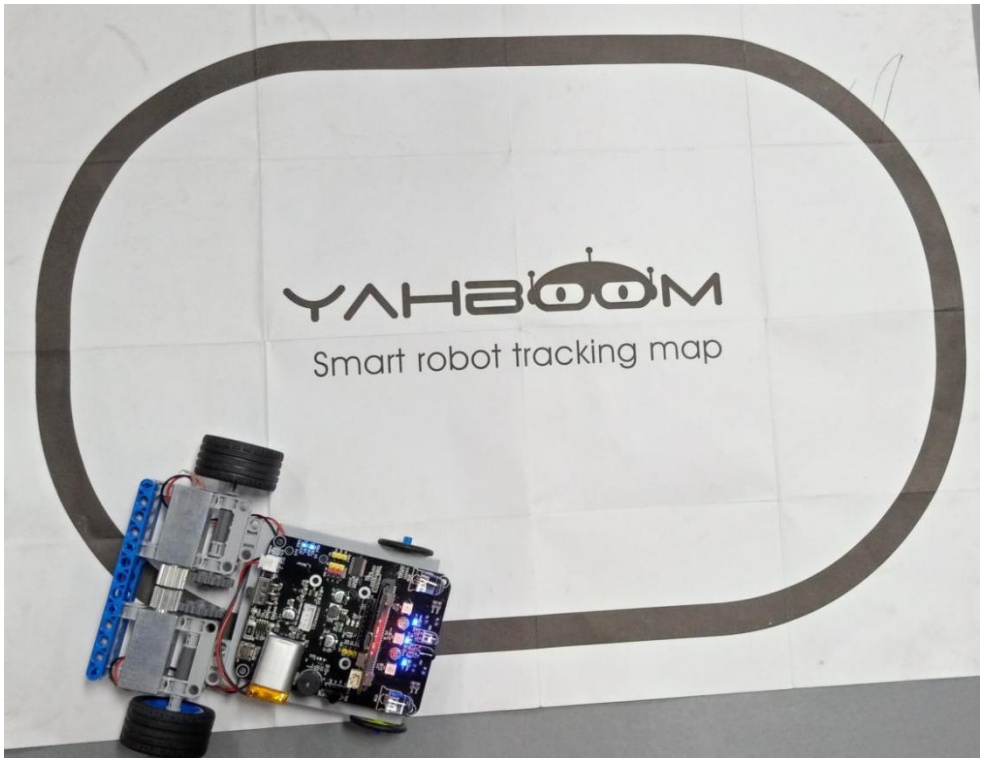
Lesson1 of Building:bit Following car---“Tracking”



1.Experimental phenomena

After downloading the program, open the power switch of the Following car and put Following car on the tracking map, the car will walk along the black track.



2.Preparation before class

We needs to be ready:

Building Block Following car *1

Tracking map *1

USB data cable *1

2-1.Two programming methods:

Online programming:

First,we need to connect the micro:bit to the computer by USB data cable, the computer will pop up a USB flash drive.Then, click on the URL in the USB

flash drive: http://microbit.org/ to enter the edit process interface, click to 【Extensions】, and copy the package URL: https://github.com/lzty634158/yahboom_mbit_en to the input field, and you can use the building blocks of the Yahboom software package.
Offilne programming:

Open the offline programming software 

, click to 【Extension】 and copy the package URL: https://github.com/lzty634158/yahboom_mbit_en to the input field, and you can use the building blocks of the Yahboom software package.

For detailed programming, please read the documentation before class 【1. Preparation before class】----【Introduction of programming method】. We use micro:bit official website for online programming in here.

3. The principle of tracking

The basic principle of infrared sensor tracking is to use the reflective nature of the object. The purpose of our experiment is to make the car walk along the black line.

When the infrared light is emitted to the black line, it will be absorbed by the black line. When it is emitted to other colors, it will be reflected to the infrared receiving tube. When the tracking module of the car detects a black line, the indicator light is on, and when the white object is detected, the indicator light is off. According to the this difference, we write the corresponding code to complete the car tracking function.

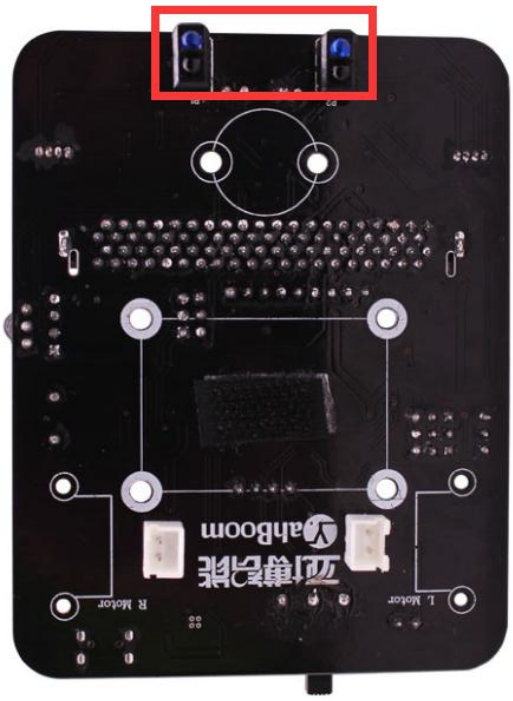
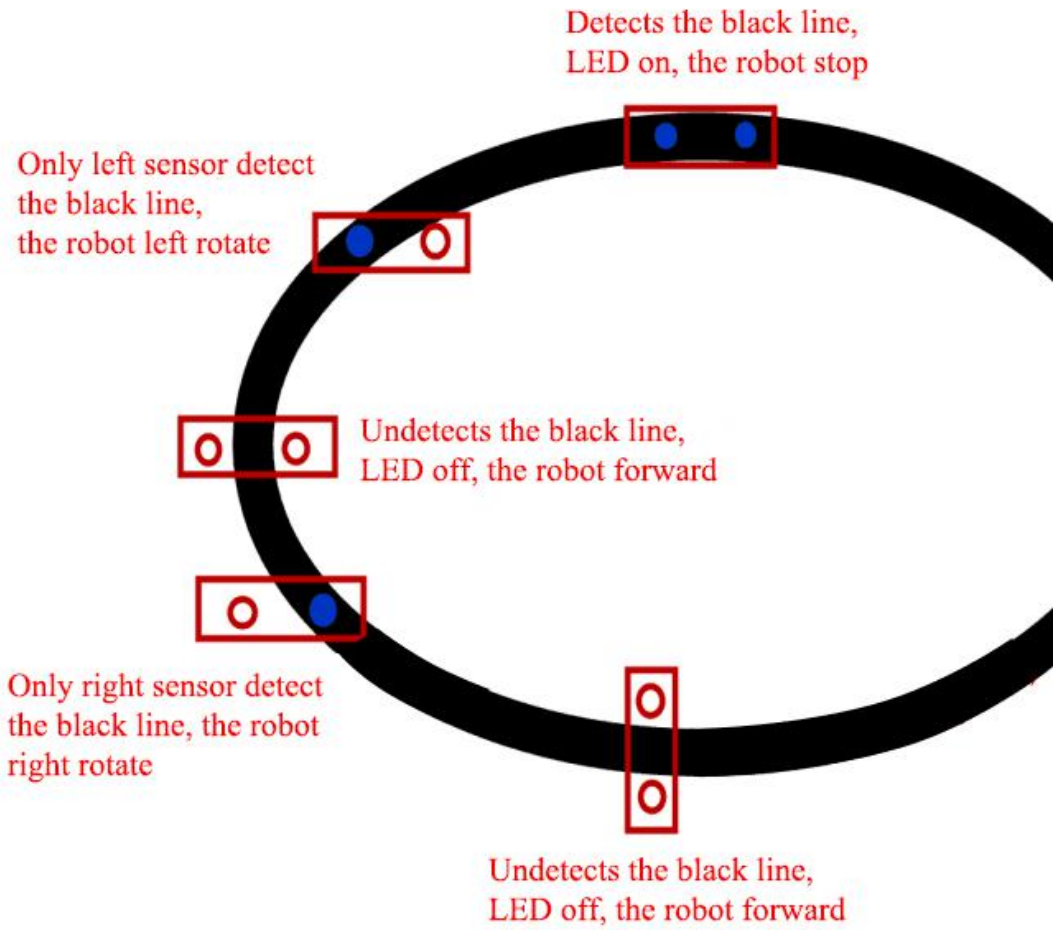
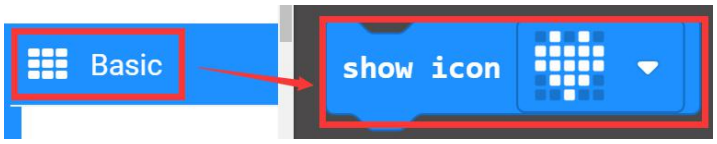
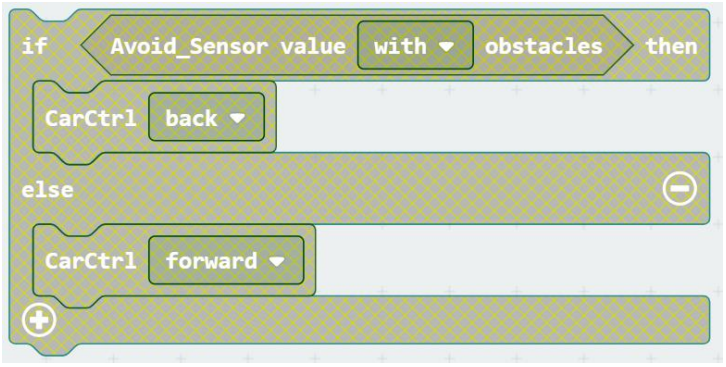
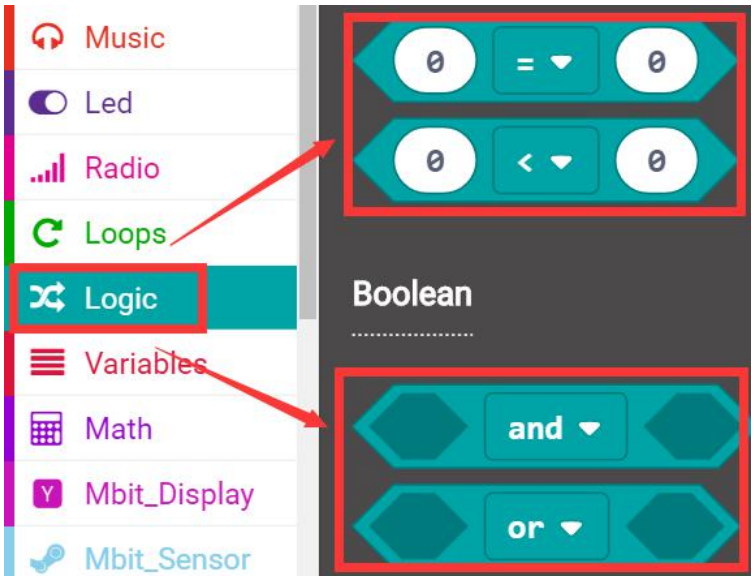


Figure1 infrared tracking sensor



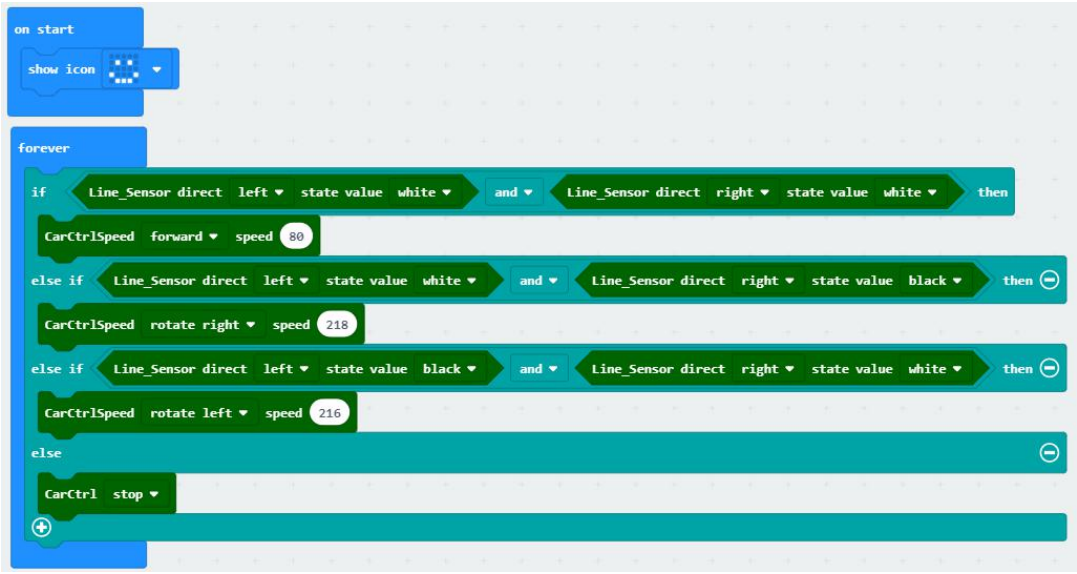
4.Studying blocks

Blocks	Instruction
	Display image on the lattice of micro:bit.
	The color of the ground detected by the line sensor.
	If it is true then execute. If it is false, it will not be executed.

	If there is an obstacle in front, then the car will back, otherwise the car will forward.
	The program pauses for 100 milliseconds and the time can be modified by yourself.
	The two compare, if they are the same, they return 0, and if they are different, they return 1.

5.Programming

Next, we started to write the program for the building block Following car.



The above is the program for this Following car. After writing, we need to download it to the micro:bit board.

! Note: This experiment must be done indoors to reduce the interference of sunlight on the infrared sensor.