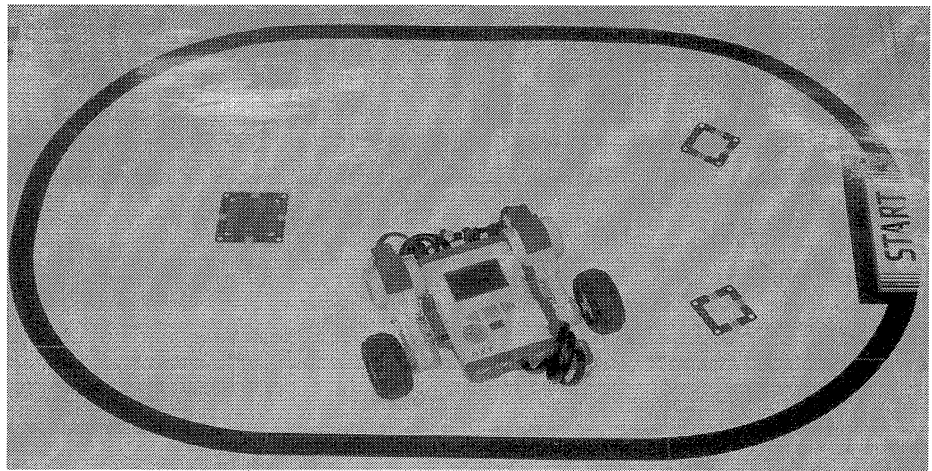


17 Stay in the Circle

Mission:

The robot will stay in a circle by using a light sensor to sense when it has reached the dark line of the loop on the practice pad. It will then back up and turn and go forward again.



Equipment:

White table top or playing field.

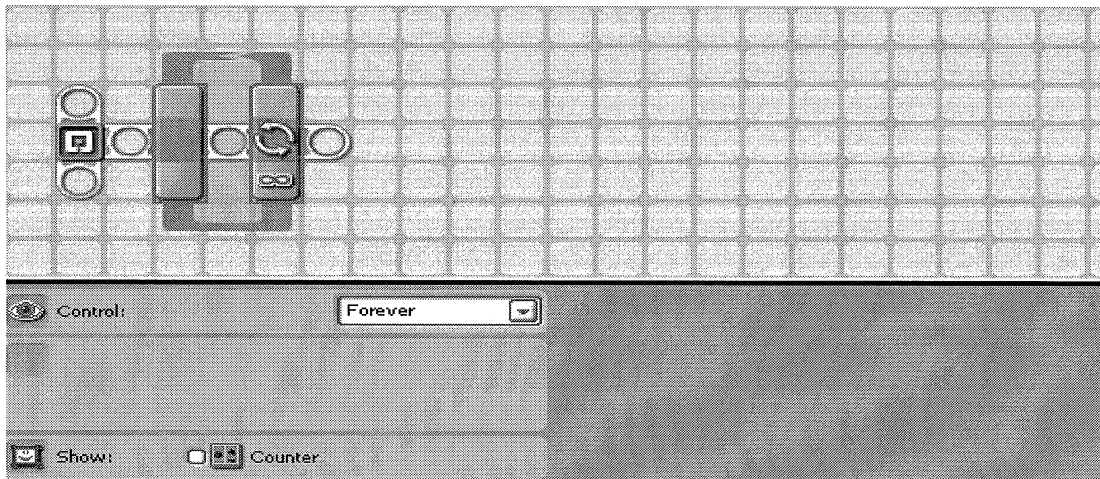
Use the oval on the mat that comes in the Mindstorms kit or make your own oval with blue tape on your own mat.

Sensors:

Light

Directions:

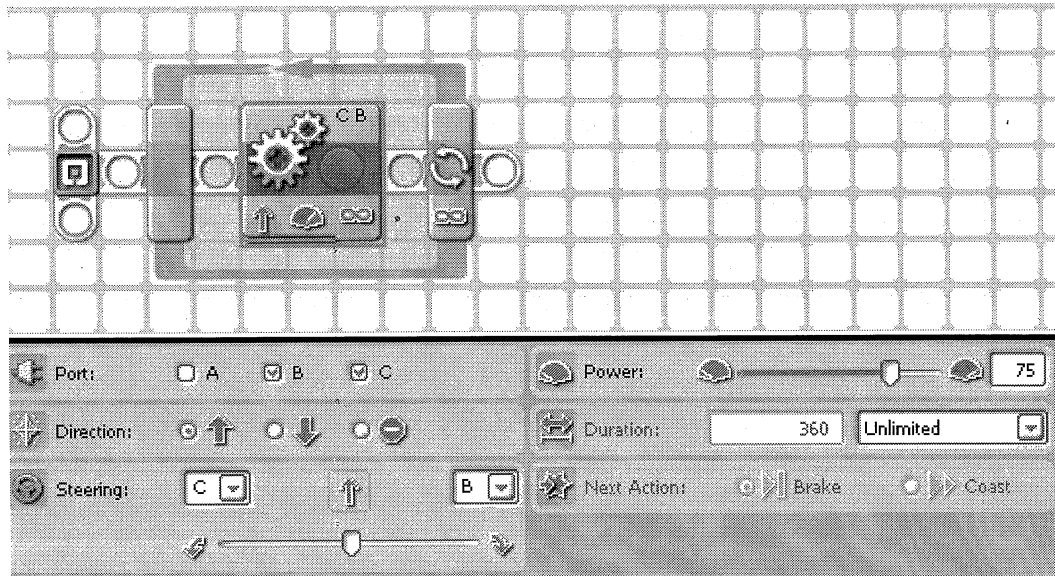
1. Place a loop on the line and leave it set at forever.



This will make the program loop the code you will put in the loop repeat over and over until you push the dark gray button on the brick to make the program end.

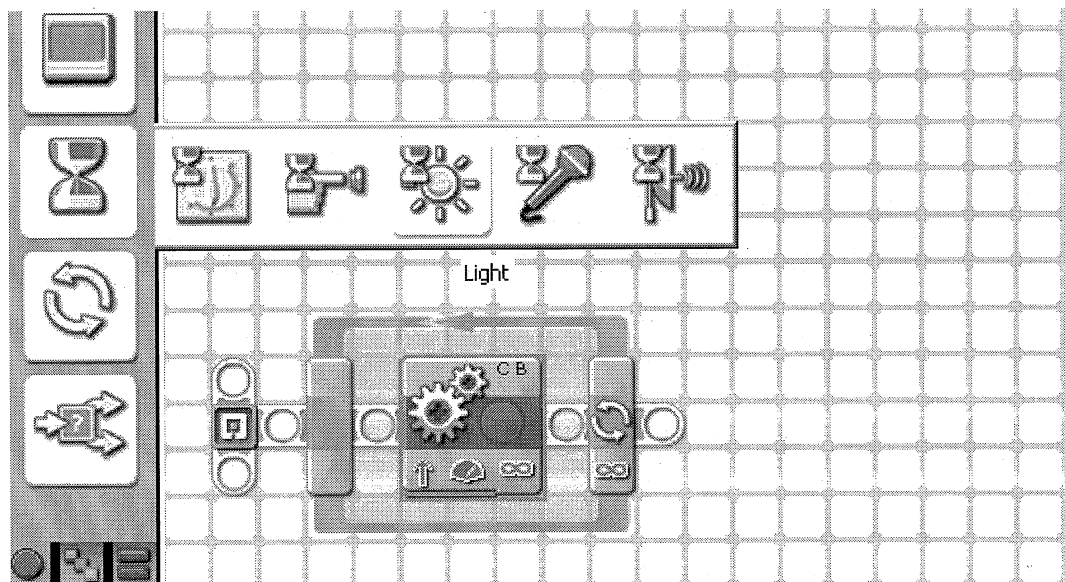
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2. Place a move block into the middle of the loop and set it to unlimited.



This will make the motors keep turning until a wait block tells it to move to the next block.

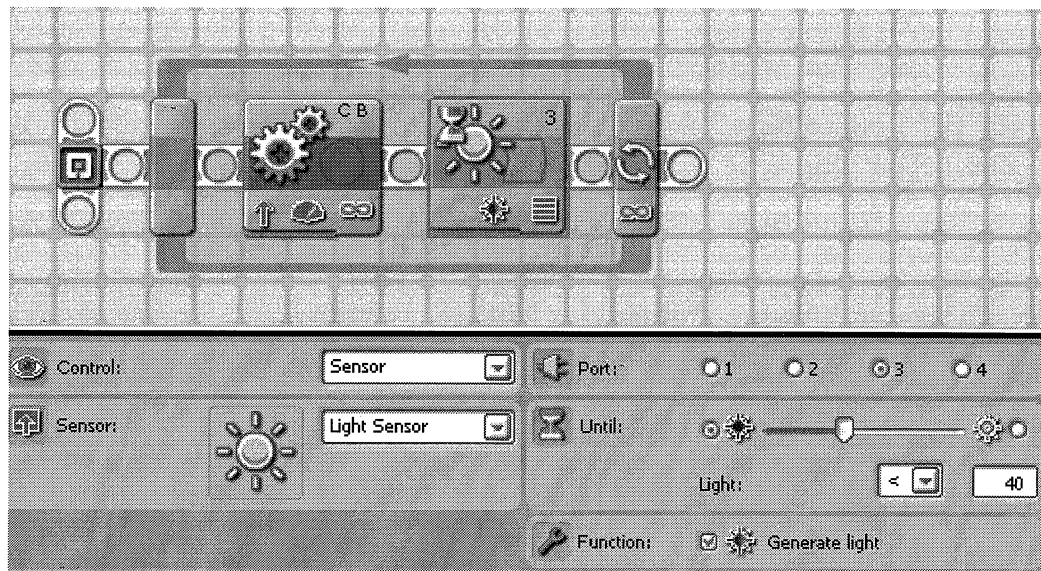
3. Move your cursor over the wait block until it slides out to give you a choice of various types of wait blocks. Choose the light wait block.



The light wait block is triggered by a reading from the light sensor.

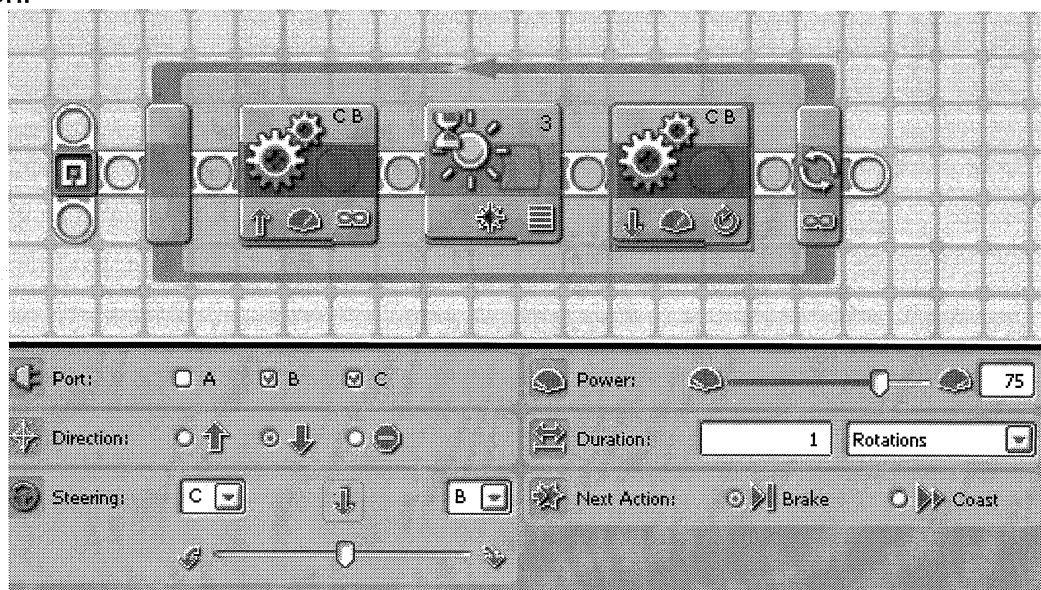
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4. Place the light wait block on the bar. Change the greater than sign to a less than sign. Set the threshold number to about five points less than the white setting you took earlier.



This will cause the block to be triggered by something dark like the oval line.

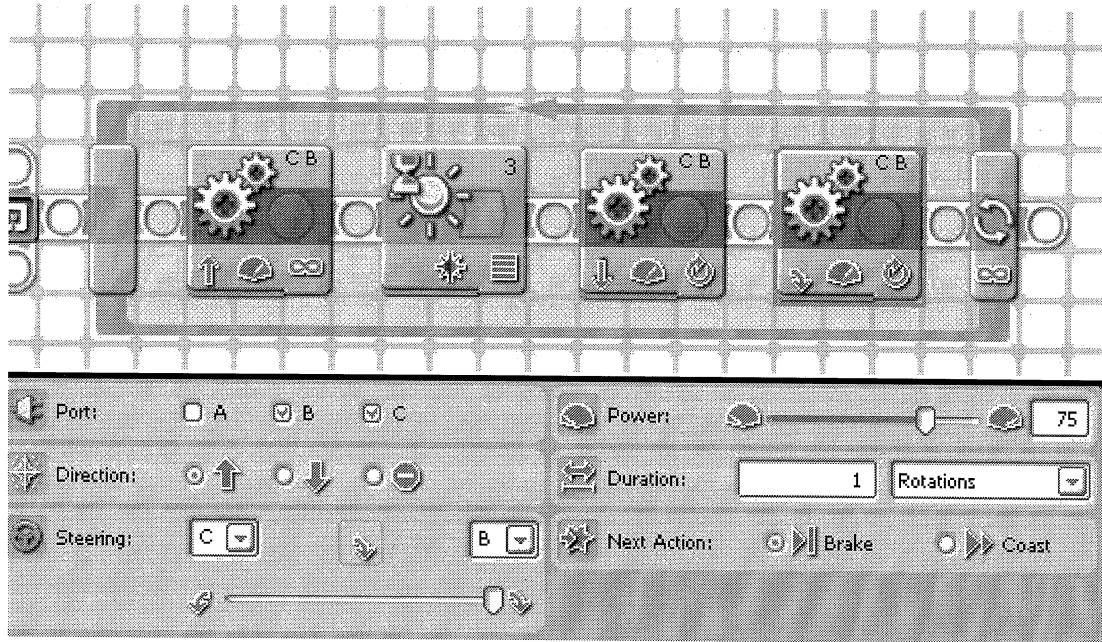
5. Place a move block after the wait block and set it for reverse. Leave it set for one rotation.



This makes the robot back up away from the line before it turns so that it won't accidentally move the light sensor to the outside of the loop and making the robot drive out of the loop.

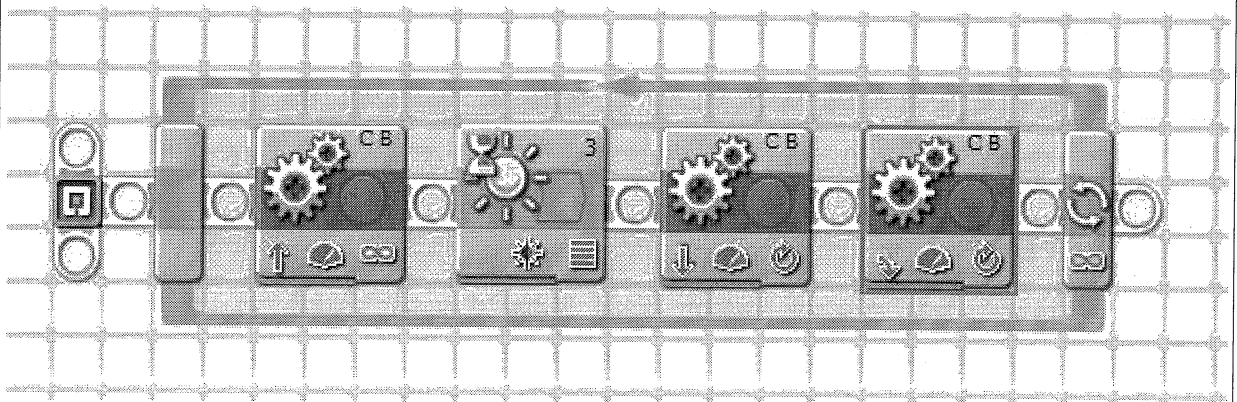
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6. Set another move block after the last move block, slide the steering slider all the way to one side or the other. Set the number of rotations so that the robot will turn the amount you want it to turn.



This turns the robot so that it will now face a different direction.

7. Here is the whole program.



Notice the loop all around the program. This means that after the robot moves forward, senses the black line, backs up, and turns, it will repeat the whole process over and over.

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Note:

This can also be used as a basic sumo program where two robots fight to push the other one out of the circle. This can be done on the practice mat or it can be done on a large plywood or particle board circle found at many home improvement centers. It should be about 4 to 5 feet in diameter. Paint it white and paint a black line around the outside edge about three or 4 inches (7 to 9 cm) wide to trigger the light sensor. You can also use black duct tape sold at home improvement centers or at large stores like Walmart.