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#include <Servo.h>
#include <AFMotor.h>
#define Echo A0
#define Trig A1
#define motor 10
#define Speed 150
#define spoint 103
char value;
int distance;
int Left;
int Right;
int L = 0;
int R = 0;
int L1 = 0;
int R1 = 0;
Servo servo;
AF_DCMotor M1(1);
AF_DCMotor M2(2);
AF_DCMotor M3(3);
AF_DCMotor M4(4);
void setup() {
  Serial.begin(9600);
  pinMode(Trig, OUTPUT);
  pinMode(Echo, INPUT);
  servo.attach(motor);
  M1.setSpeed(Speed);
  M2.setSpeed(Speed);
  M3.setSpeed(Speed);
  M4.setSpeed(Speed);
}
void loop() {
  Obstacle();
  Bluetoothcontrol();
  voicecontrol();
}
void Bluetoothcontrol() {
  if (Serial.available() > 0) {
    value = Serial.read();
    Serial.println(value);
  }
  if (value == 'F') {
    forward();
  } else if (value == 'B') {
    backward();
  } else if (value == 'L') {
    left();
  } else if (value == 'R') {
    right();
  } else if (value == 'S') {
    Stop();
  }
}
void Obstacle() {
  distance = ultrasonic();
  if (distance <= 12) {
    Stop();
    backward();
  }
}

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    delay(100);
    Stop();
    L = leftsee();
    servo.write(spoint);
    delay(800);
    R = rightsee();
    servo.write(spoint);
    if (L < R) {
        right();
        delay(500);
        Stop();
        delay(200);
    } else if (L > R) {
        left();
        delay(500);
        Stop();
        delay(200);
    }
    } else {
        forward();
    }
}

void voicecontrol() {
    if (Serial.available() > 0) {
        value = Serial.read();
        Serial.println(value);
        if (value == '^') {
            forward();
        } else if (value == '-') {
            backward();
        } else if (value == '<') {
            L = leftsee();
            servo.write(spoint);
            if (L >= 10 ) {
                left();
                delay(500);
                Stop();
            } else if (L < 10) {
                Stop();
            }
        } else if (value == '>') {
            R = rightsee();
            servo.write(spoint);
            if (R >= 10 ) {
                right();
                delay(500);
                Stop();
            } else if (R < 10) {
                Stop();
            }
        } else if (value == '*') {
            Stop();
        }
    }
}

// Ultrasonic sensor distance reading function
int ultrasonic() {

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    digitalWrite(Trig, LOW);
    delayMicroseconds(4);
    digitalWrite(Trig, HIGH);
    delayMicroseconds(10);
    digitalWrite(Trig, LOW);
    long t = pulseIn(Echo, HIGH);
    long cm = t / 29 / 2; //time convert distance
    return cm;
}

void forward() {
    M1.run(FORWARD);
    M2.run(FORWARD);
    M3.run(FORWARD);
    M4.run(FORWARD);
}

void backward() {
    M1.run(BACKWARD);
    M2.run(BACKWARD);
    M3.run(BACKWARD);
    M4.run(BACKWARD);
}

void right() {
    M1.run(BACKWARD);
    M2.run(BACKWARD);
    M3.run(FORWARD);
    M4.run(FORWARD);
}

void left() {
    M1.run(FORWARD);
    M2.run(FORWARD);
    M3.run(BACKWARD);
    M4.run(BACKWARD);
}

void Stop() {
    M1.run(RELEASE);
    M2.run(RELEASE);
    M3.run(RELEASE);
    M4.run(RELEASE);
}

int rightsee() {
    servo.write(20);
    delay(800);
    Left = ultrasonic();
    return Left;
}

int leftsee() {
    servo.write(180);
    delay(800);
    Right = ultrasonic();
    return Right;
}

```