

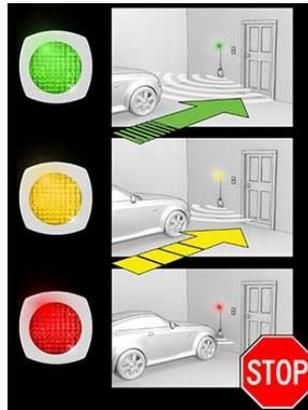
Parking Helper - Sensors Worksheet

Make a “parking warning light” that helps people park their cars.

Criteria: The robot needs to display the following colors to communicate the correct distances:



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Input Distance	Expression / LED Color
Less than 6"	
6" – 12"	
12" – Detected	
Not Detected	

Instructions:

1. Start by making the Expressions that we need using the tri-color LEDs: Red, Yellow, Green and Black (off)
2. Next make a sequence, using the sensor block that switches between Yellow and Green when an object is farther or closer than 12" to the sensor.
 - a. Set-up the sensor in the Sequence Builder to be a distance sensor on the correct port.
 - b. Use a piece of paper in front of the sensor to find the sensor setting for 12".
 - c. Insert Green expression inside the “Far” frame and Yellow inside the “Near” Frame.
 - d. Make both frames loop so the sensor action repeats forever.
 - e. Make the expression delays 0 seconds so the robot responds quickly.
3. Test them save the Sequence as “Parking Helper” and create a new sequence.
4. Now make a sequence, using the sensor block that switches between Yellow and Red when an object is farther or closer than 6" to the sensor.
 - a. Set-up the sensor in the Sequence Builder to be a distance sensor on the correct port.
 - b. Use a piece of paper in front of the sensor to find the sensor setting for 12".
 - c. Insert Yellow expression inside the “Far” frame and Red inside the “Near” Frame.
 - d. Make the expression delays 0 seconds so the robot responds quickly.
5. Save the Sequence as “Red or Yellow” and create a new sequence.
6. Now make a sequence, using the sensor block that switches between Off and Green when an object is farther or closer than the maximum range of the sensor.
 - a. Set-up the sensor in the Sequence Builder to be a distance sensor on the correct port.
 - b. Set the threshold so it is almost at the Far end of the slider but just a little bit less than the maximum.
 - c. Insert Off expression inside the “Far” frame and Green inside the “Near” Frame.
 - d. Make the expression delays 0 seconds so the robot responds quickly.
7. Save the Sequence as “Green or Off” and create a new sequence.
8. Now re-open the “Parking Helper” sequence
9. In the sensor frame, replace Green (Far) with the new sub-sequence “Green or Off”
10. In the sensor frame, replace Yellow (Near) with the new sub-sequence “Red or Yellow”
11. Save the Sequence (using “Save” instead of “Save as” to replace to old version)
12. Enjoy, test and adjust the parking helper.

