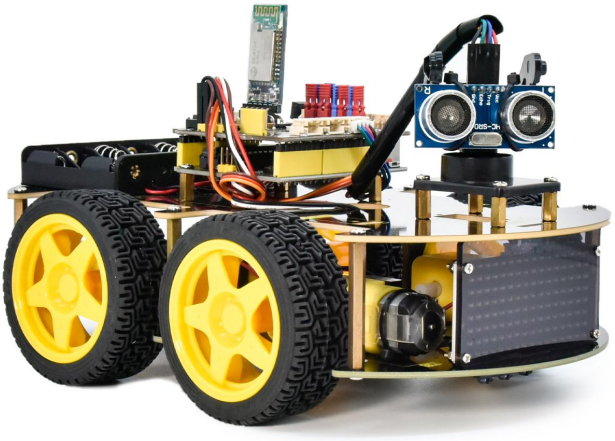
Project 15 Bluetooth Control Smart Car





1.Description

We’ ve learned the basic knowledge of Bluetooth. And in this lesson, we will make a Bluetooth control smart car. In this project, we aim to regard the mobile phone as the transmitter (host), and the smart car connected to the BT24 Bluetooth module (slave) as the receiver and use the mobile APP to control the smart car via the Bluetooth.

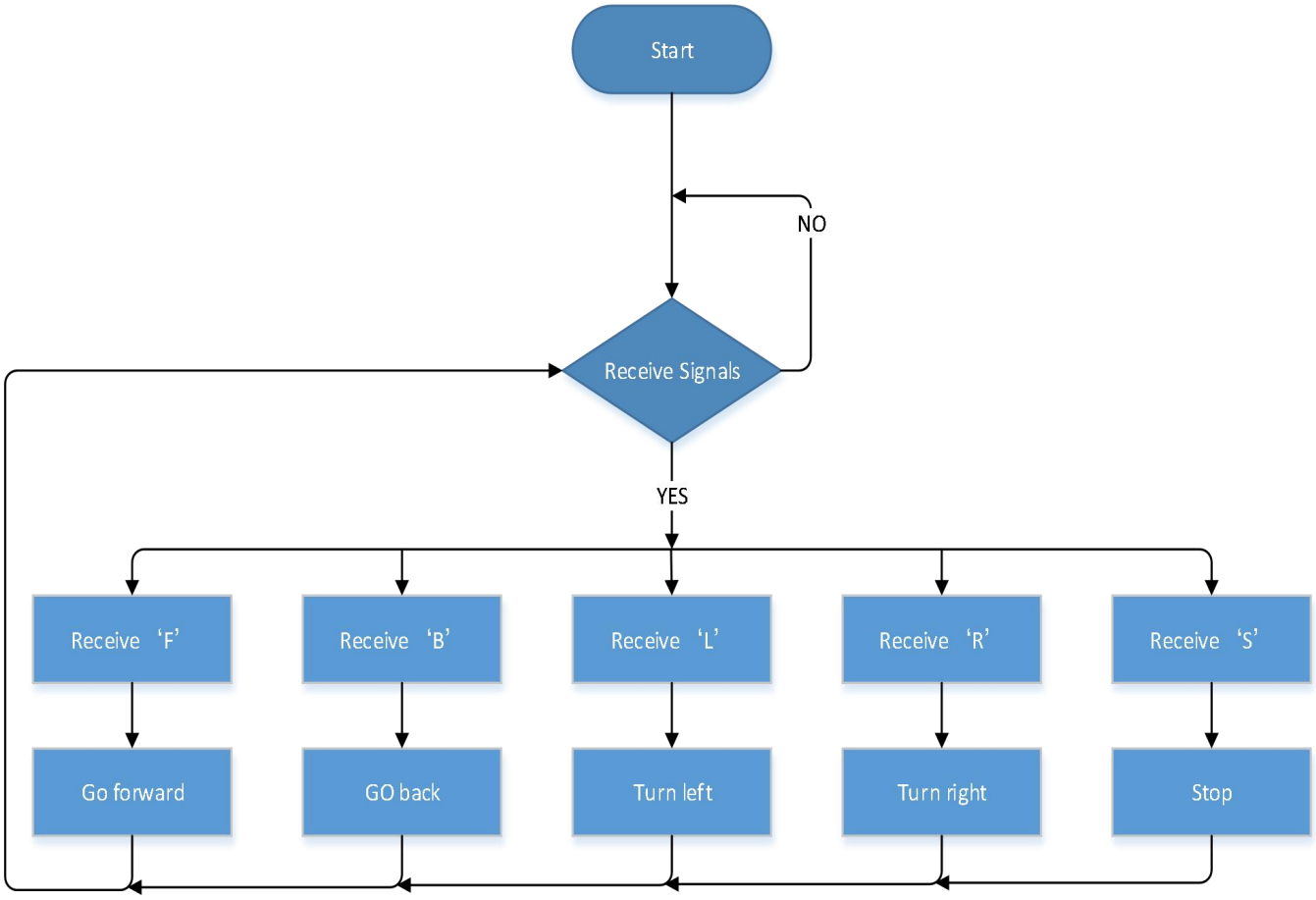
2.APP Control Button

Key	Function
CONNECT	Pair the DX-BT24 5.1 Bluetooth module
DISCONNECT	Disconnect Bluetooth

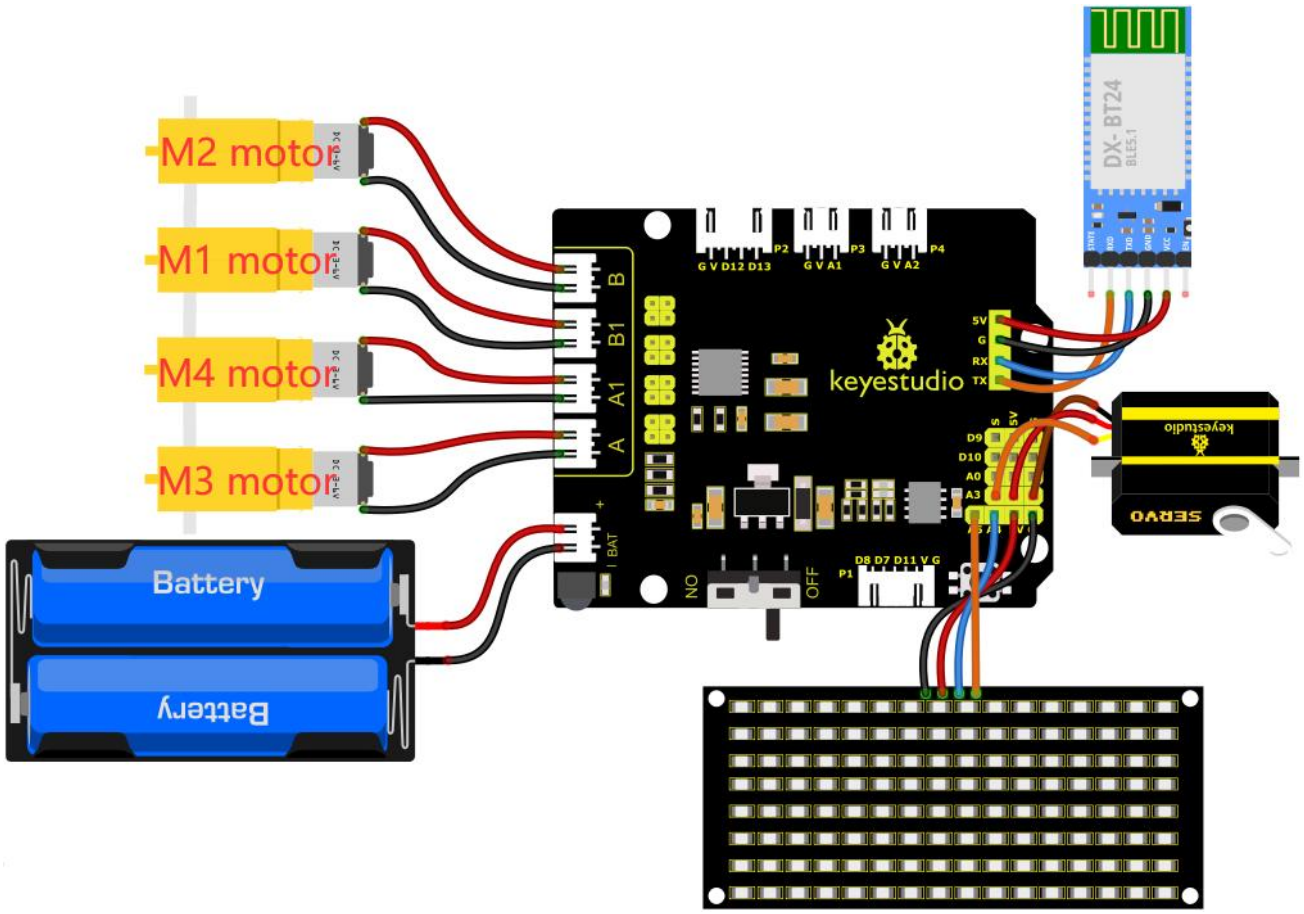
	Control Character	Function
	Press: F Release: S	Press the button, the car goes front; release to stop
	Press: L Release: S	Press the button, the car turns left; release to stop
	Press: R Release: S	Press the button, the car turns right; release to stop
	Press: B Release: S	Press the button, the car goes back; release to stop
	Press: a Release: S	Click to speed up , 255(maximum)
	Press: d Release: S	Click to slow down , 0(minimum)
	Click to start the mobile phone gravity sensing; click again to exit	
	Click to send X, click again to send S	Start line tracking function; click again to exit
	Click to send Y, click again to send S	Start obstacle avoidance function, click again to exit
	Click to send U, click again to send S	Start ultrasonic follow function; click again to exit

	Click to send G, click again to send S	Start restricting function; click again to exit

3.Flow Chart



4.Wiring Diagram



1. GND, VCC, SDA and SCL of the 8*8 LED board are connected to G (GND), V (VCC), A4 and A5 of the expansion board.

2. The RXD, TXD, GND and VCC of the Bluetooth module are respectively connected to TX, RX, G and 5V on the 8833 motor driver expansion board, while the STATE and BRK pins of the Bluetooth module do not need to be connected.

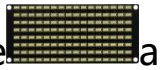
3. The servo is connected to G, V and A3. The brown wire is interfaced

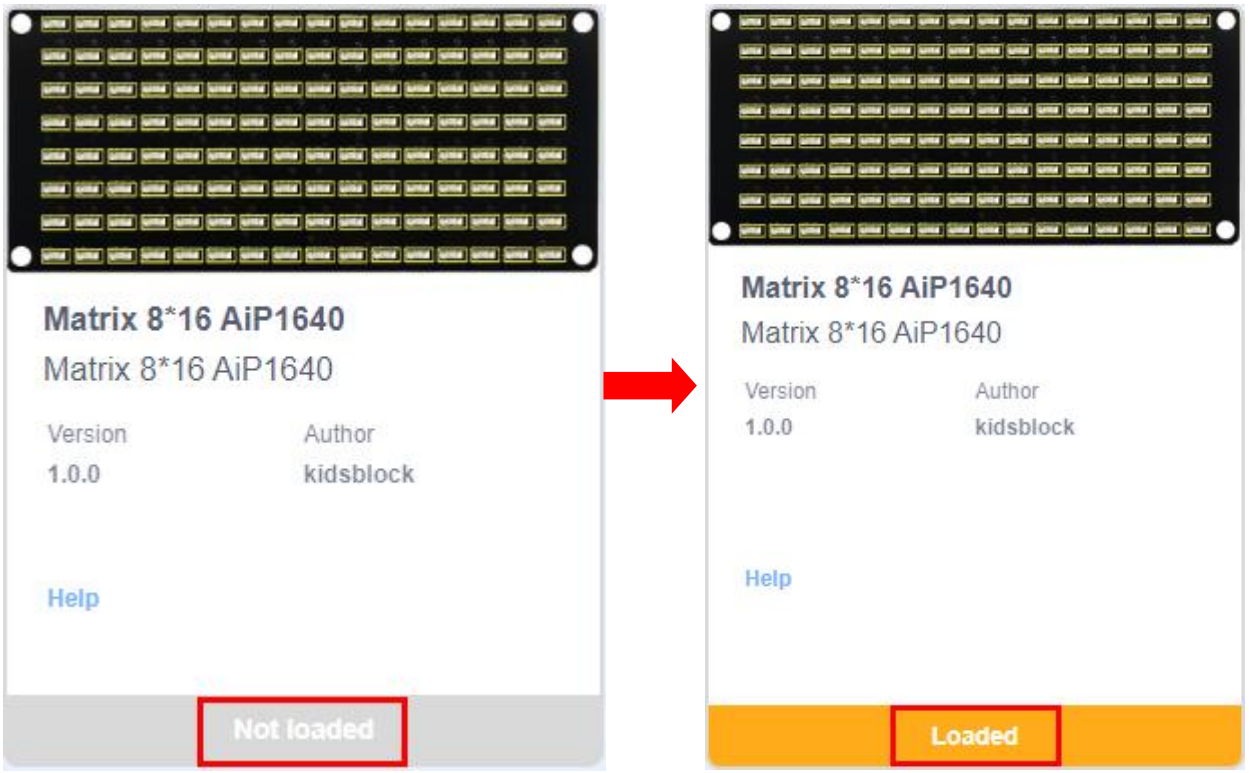
with Gnd(G), the red wire is interfaced with 5V(V) and the orange wire is interfaced with A3.

4. The power is connected to the BAT port

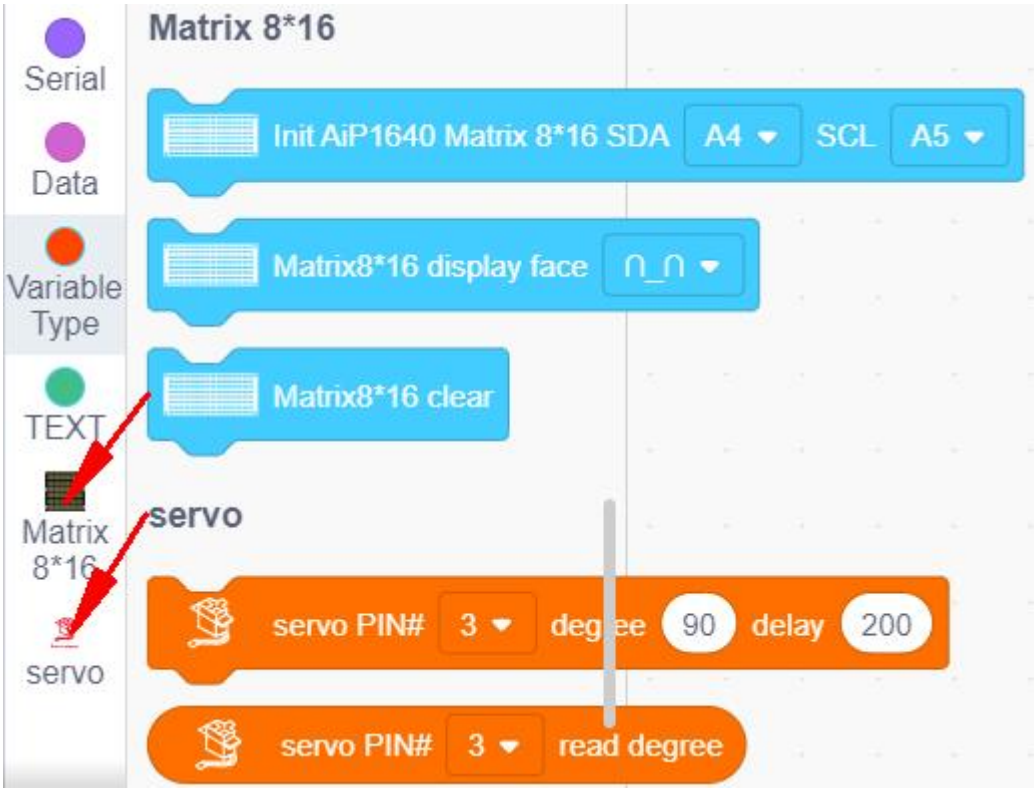
5.Test Code

Before writing the code, it is necessary to import the library files of the 8x16 LED board and the servo. The specific steps are as follows:

Click  to enter the extension library interface of sensors/modules/components, then search for "Matrix 8*16 Aip1640" moduleand click it. In this way, "Not loaded" changes to "loaded", indicating that the"Matrix 8*16 Aip1640"module was added successfully.



Click Back to return to the code editor interface, the instruction block of the added "Matrix 8*16" module and "Servo" component can be seen in the module area.



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

（1）



（2）


Events
Control
Operator
Variables
My Blocks
forever
if then

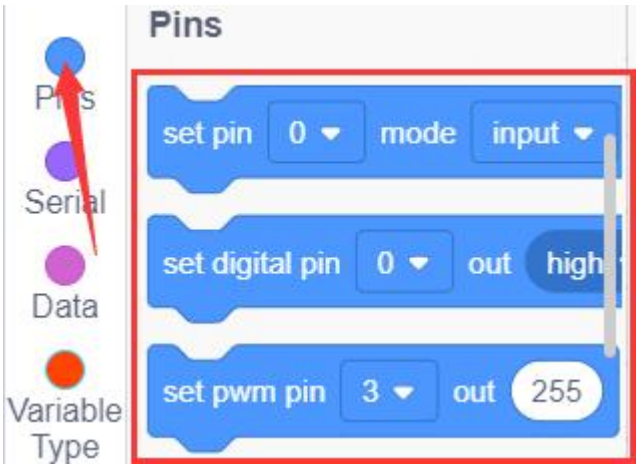
（3）


Operator
Variables
My
> 50
< 50
= 50

（4）


Serial
Data
Variable Type
Serial
serial begin baudrate 9600
serial print Hello KidsBlock

（5）


Pins
Serial
Data
Variable Type
Pins
set pin 0 mode input
set digital pin 0 out high
set pwm pin 3 out 255

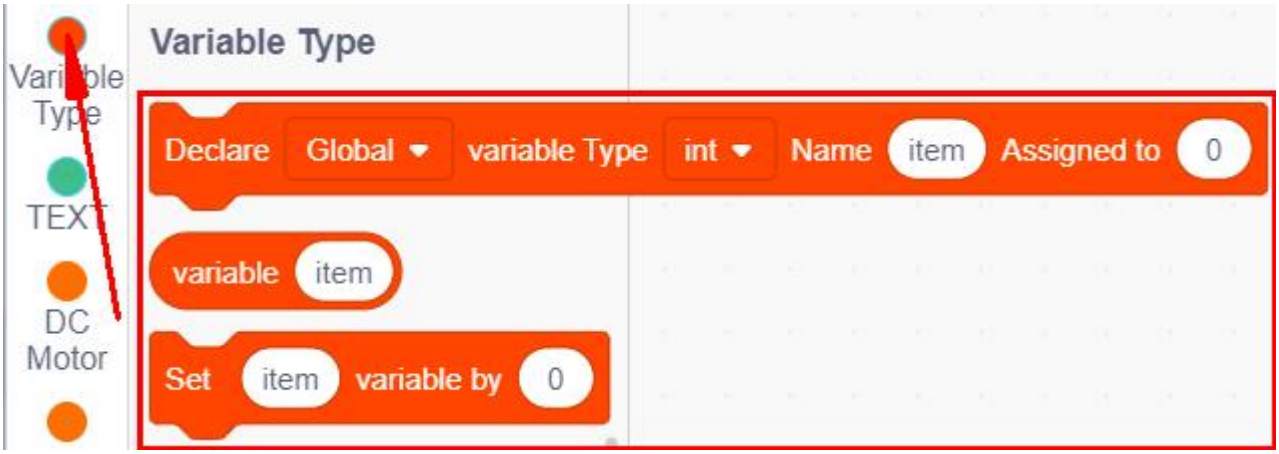
（6）


TEXT
char a
string hello
Matrix 8*16

（7）


Matrix 8*16
Init AiP1640 Matrix 8*16 SDA A4 SCL A5
Matrix8*16 display face ∩_∩
Matrix8*16 clear
Matrix 8*16
servo

（8）

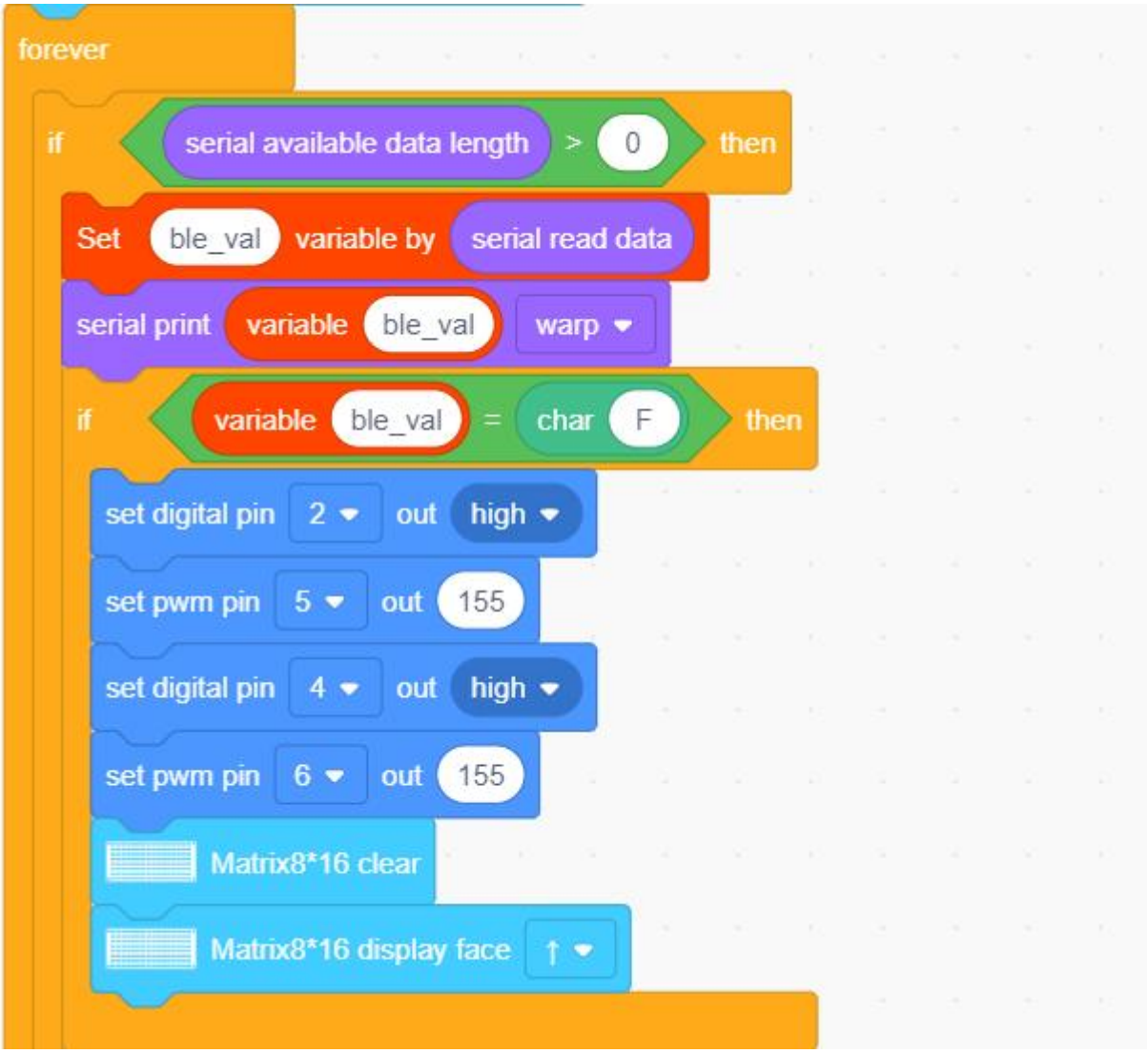

Variable Type
Declare Global variable Type int Name item Assigned to 0
variable item
Set item variable by 0
DC Motor

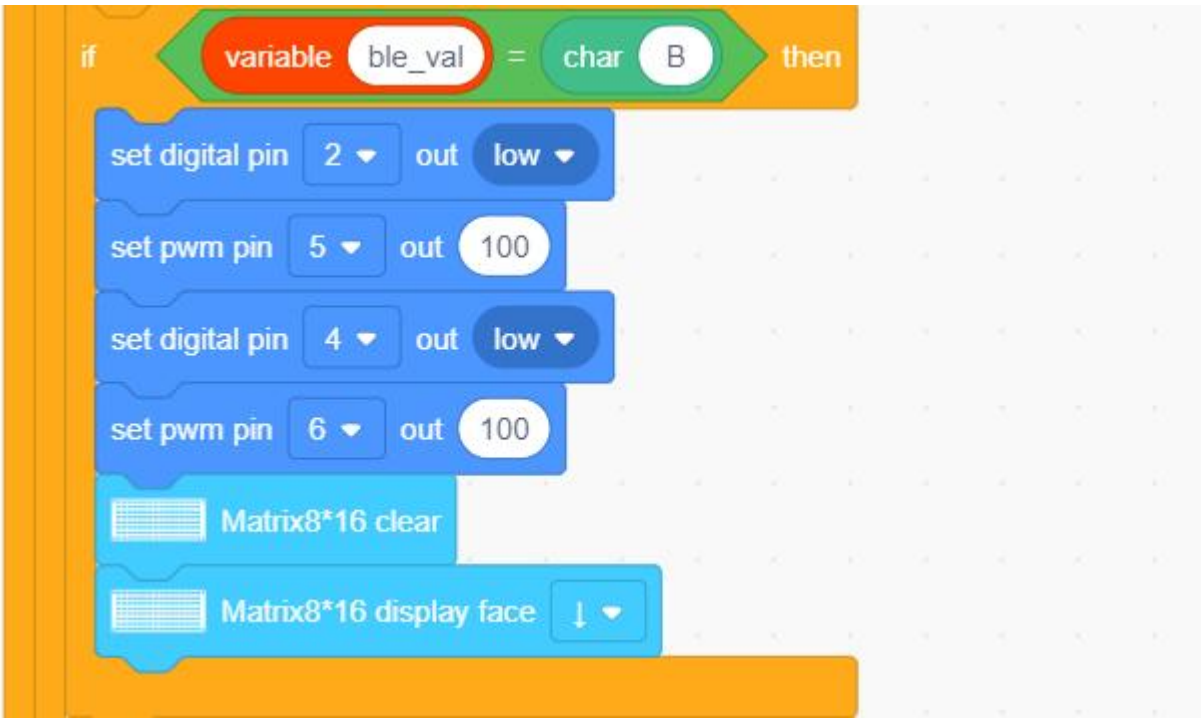
（9）

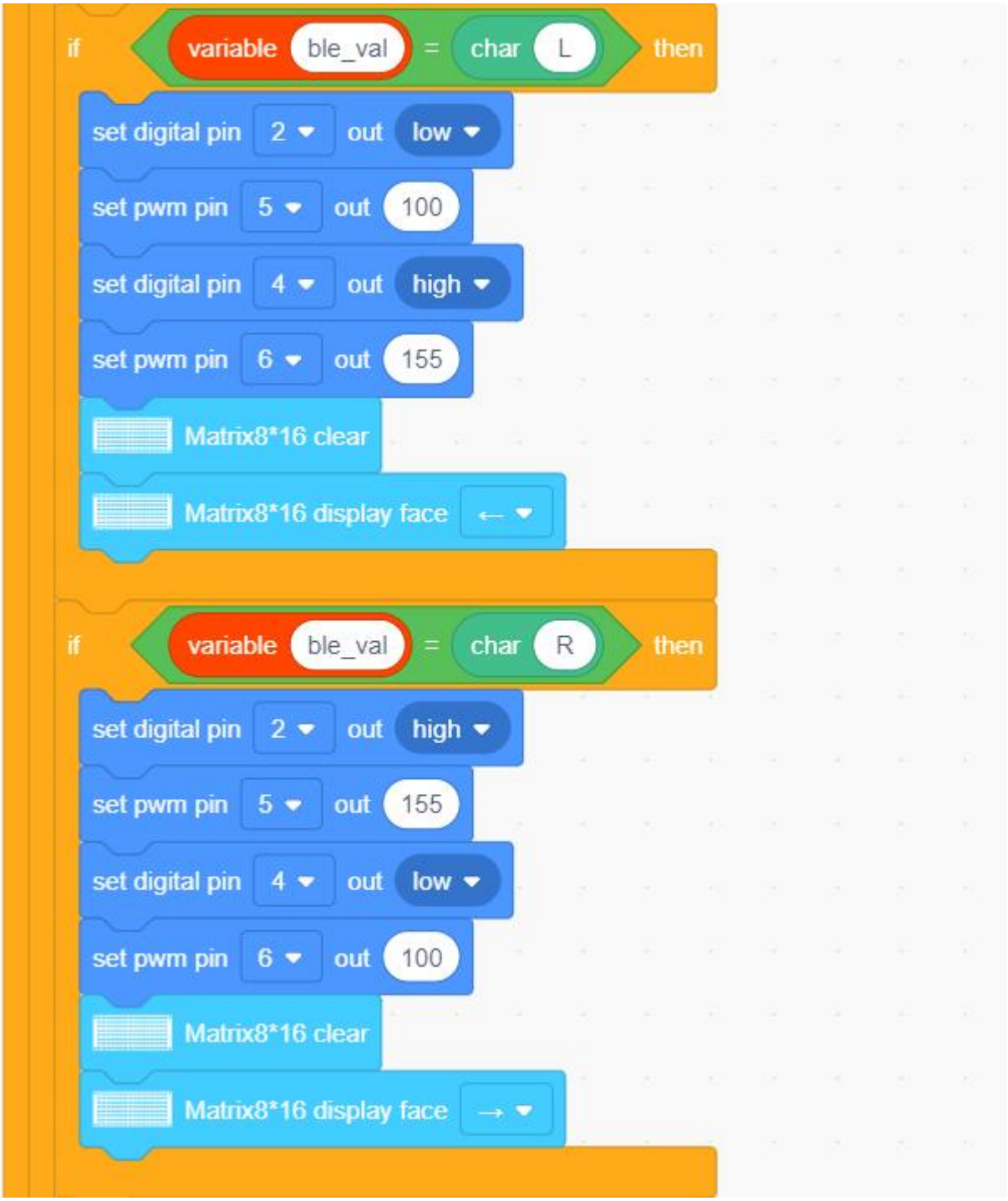

servo
servo PIN# 3 degree 90 delay 200

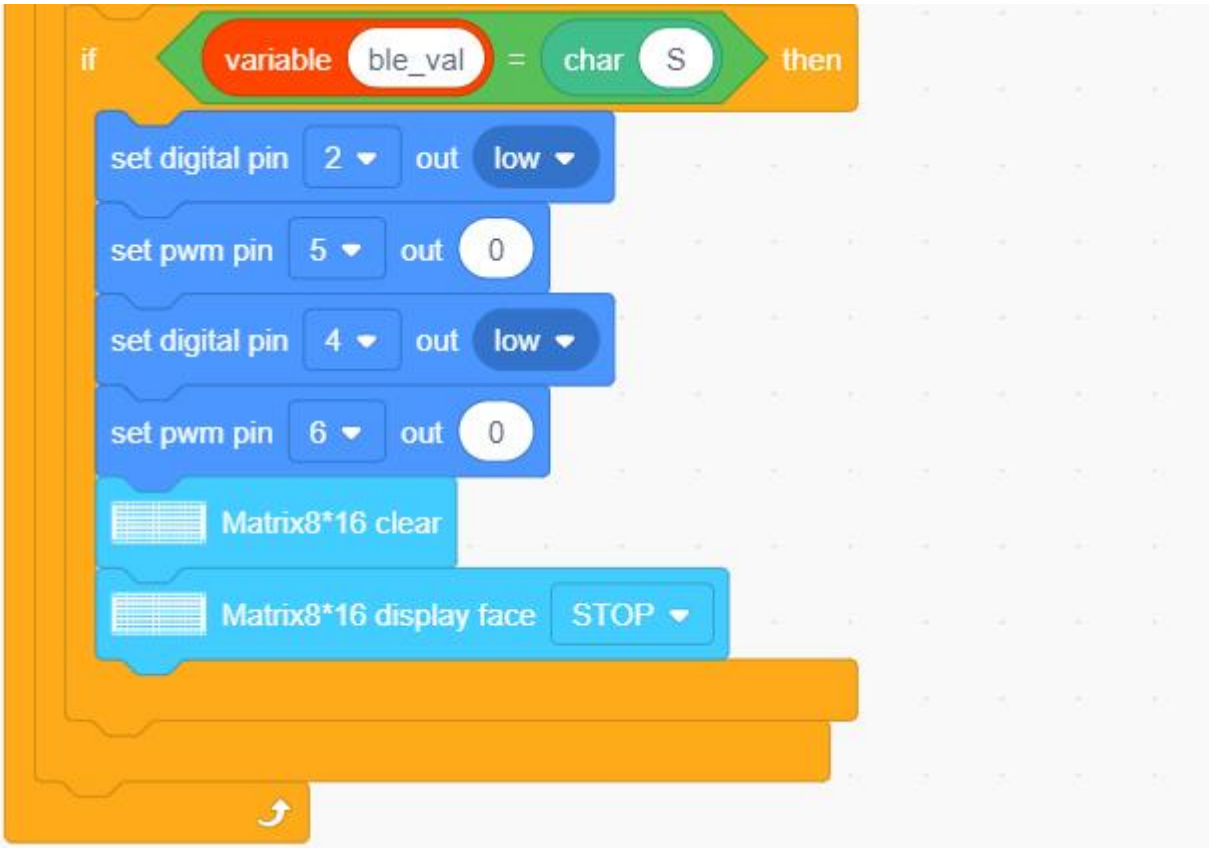
Complete Test Code




forever
if
serial available data length
>
0
then
Set
ble_val
variable by
serial read data
serial print
variable
ble_val
warp
if
variable
ble_val
=
char
F
then
set digital pin
2
out
high
set pwm pin
5
out
155
set digital pin
4
out
high
set pwm pin
6
out
155
Matrix8*16 clear
Matrix8*16 display face
↑


if
variable
ble_val
=
char
B
then
set digital pin
2
out
low
set pwm pin
5
out
100
set digital pin
4
out
low
set pwm pin
6
out
100
Matrix8*16 clear
Matrix8*16 display face
↓


if variable ble_val = char L 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
Matrix8*16 clear
Matrix8*16 display face ←
if variable ble_val = char R 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
Matrix8*16 clear
Matrix8*16 display face →



6.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.

Inset the BT module and open your cellphone to connect the Bluetooth to control the smart car. The can will move forward, backward, turn left and right and stop. Also the 8*8 LED board will show the corresponding patterns

Remove the BT module when you are uploading the code, otherwise you will fail to upload it.