

Lego Mindstorms EV3 – Gyro Sensors

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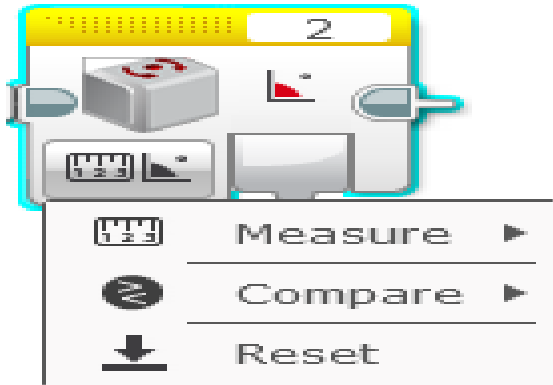
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EV3 Gyro Sensor



- ✓ Measures the robot's rotational motion and changes in its orientation
- ✓ What degrees you have rotated and what is the rate of rotation (degrees per second)
- ✓ Angle mode measures angles with an accuracy of +/- 3 degrees

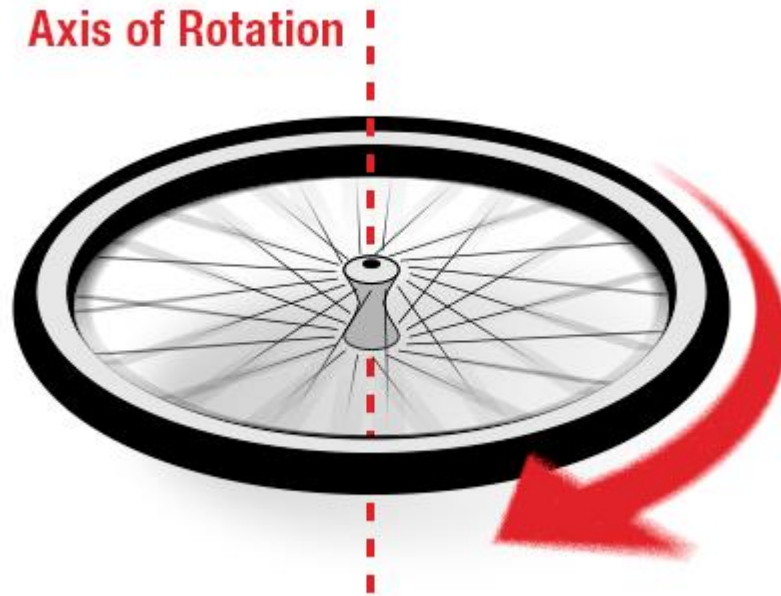


- ✓ Measure reads the incoming values from the sensor
- ✓ Measures the numeric degrees values, Rate output degrees per second
- ✓ Compare provide addition settings

Reference: <http://ev3lessons.com/>

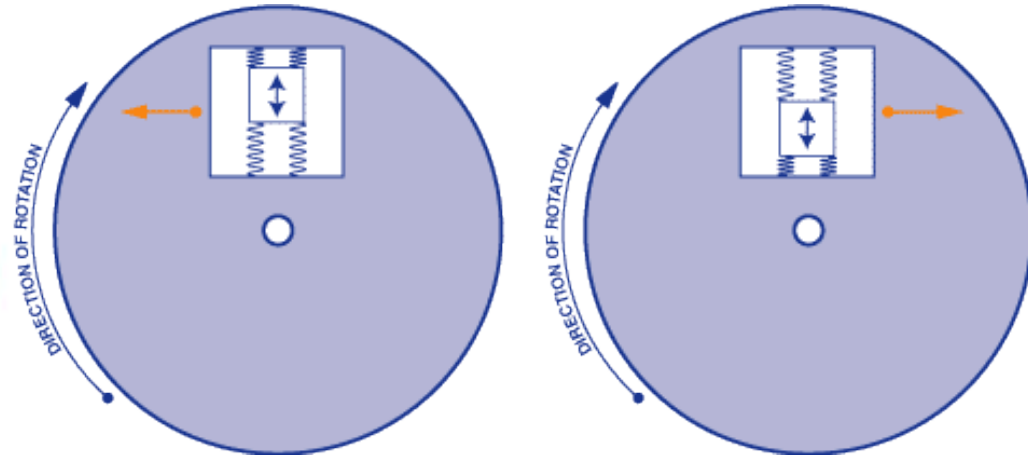


Gyro Sensor - Principles of Operation



When things rotate around an axis they have what's called angular velocity. A spinning wheel can be measured in revolutions per second (RPS) or degrees per second ($^{\circ}/s$).

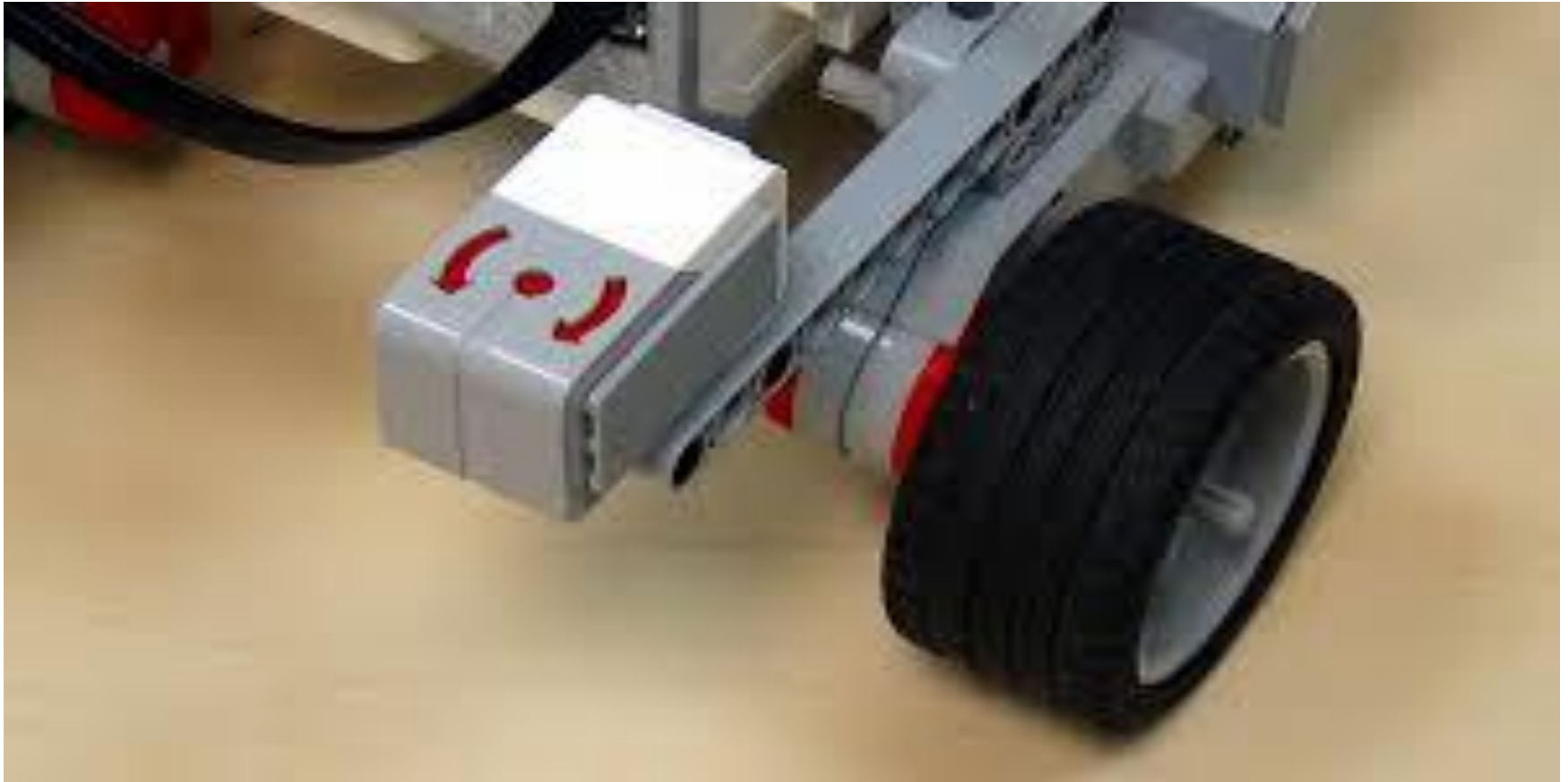
<https://learn.sparkfun.com/tutorials/gyroscope>



When the gyro is rotated, a small resonating mass is shifted as the angular velocity and orientation changes. This movement is converted into very low-current electrical signals which is amplified and measured



Mechanism for Measuring Angular Velocity and Rotation

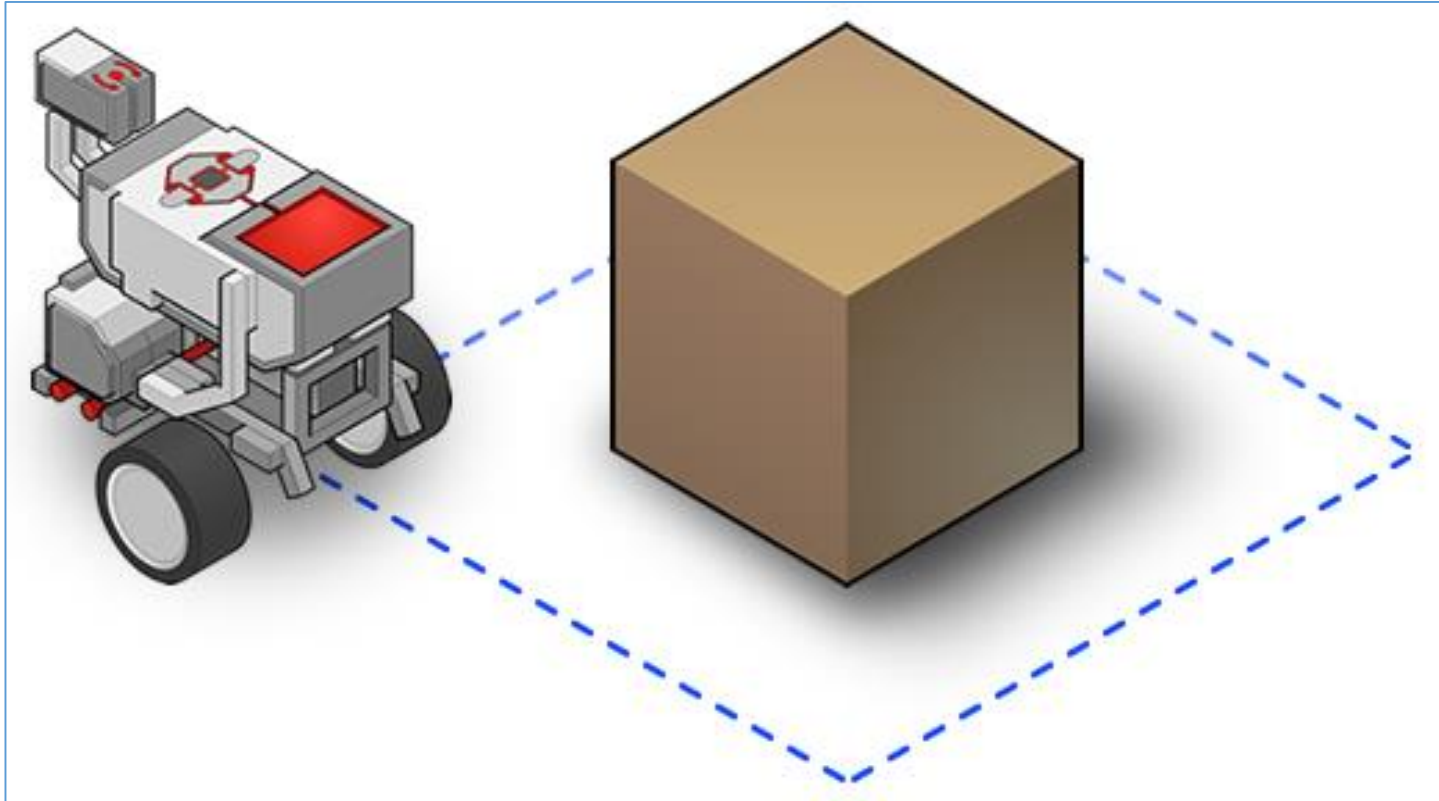


Correctly aligning the robot with the gyro sensor

Reference: <http://curriculum.cs2n.org>



Activity on Gyro Sensor



Program and make the robot complete a full lap around a square box, using the Gyro Sensor to control all of its turns

Reference: <http://curriculum.cs2n.org/ev3/lesson/5-1Gyro4.html>

