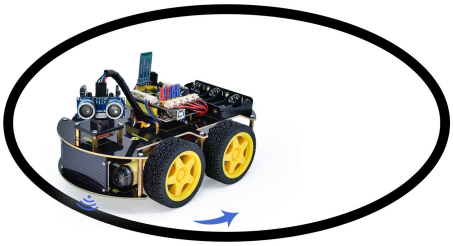
Project 10 Restricting Smart Car



1.Description

In this project, we look to combine the knowledge of a line tracking sensor and motor driver modules to make a restricting smart car. In the experiment, we aim to use the line tracking sensor to detect whether there is a black line around the smart car, and then control the rotation of the two motors according to the detection results in a way that lock the smart car in a circle drawn in black line.

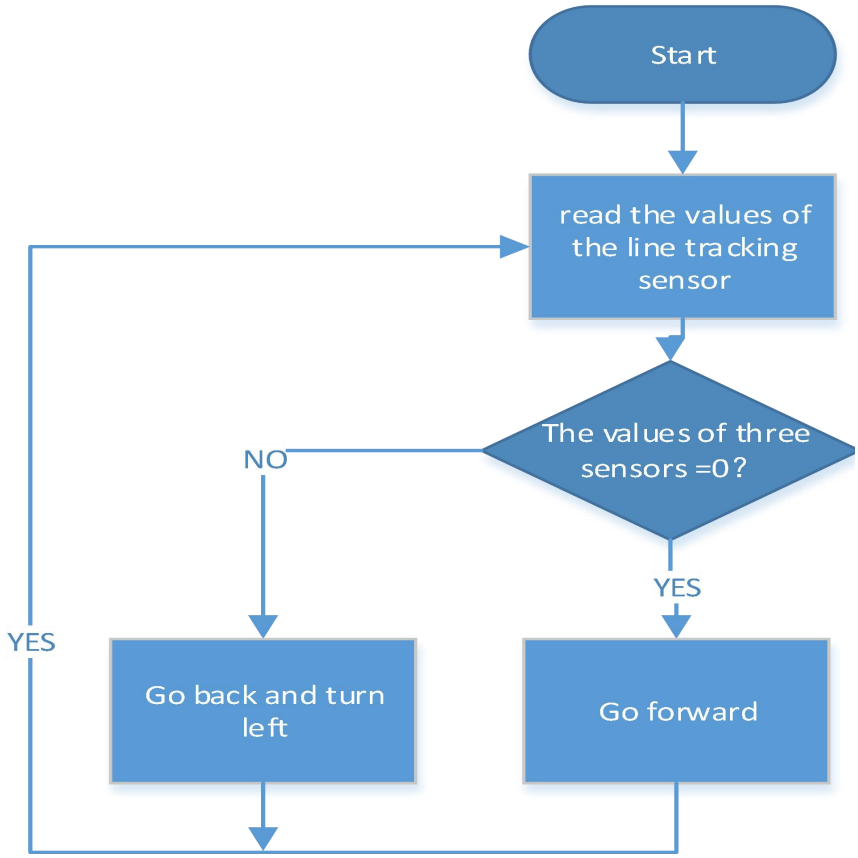
2.Flow Chart

The specific logic of the restricting 4WD smart car is shown in the table.

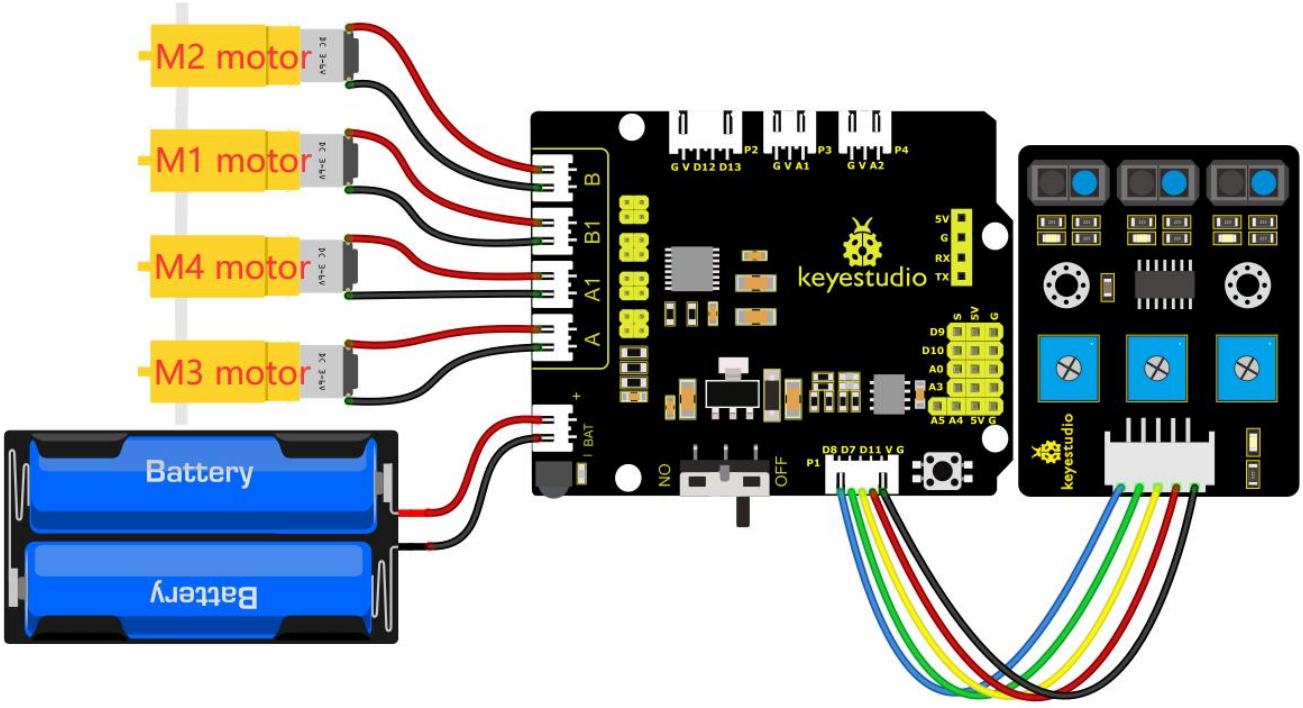
Detection	Line-tracking sensor in the middle	Black line detected: in high level
		White line detected: in low level
	Line-tracking sensor on the left	Black line detected: in high level
		White line detected: in low level

	Line-tracking sensor on the right	Black line detected: in high level
		White line detected: in low level

Condition	Movement
All the three line-tracking sensors don’ t detect black lines	Move forward
Any of the three line-tracking sensors detect black lines	Step back Then rotate left



3.Wiring Diagram



G, V, S1, S2 and S3 of the line tracking sensor are connected to G（GND),

V (VCC), D11, D7 and D8 of the sensor expansion board.

The power is connected to the BAT port

4.Test Code

You can drag blocks to edit. Blocks listed below are for your reference

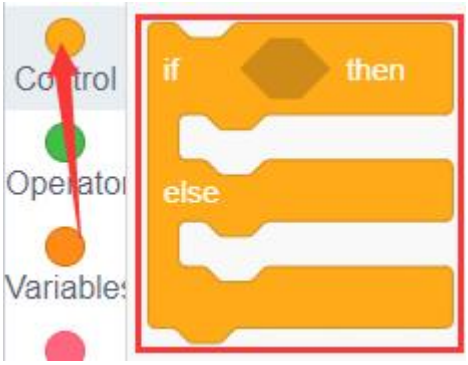
（1）



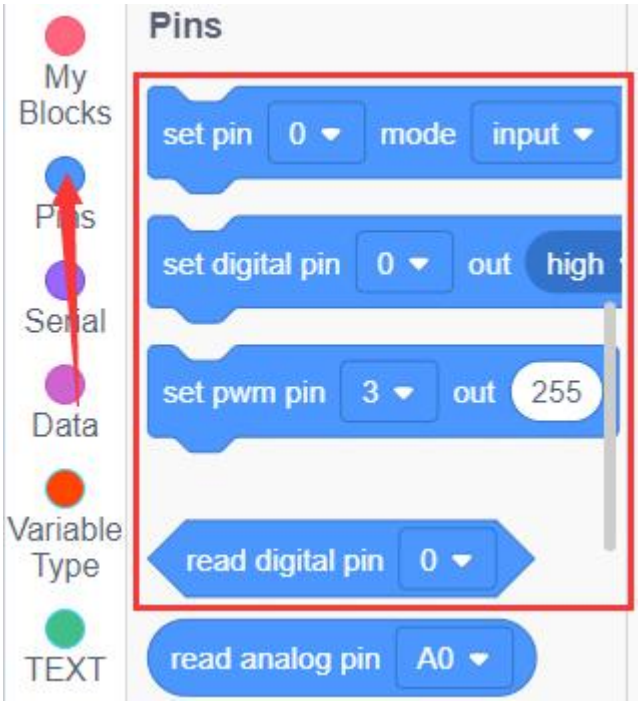
（2）



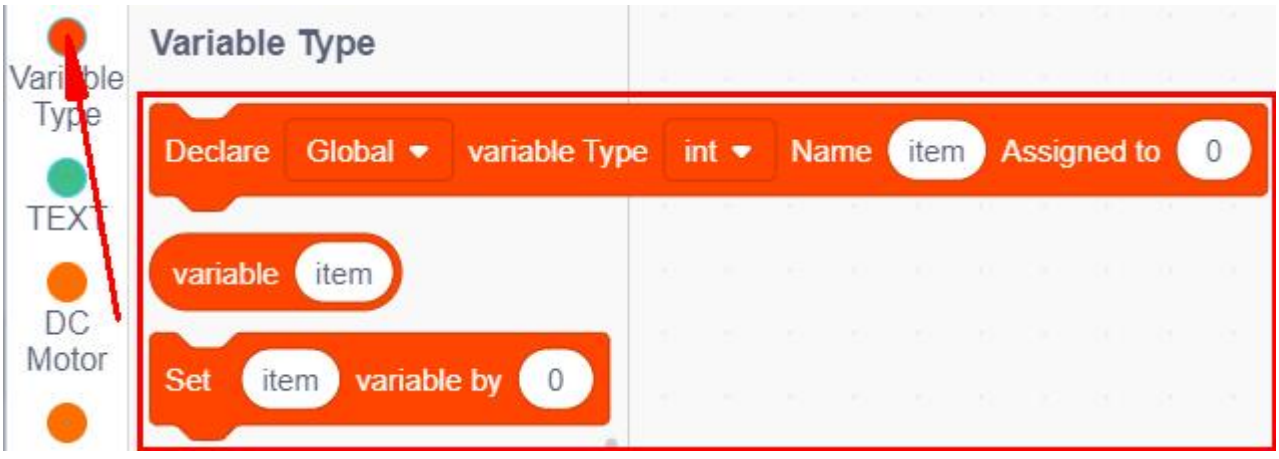
（3）


Control
Operator
Variables
if then
else

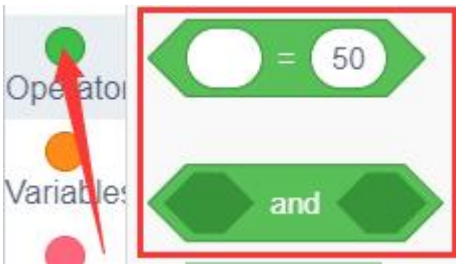
（4）


My Blocks
Pins
Serial
Data
Variable Type
TEXT
Pins
set pin 0 mode input
set digital pin 0 out high
set pwm pin 3 out 255
read digital pin 0
read analog pin A0

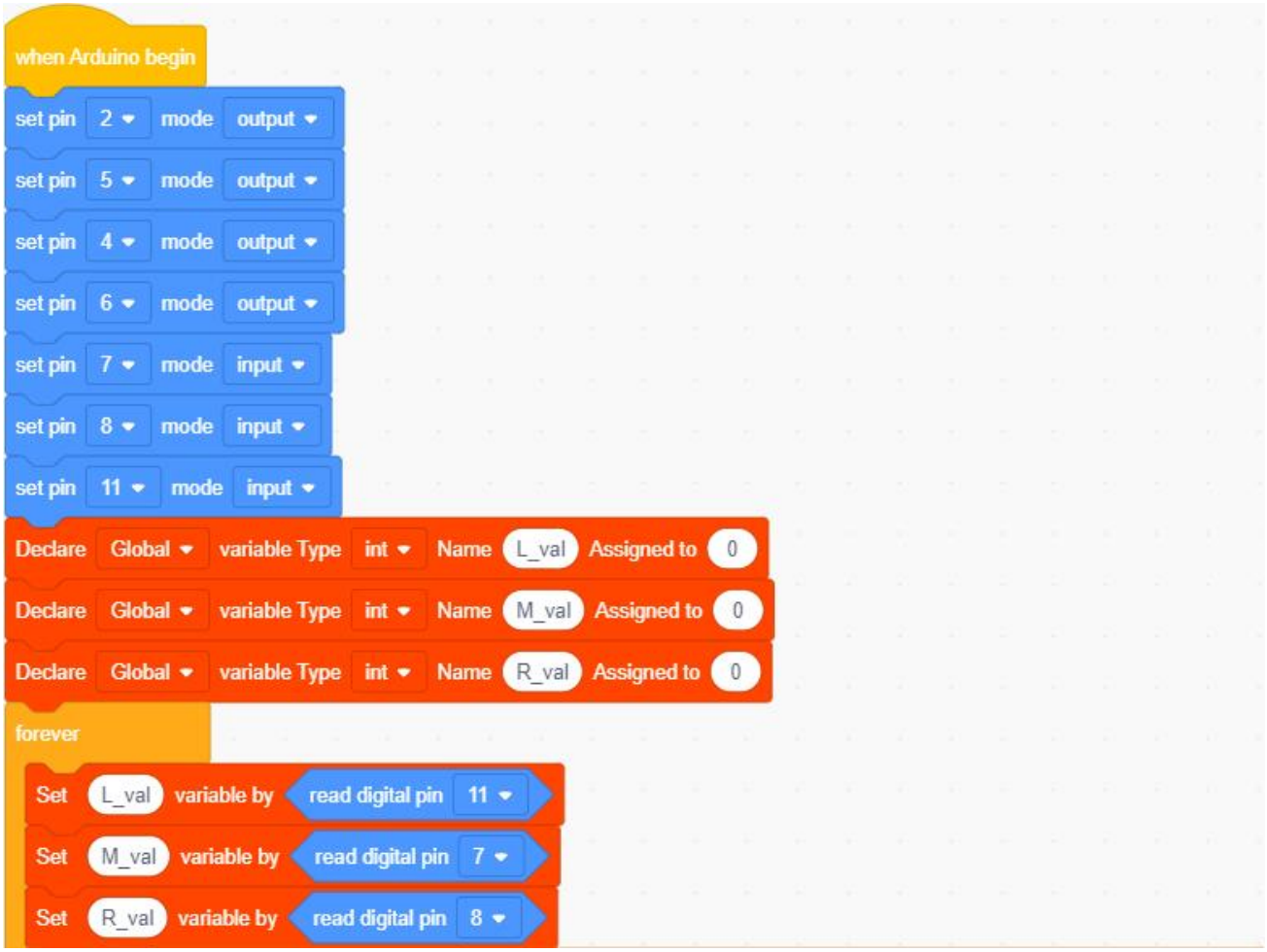
（5）

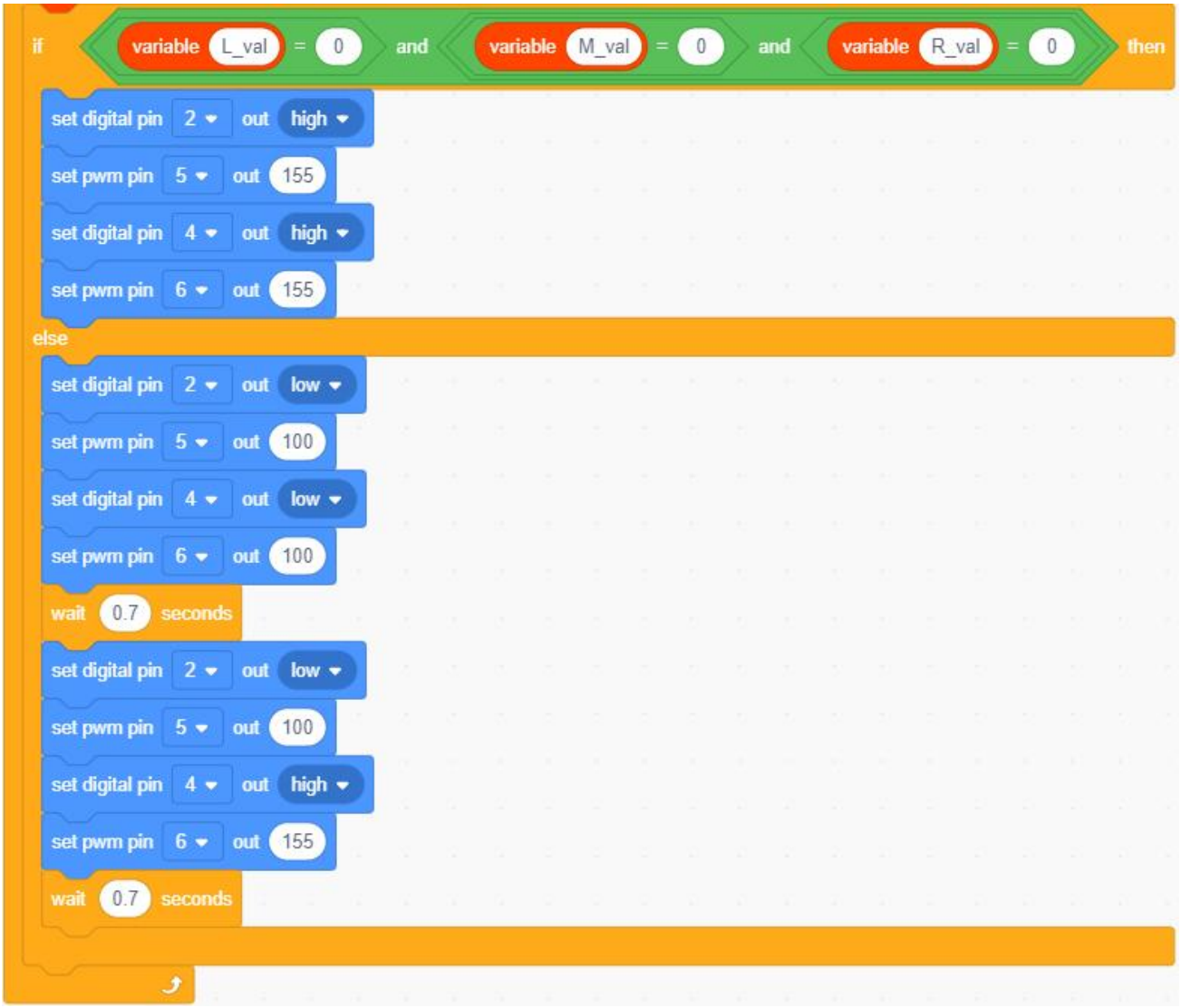

Variable Type
TEXT
DC Motor
Variable Type
Declare Global variable Type int Name item Assigned to 0
variable item
Set item variable by 0

（6）


Operator
Variables
= 50
and

Complete Test Code





5.Test Result

After successfully uploading the code to the V4.0 board, connect the wirings according to the wiring diagram, power on the external power then turn the DIP switch to ON. Put the smart car in the black circle, then it will move solely in the circle.