Carrinho autônomo

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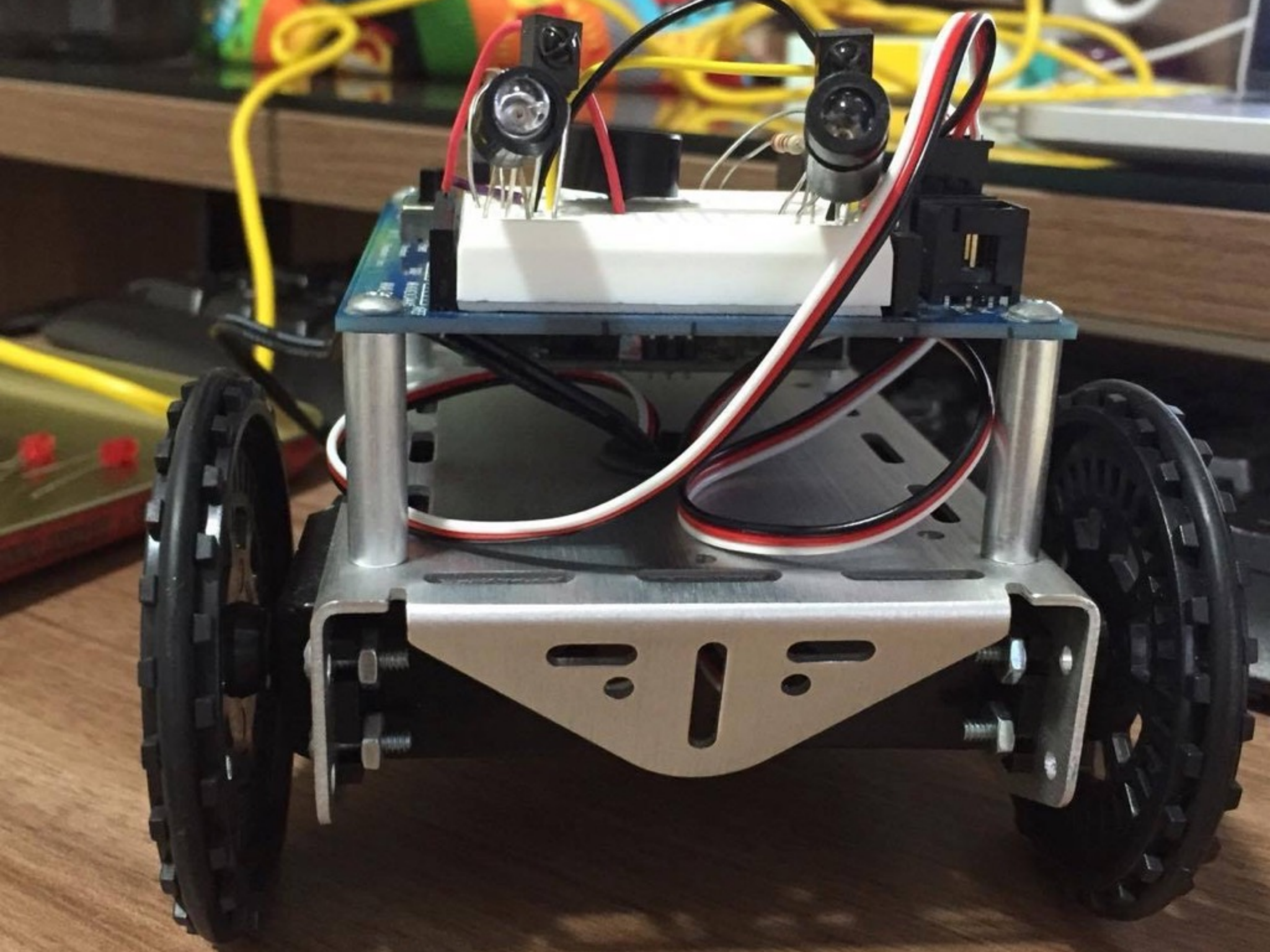
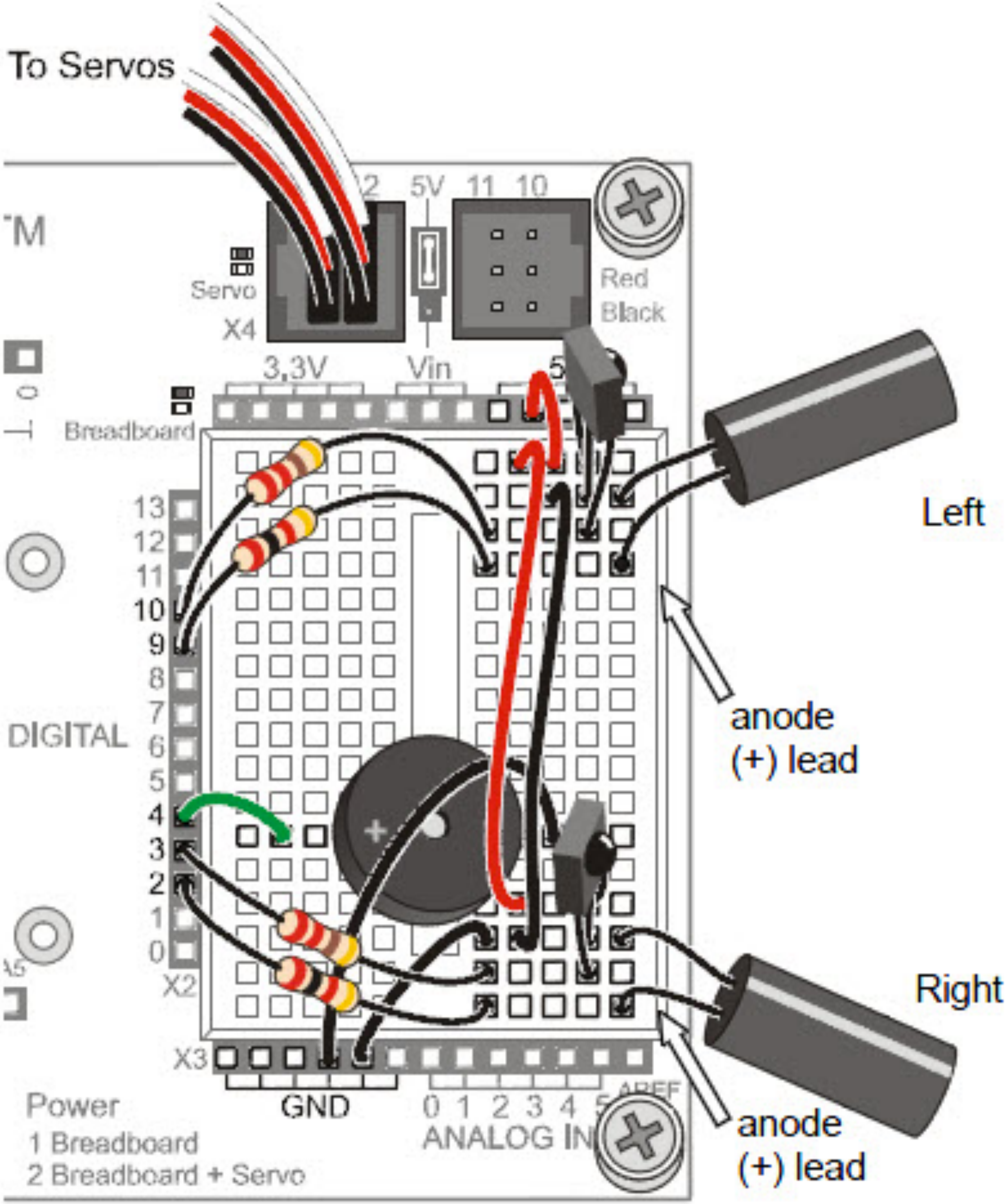
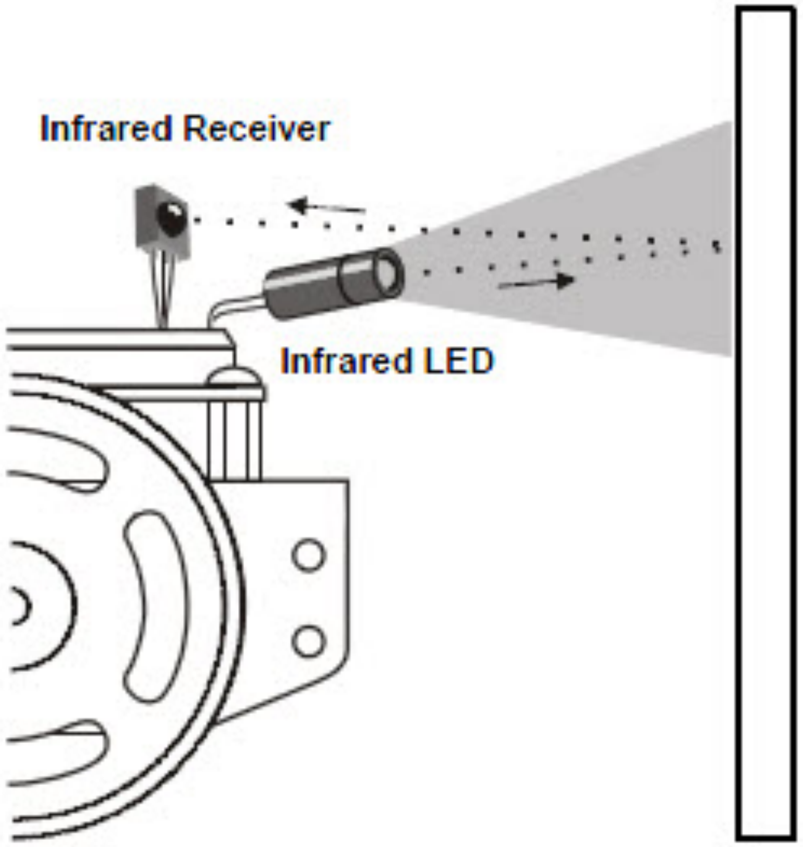


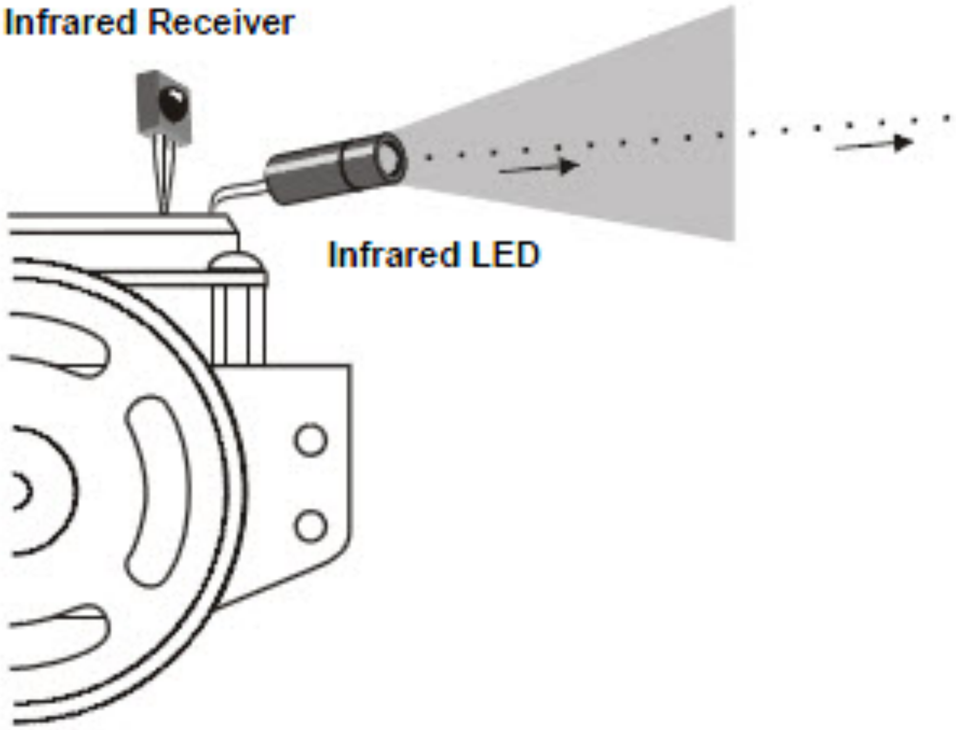
Projeto


To Servos
12
5V
11
10
TM
Servo
X4
Red
Black
3,3V
Vin
5
0
Breadboard
13
12
11
10
9
8
7
6
5
4
3
2
1
0
DIGITAL
X2
X3
GND
0 1 2 3 4 5
AREF
ANALOG IN
Power
1 Breadboard
2 Breadboard + Servo
Left
anode
(+) lead
Right
anode
(+) lead

Funcionamento



Infrared reflected, obstacle detected.



Infrared not reflected, no obstacle detected.

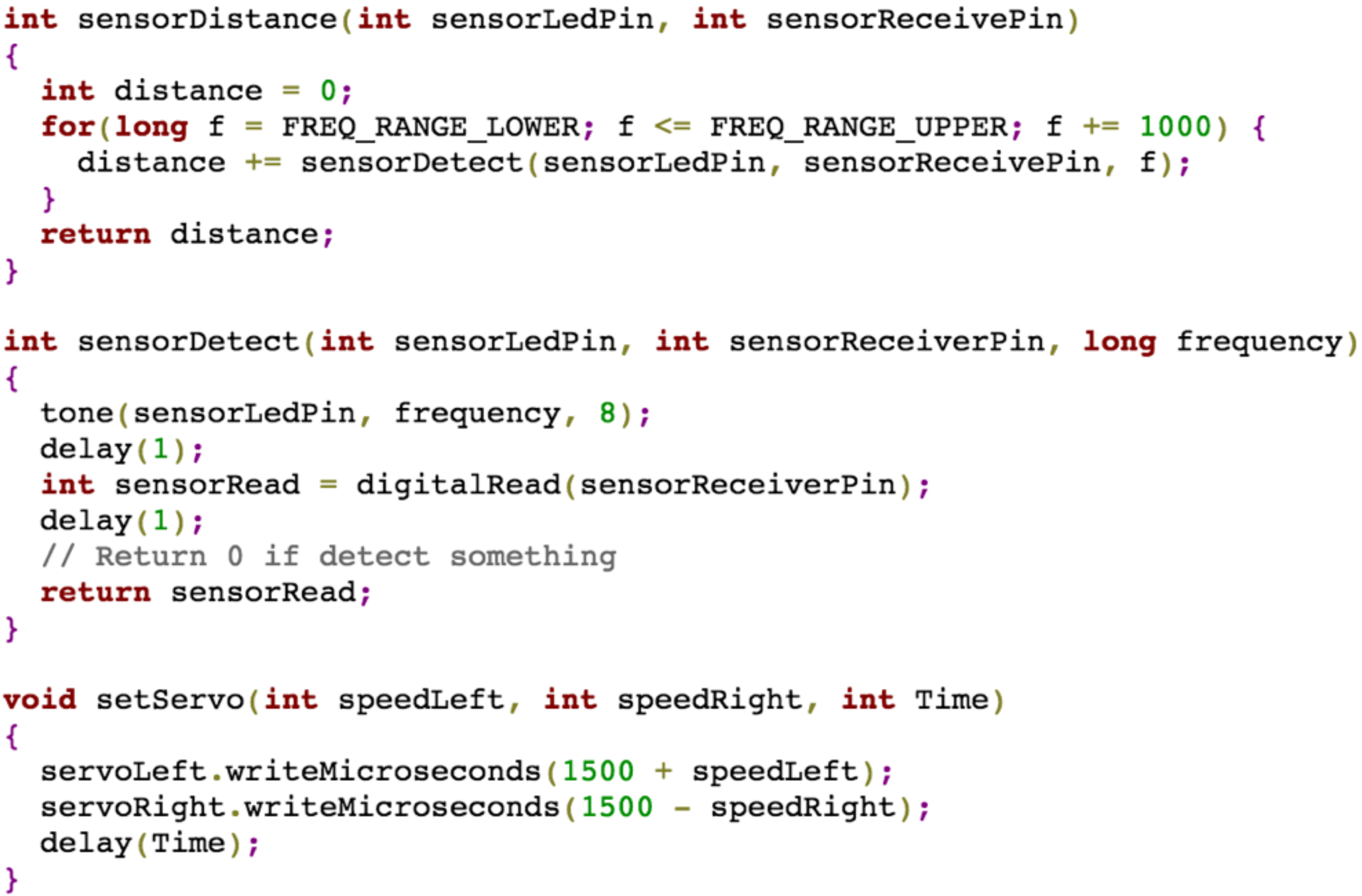
Código

```
void loop()
{
  int sensorLeft = sensorDistance(SENSOR_ONE_OUT, SENSOR_ONE_IN);
  int sensorRight = sensorDistance(SENSOR_TWO_OUT, SENSOR_TWO_IN);

  // Something is in front of the car
  if (!sensorLeft || !sensorRight) {
    // Stop the car
    setServo(0, 0, 2000);
    // Honks
    tone(BUZZER, 3000, 500);
    delay(1000);
    tone(BUZZER, 3000, 500);
    delay(2000);

    // check if obstacle remains in front of car
    sensorLeft = sensorDistance(SENSOR_ONE_OUT, SENSOR_ONE_IN);
    sensorRight = sensorDistance(SENSOR_TWO_OUT, SENSOR_TWO_IN);
    if (!sensorLeft || !sensorRight) {
      // Changes direction
       setServo(-200, 200, 1000);
    }

  } else {
    // Controls left and right servos speed
    int moveLeft = (setpoint - sensorLeft) * _offset;
    int moveRight = (setpoint - sensorRight) * _offset;
    setServo(moveLeft, moveRight, 20);
  }
}
```

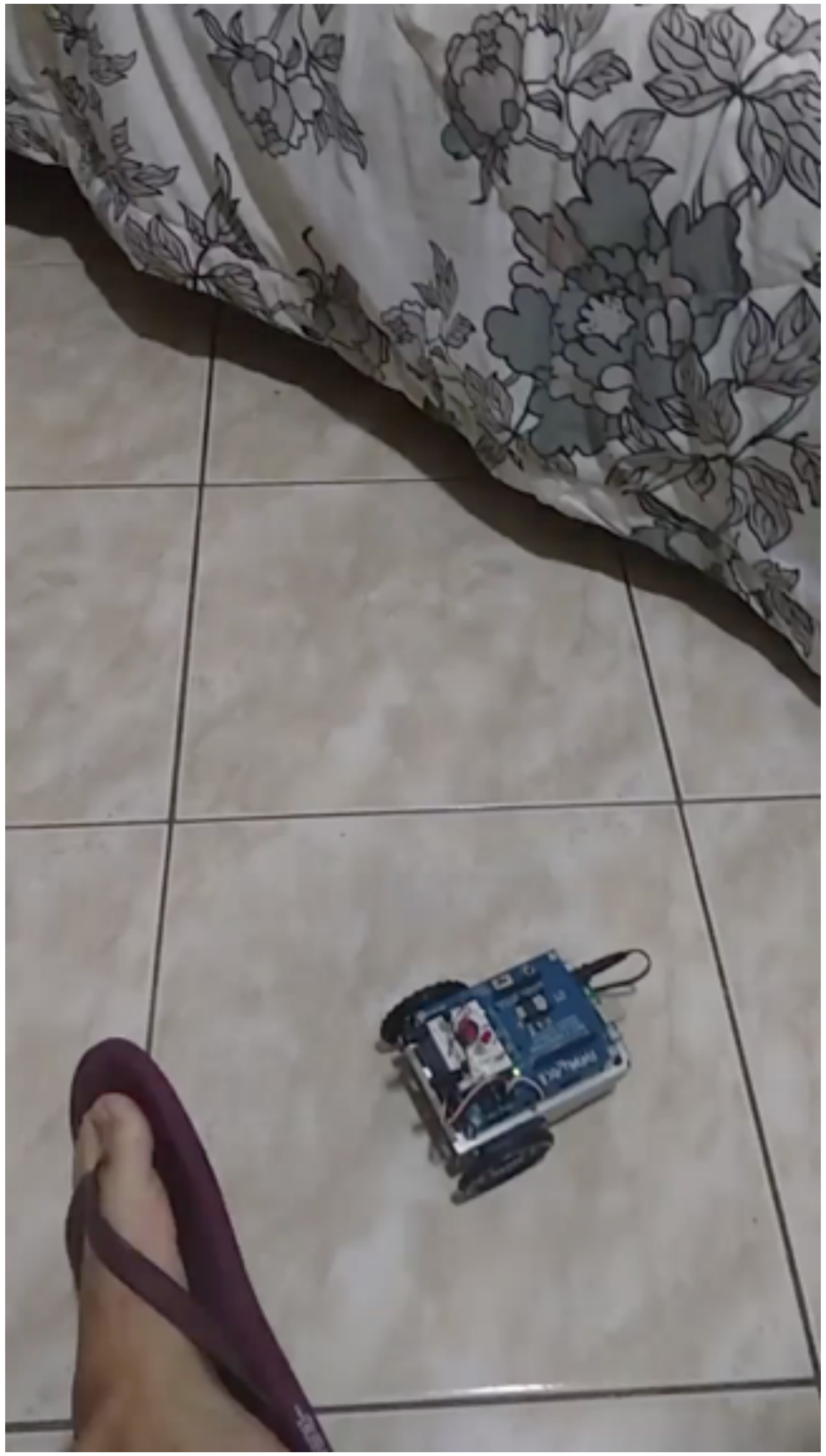


```
int sensorDistance(int sensorLedPin, int sensorReceivePin)
{
  int distance = 0;
  for(long f = FREQ_RANGE_LOWER; f <= FREQ_RANGE_UPPER; f += 1000) {
    distance += sensorDetect(sensorLedPin, sensorReceivePin, f);
  }
  return distance;
}

int sensorDetect(int sensorLedPin, int sensorReceiverPin, long frequency)
{
  tone(sensorLedPin, frequency, 8);
  delay(1);
  int sensorRead = digitalRead(sensorReceiverPin);
  delay(1);
  // Return 0 if detect something
  return sensorRead;
}

void setServo(int speedLeft, int speedRight, int Time)
{
  servoLeft.writeMicroseconds(1500 + speedLeft);
  servoRight.writeMicroseconds(1500 - speedRight);
  delay(Time);
}
```

Vídeos



Demo