Project 11 Line Tracking Smart Car



1.Description

Based on the working principle of the line tracking sensor, we empower to make a line tracking smart car.

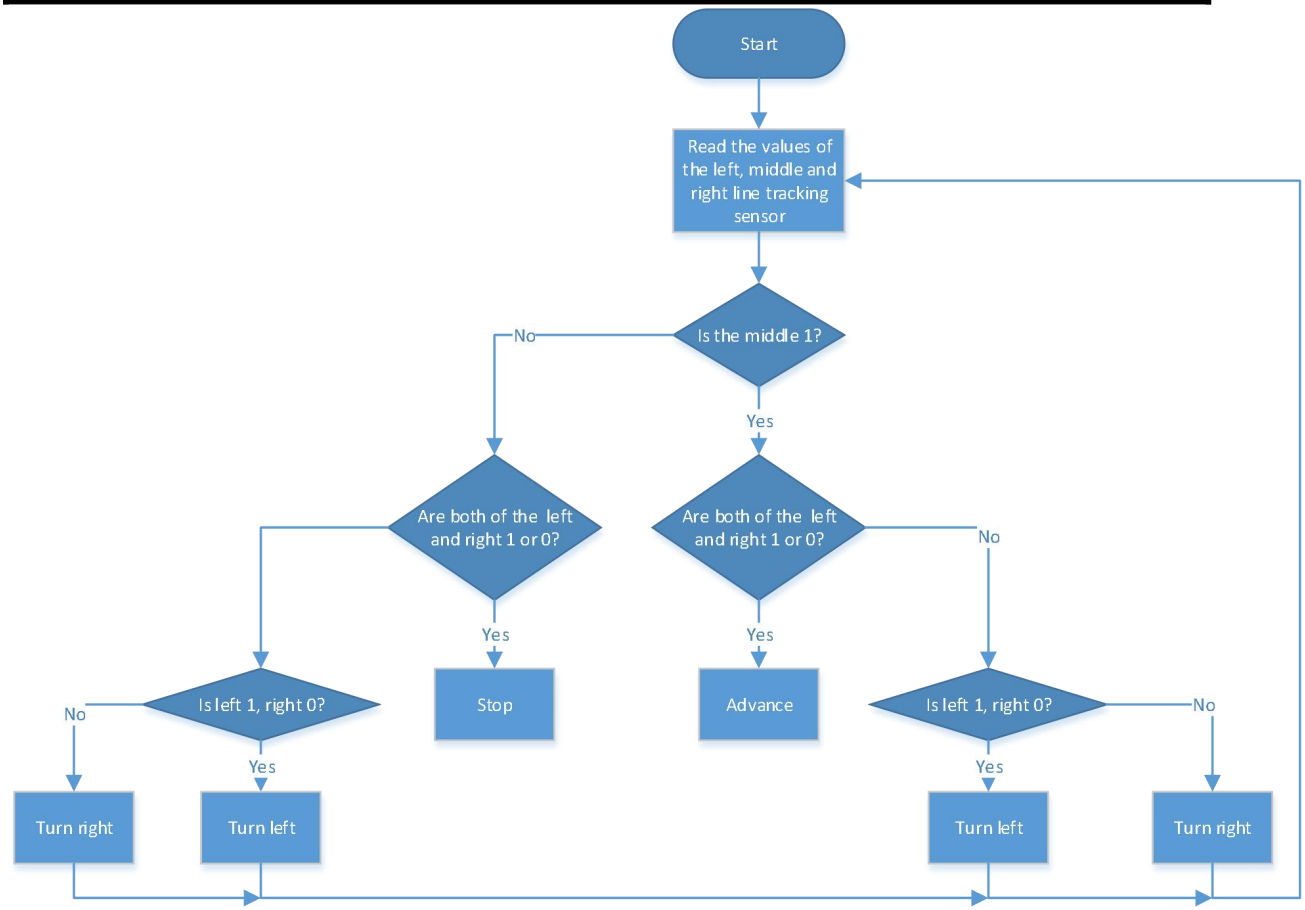
In this project, we detect whether there is a black line at the bottom of the smart car through a line tracking sensor, and then control the rotation of the two groups of motors according to the detection results in a way that control the smart car to walk along the black line.

2.Flow Chart

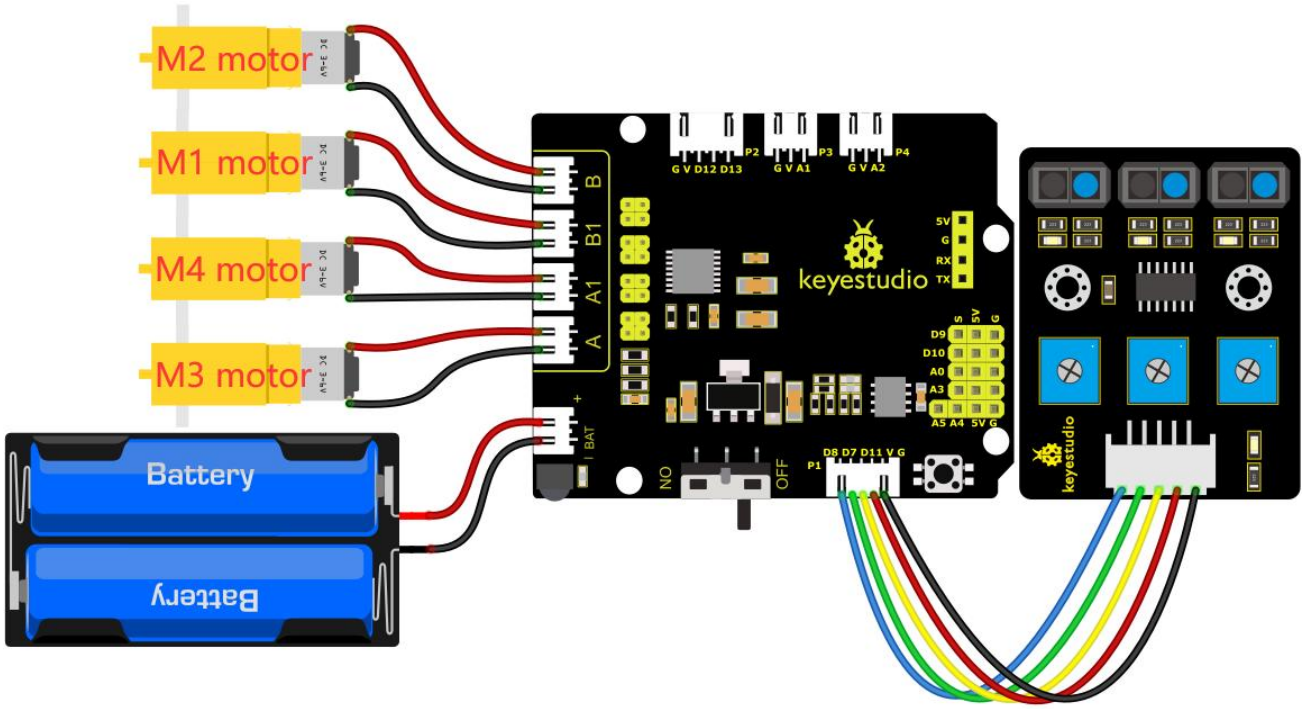
Detection	Middle tracking sensor	detects black line：HIGH
		detects white line：LOW
	Left tracking sensor	detects black line：HIGH
		detects white line：LOW

	Right tracking sensor	detects black line：HIGH
		detects white line：LOW
Condition 1	Condition 2 Detect the left and the right tracking sensor	Status
Middle tracking sensor detects black line	left tracking sensor detects black line; right sensor detects white line	Turn left
	left tracking sensor detects white line; right sensor detects black line	Turn right
	left and right tracking sensor detect black line	Advance
	left and right tracking sensor detect white line	Advance
Middle tracking sensor detects white line	left tracking sensor detects black line; right sensor detects white line	Turn left
	left tracking sensor detects white line; right sensor detects black line	Turn right
	left and right tracking sensor detect black line	Stop
	left and right tracking sensor detect	Stop

	white line	



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

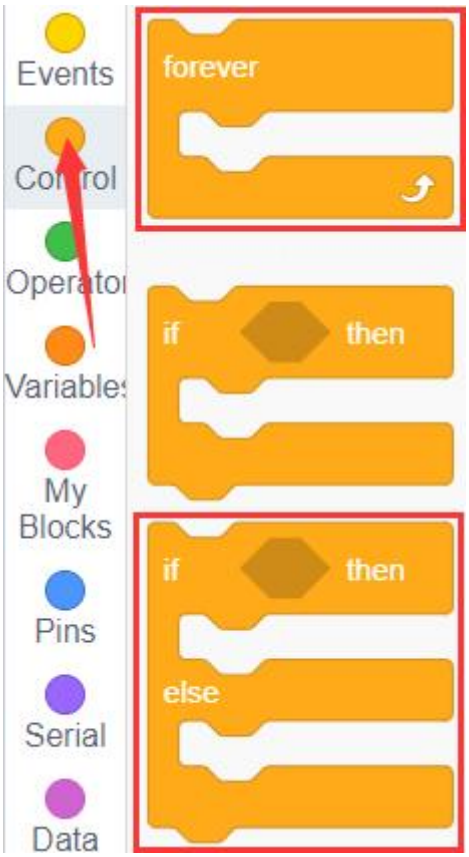
4.Test Code

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

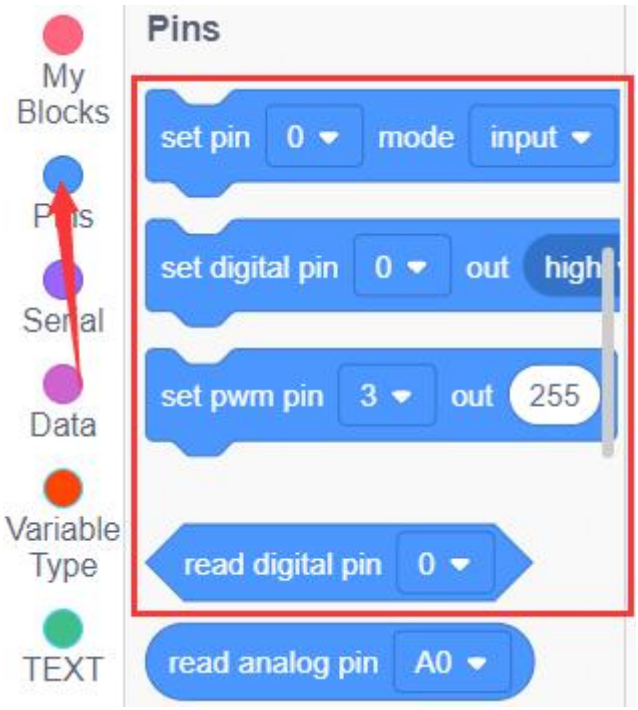
（1）



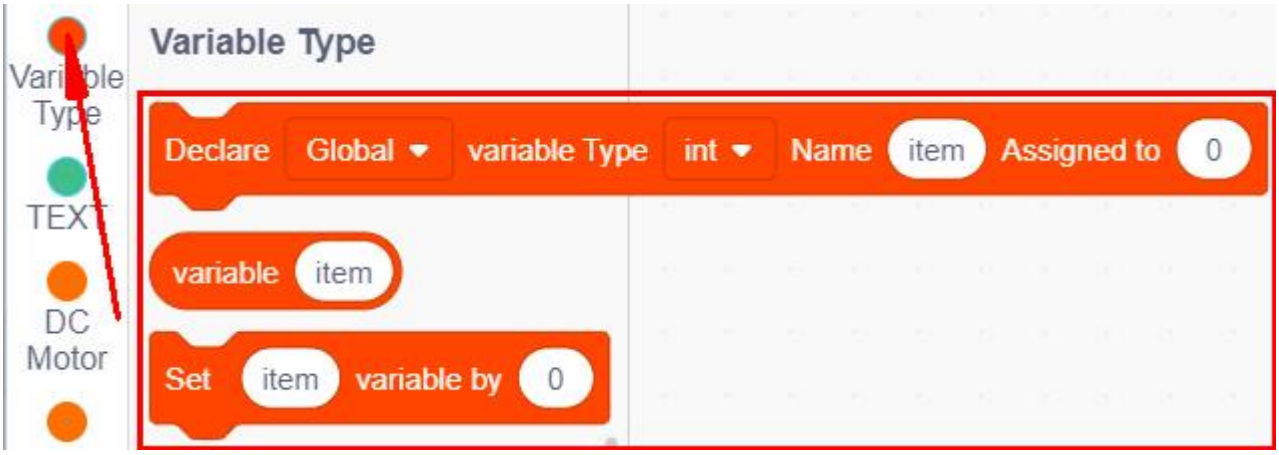
（2）


Events
Control
Operator
Variables
My Blocks
Pins
Serial
Data
forever
if then
if then
else

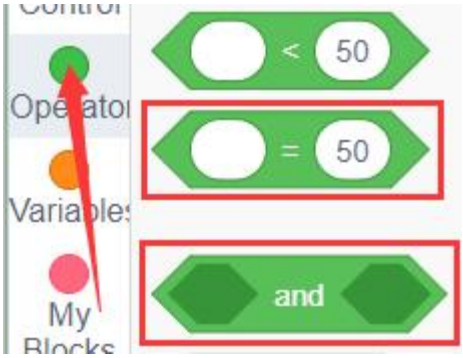
（3）


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

（4）

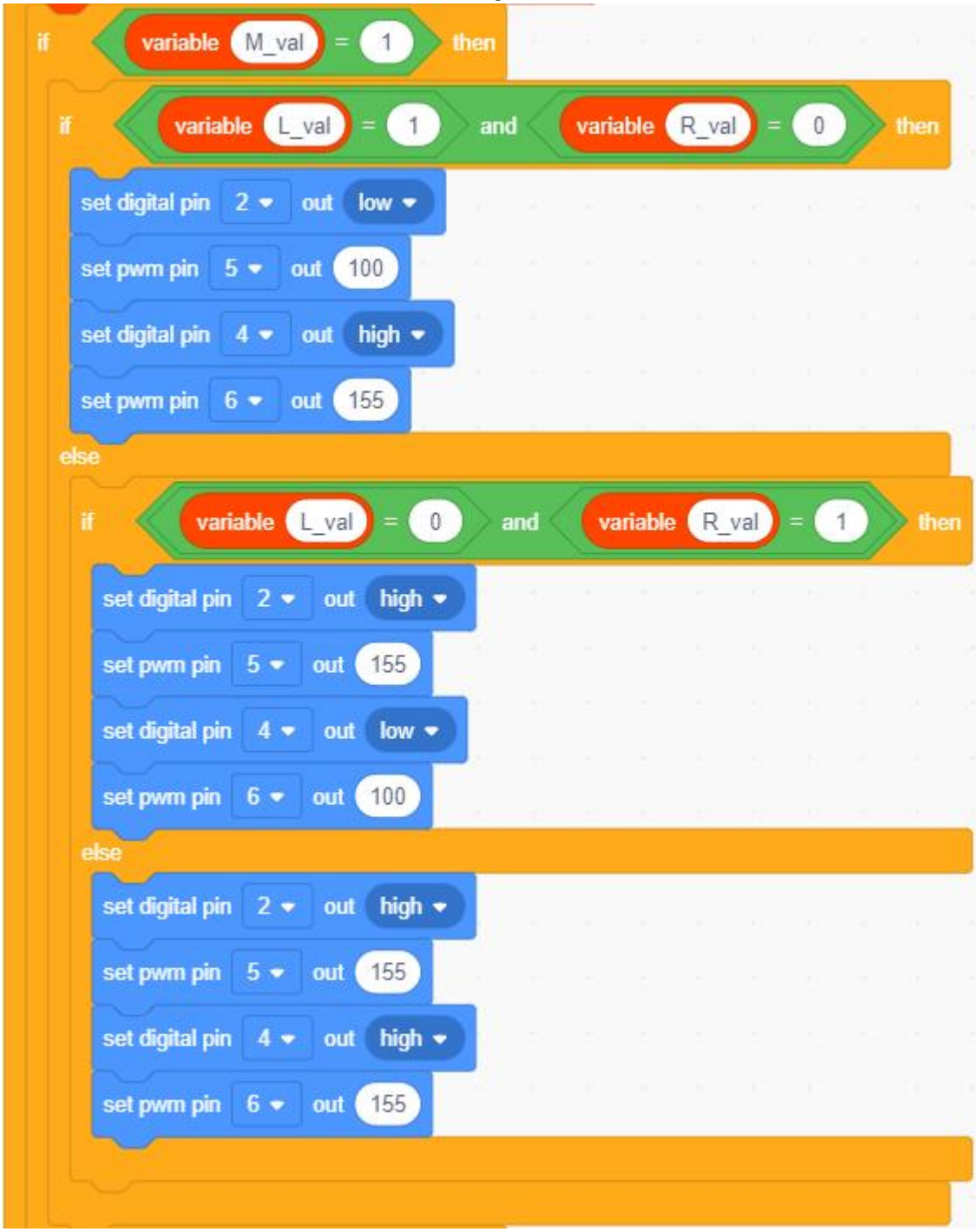


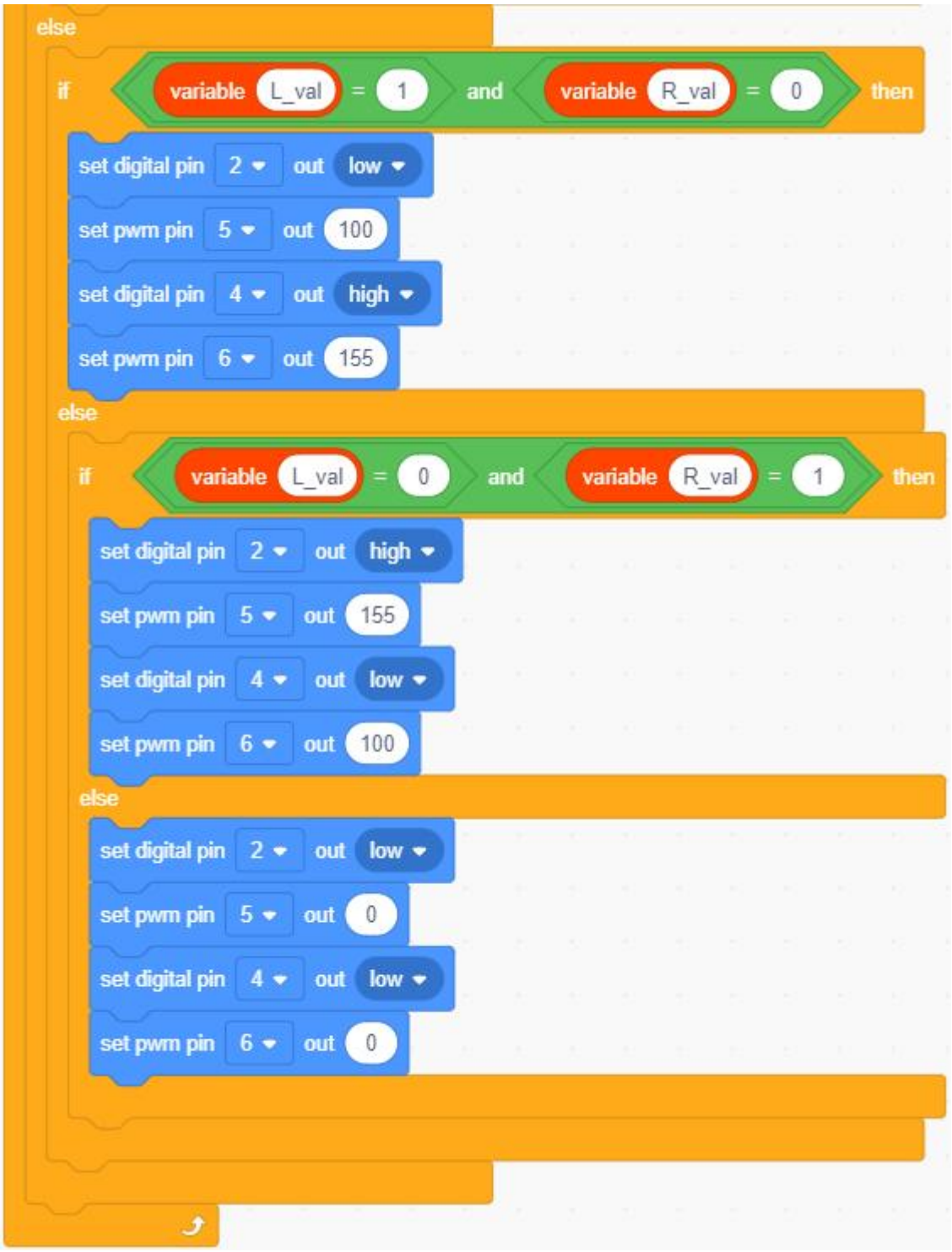
（5）



Complete Test Code


when Arduino begin
set pin 2 mode output
set pin 5 mode output
set pin 4 mode output
set pin 6 mode output
set pin 7 mode input
set pin 8 mode input
set pin 11 mode input
Declare Global variable Type int Name L_val Assigned to 0
Declare Global variable Type int Name M_val Assigned to 0
Declare Global variable Type int Name R_val Assigned to 0
forever
Set L_val variable by read digital pin 11
Set M_val variable by read digital pin 7
Set R_val variable by read digital pin 8


if variable M_val = 1 then
if variable L_val = 1 and variable R_val = 0 then
set digital pin 2 out low
set pwm pin 5 out 100
set digital pin 4 out high
set pwm pin 6 out 155
else
if variable L_val = 0 and variable R_val = 1 then
set digital pin 2 out high
set pwm pin 5 out 155
set digital pin 4 out low
set pwm pin 6 out 100
else
set digital pin 2 out high
set pwm pin 5 out 155
set digital pin 4 out high
set pwm pin 6 out 155



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. Then the smart car will walk along the lines.