

Motor Types:

Electric Technic Mini-Motor 9v



Electric Technic Micromotor



Use the current sensor in light sensor mode, which goes from 0-100 percent to detect stalls forewards or backwards. 50 represent no current.

Electric Technic Motor 9V Geared



Electric Technic Motor 9V



Use the current sensor in raw mode to return number values that represent the current used by these motors. If used in light sensor mode, you cannot detect the full range of current the motor uses.

For motor specifications and comparisons of motors, see <http://www.philohome.com/motors/motorcomp.htm>

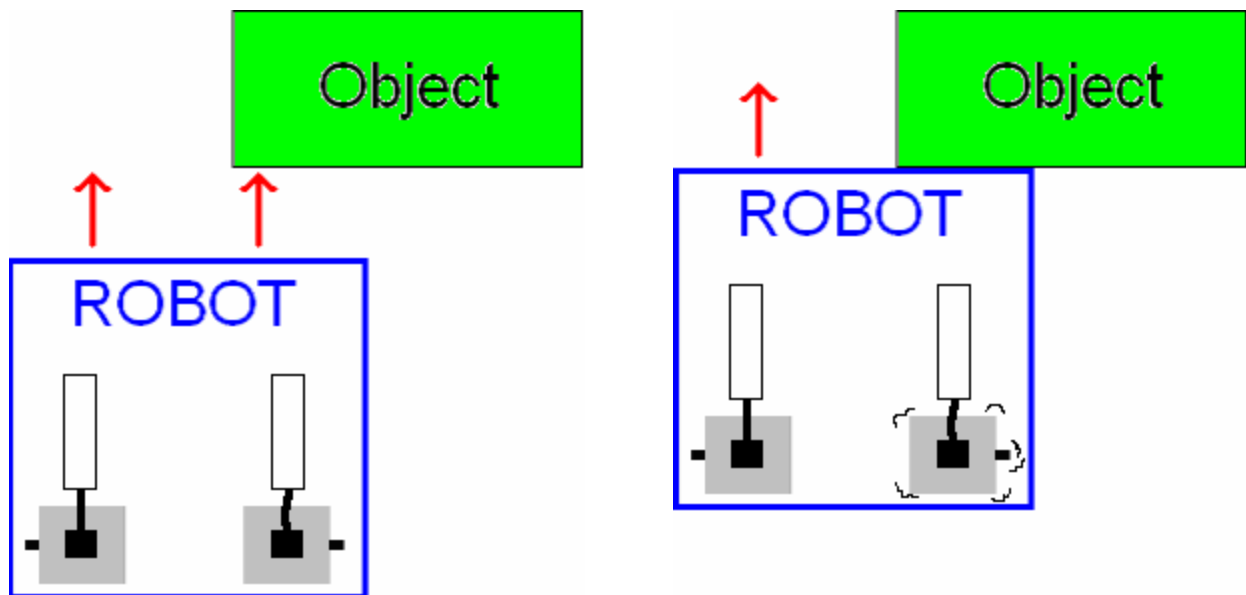
NOTE: Different motors of the same type will return different readings from the current sensor. Calibration will have to be made in the code to compensate for the slight differences.

Measure How Hard your Robot Works:

The current sensor measures how much current a motor is drawing. The harder a motor is working, the more current it draws. Using this sensor and some math, you can measure how much energy your robot uses to push objects around your house. This sensor is great for physics experiments and scientific measurements.

Object Detection:

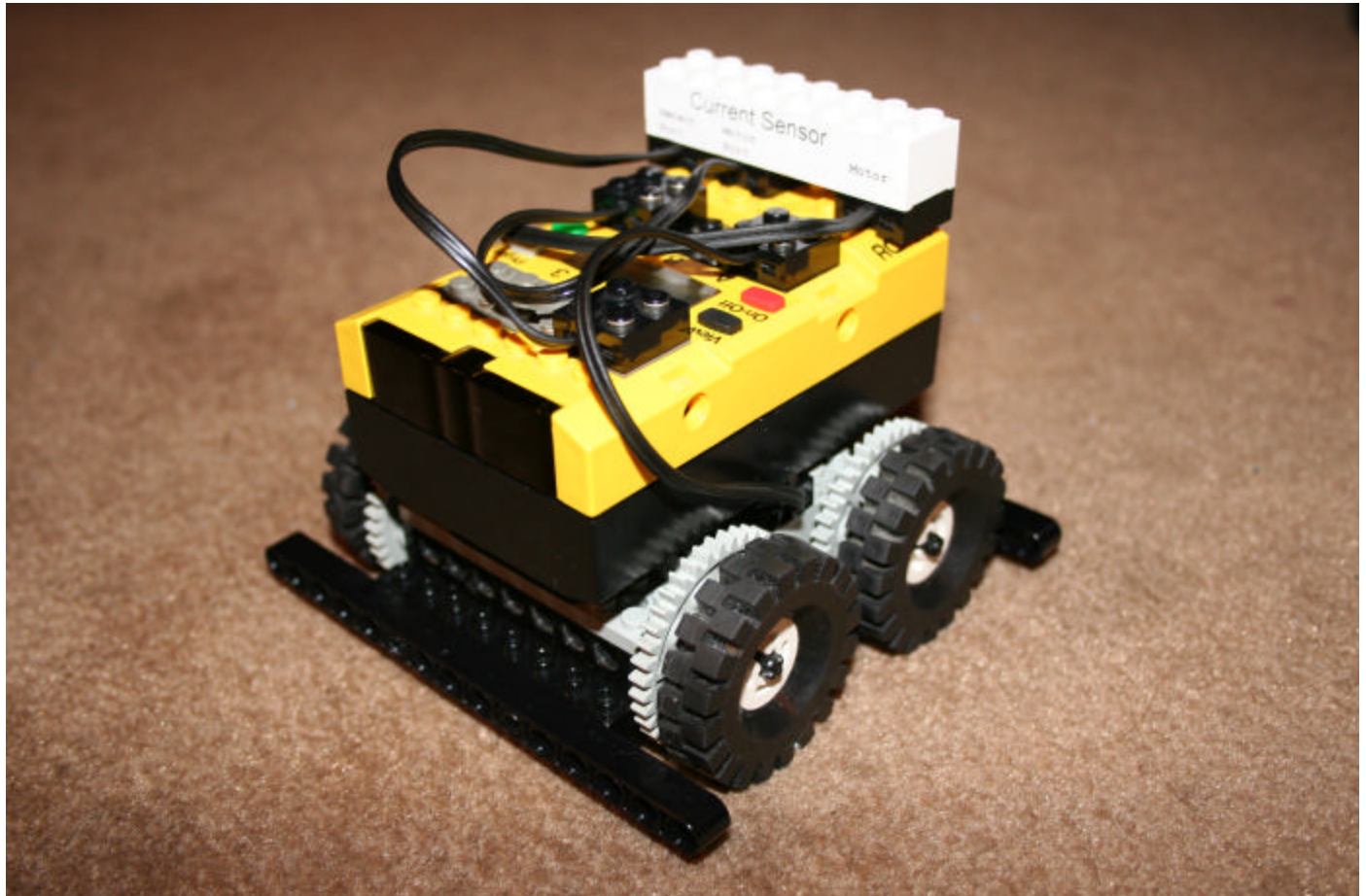
Current sensor can be used to detect the increase in current when a robot runs into an object. Using the current sensor, you can replace the use of bumpers all around a robot and use current sensors to detect a stall from the motors. Two current sensors can be used to detect stall on the right or left side drive motors and can react accordingly.



Right side of robot undergoes a stall when it hits the object and the right current sensor will detect the stall.

Object detection can also be used with only one current sensor monitoring one motor. This configuration also works well and can detect stalls whether on the right and left because the strain is transferred to both motors in a collision.

Here is an example of a single current sensor object detection robot.



Here is some example code for the above robot written in NQC

Tip: When programming, sometime you will have to add waits in so the current sensor does not detect the initial stall of the motors getting up to speed or switching direction.

```
task main ()  
{
```

```
SetSensor (SENSOR_1, SENSOR_LIGHT); // Current Sensor works as a light sensor//
```

```
// SetSensorMode (SENSOR_1, SENSOR_MODE_RAW); Add if measuring high
current motors //

// Current sensor is hooked to right motor and port c //

OnFwd (OUT_A + OUT_C);
Wait (20); // Wont detect the initial stall of the motors getting up to speed //

while (true)
{

if (SENSOR_1 > 56 ) // number will change depending on motor and robot //
{
    PlayTone (2000, 30);
    OnRev(OUT_A+ OUT_C);
    Wait (50);
    OnFwd(OUT_C);
    Wait (100);
    OnFwd(OUT_A+ OUT_C);
    Wait (20); // Wont detect the initial stall of the motors getting up to speed when it
restarts the loop//
}

}
}
```