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Gyro Sensor Positioning

By Sanjay and Arvind Seshan



ROBOT DESIGN LESSON

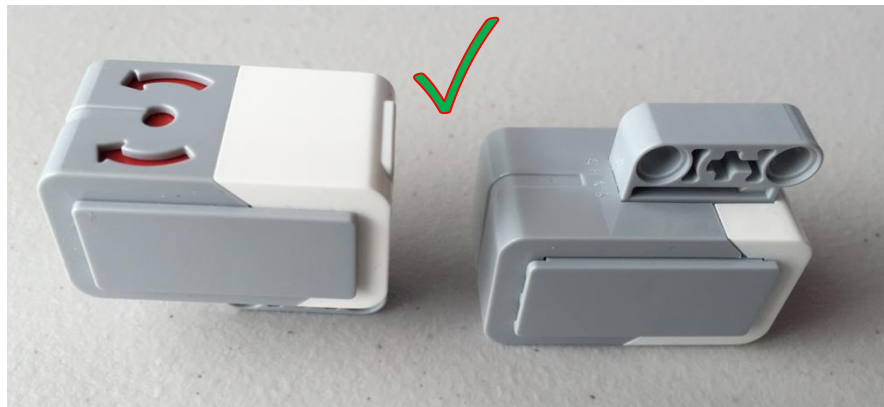
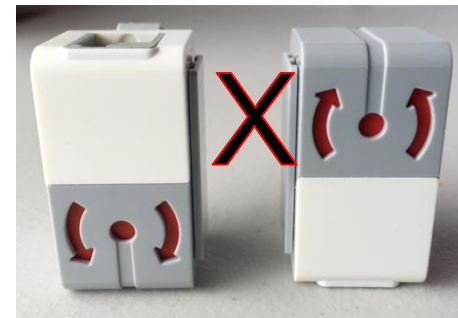
HOW MANY GYROS SHOULD YOUR ROBOT HAVE?

- Depends on how many different axis you want to measure
- For example, if you were making a joystick, you might need two
- Note: We conducted a test to see if adding two gyro sensors will allow you to cancel out drift.
 - Our tests show that two sensors may allow you to average your error, but do not cancel/reduce the drift.
 - To learn about **drift** and **lag**, see our Gyro programming lessons in Advanced.



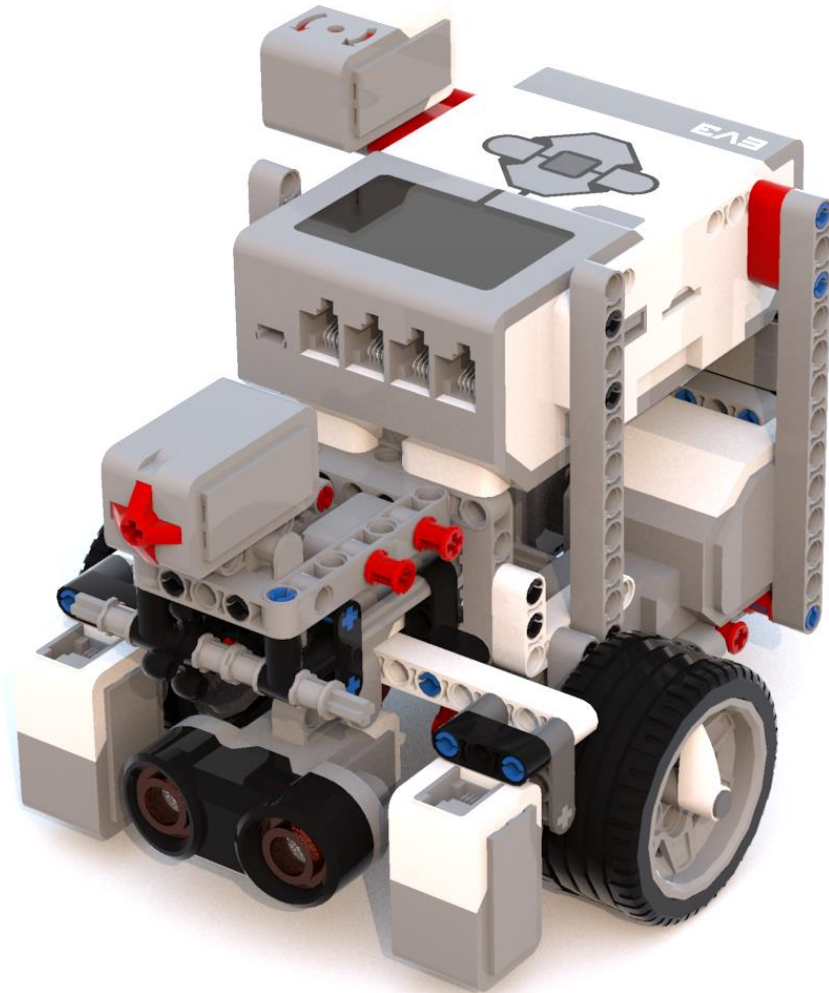
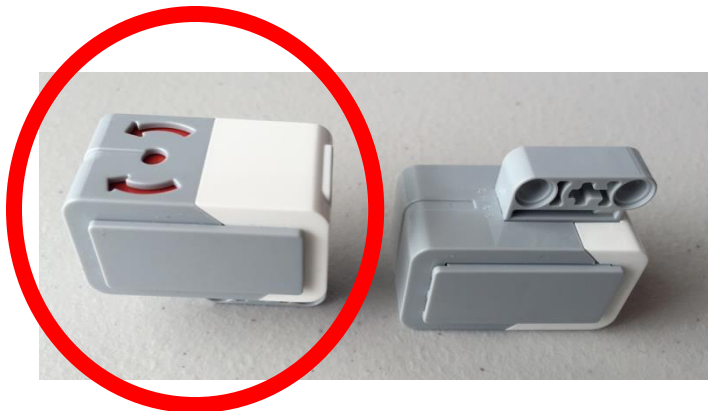
GYRO SENSOR PLACEMENT FOR MEASURING TURNS

- The gyro sensor can be placed anywhere on the robot.
- However, the “correct” position depends on what you are building
- If you are using the gyro to measure turns, some positions just will not work. (Refer to images on this page)



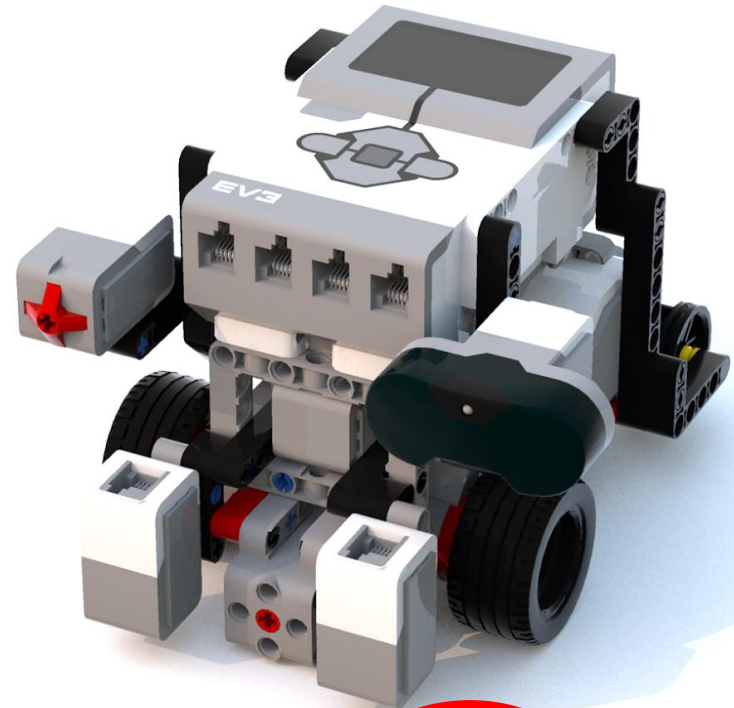
SAMPLE INSTALLATIONS OF THE GYRO

- In this robot, the Gyro Sensor is prominently visible
- The symbol on the sensor is parallel to the ground



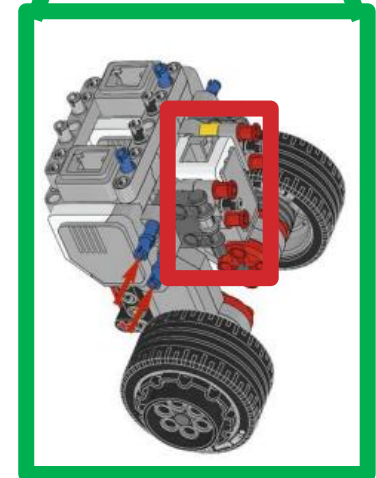
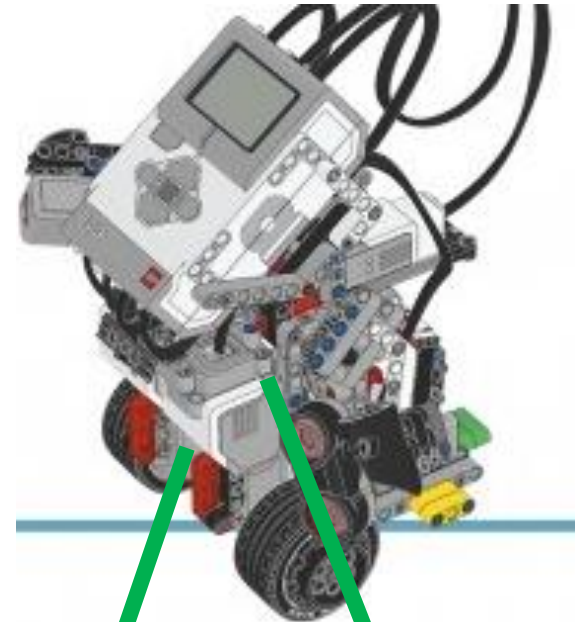
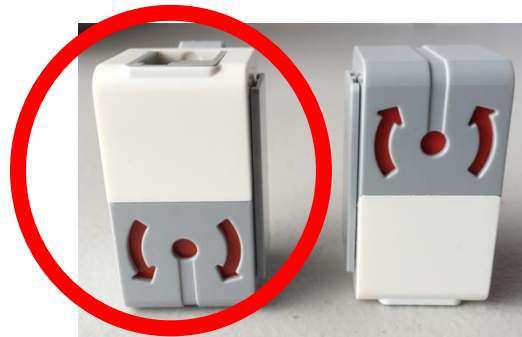
SAMPLE INSTALLATIONS OF THE GYRO

- In this robot, the Gyro Sensor is barely visible and under the brick
- The symbol on the gyro is still parallel to the ground
- Tip: Place the sensor where you have space on the robot (somewhere hidden away is fine as you do not really need access to it once you connect it).



GYRO POSITION FOR A BALANCING ROBOT

- The gyro needs to be placed based on what you are trying to do
- For a balancing robot (such as Gyro Boy) you need to have the gyro facing the sky or the ground
- The gyro sensor in this model is hidden between the two motors



GYRO POSITION FOR A TILTING ROBOT

- For a game like Etch-a-Sketch, where you tilt the entire robot to erase the screen, you need the gyro to be sideways (see image)
- The gyro in this robot does not measure turns. It measures if you flipped the robot



CREDITS

- This tutorial was created by Sanjay Seshan and Arvind Seshan
- More lessons at www.ev3lessons.com and www.flltutorials.com



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