#include <SoftwareSerial.h>

SoftwareSerial sig(2, 3); // RX, TX

int enbA=3;

int in1 = 4;

int in2 = 5;

int in3 = 6;

int in4 = 7;

int enbB=13;

char input;

//led BGR

int red=10;

int green=11;

int blue=12;

//sieu am sensor

int trig=8;

int echo=9;

int margin = 15; // distance to regconize objects

unsigned long timex;

int distance;

void setup() {

sig.begin(9600);

Serial.begin(115200);

pinMode(red, OUTPUT);

pinMode(green, OUTPUT);

pinMode(blue, OUTPUT);

}

void loop() {

if(sig.available())

{

input=sig.read();

switch(input){

case 'S':

Serial.println(input );

STOP();

digitalWrite(red, LOW);

digitalWrite(blue, LOW);

digitalWrite(green, HIGH);

break;

case 'F':

Serial.println(input);

FORWARD();

digitalWrite(red, LOW);

digitalWrite(blue, LOW);

digitalWrite(green, HIGH);

break;

case 'B':

Serial.println(input);

BACKWARD();

digitalWrite(red, HIGH);

digitalWrite(blue, HIGH);

digitalWrite(green, HIGH);

break;

case 'R':

Serial.println(input);

RIGHT();

digitalWrite(red, HIGH);

digitalWrite(blue, LOW);

digitalWrite(green, HIGH);

break;

case 'L':

Serial.println(input);

LEFT();

digitalWrite(red, HIGH);

digitalWrite(blue, LOW);

digitalWrite(green, HIGH);

break;

}

}

// else{// not connected

// digitalWrite(red, HIGH);

// digitalWrite(blue, LOW);

// digitalWrite(green, LOW);

// // delay(500);

// digitalWrite(red, LOW);

// digitalWrite(blue, HIGH);

// digitalWrite(green, LOW);

// delay(500);

// digitalWrite(red, LOW);

// digitalWrite(blue, LOW);

// digitalWrite(green, HIGH);

// delay(500);

// }

distance = 0;

DISTANCE();

if(distance<=margin)

{

digitalWrite(red, HIGH);

digitalWrite(blue, LOW);

digitalWrite(green, LOW);

delay(800);

digitalWrite(red, LOW);

digitalWrite(blue, LOW);

digitalWrite(green, LOW);

}

}

//function to control car

void FORWARD()

{

analogWrite(enbA, 100);

analogWrite(enbB, 100);

digitalWrite(in1, 0);

digitalWrite(in2, 1);

digitalWrite(in3, 0);

digitalWrite(in4, 1);

}

void STOP(){

analogWrite(enbA, 0);

analogWrite(enbB, 0);

digitalWrite(in1, 0);

digitalWrite(in2, 0);

digitalWrite(in3, 0);

digitalWrite(in4, 0);

}

void RIGHT()

{

analogWrite(enbA, 100);

analogWrite(enbB, 0);

digitalWrite(in1, 0);

digitalWrite(in2, 1);

digitalWrite(in3, 0);

digitalWrite(in4, 0);

}

void LEFT()

{

analogWrite(enbA, 0);

analogWrite(enbB, 100);

digitalWrite(in1, 0);

digitalWrite(in2, 0);

digitalWrite(in3, 0);

digitalWrite(in4, 1);

}

void BACKWARD()

{

analogWrite(enbA, 100);

analogWrite(enbB, 100);

digitalWrite(in1, 1);

digitalWrite(in2, 0);

digitalWrite(in3, 1);

digitalWrite(in4, 0);

}

void DISTANCE()

{

digitalWrite(trig, LOW);

delayMicroseconds(2);

digitalWrite(trig, HIGH);

delayMicroseconds(10);

digitalWrite(trig, LOW);

unsigned long timex;

int distance;

// Đo độ rộng xung HIGH ở chân echo.

timex = pulseIn(echo, HIGH);

distance = timex/ 2 / 29.412;

}