24 Mouse

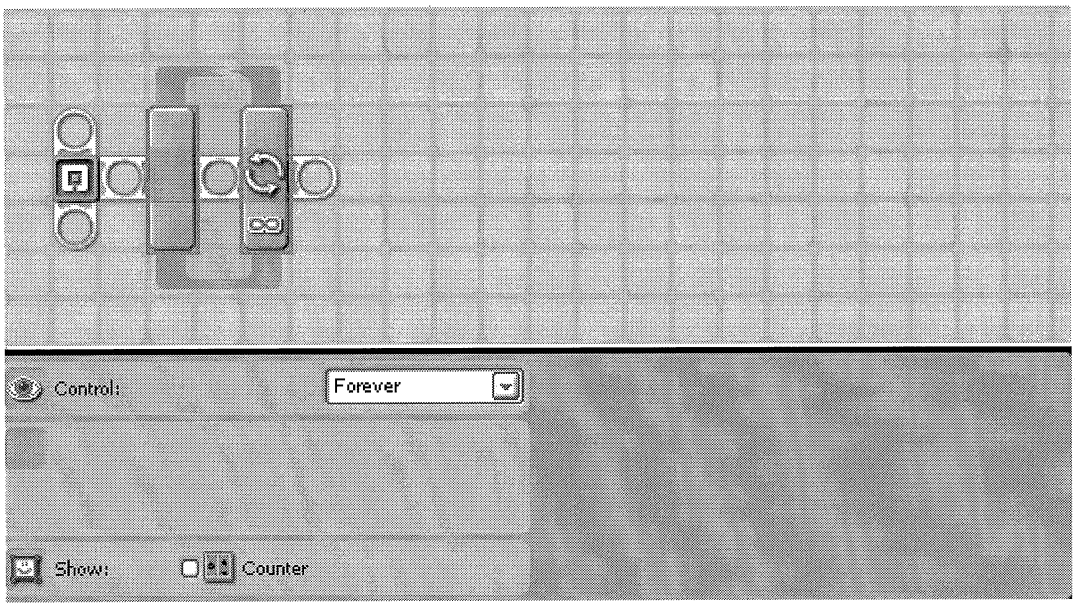
Mission:
The robot will move randomly until it finds a dark spot and will stop there.

Equipment:
a box cut in half diagonally

Sensors:
ultrasonic
light

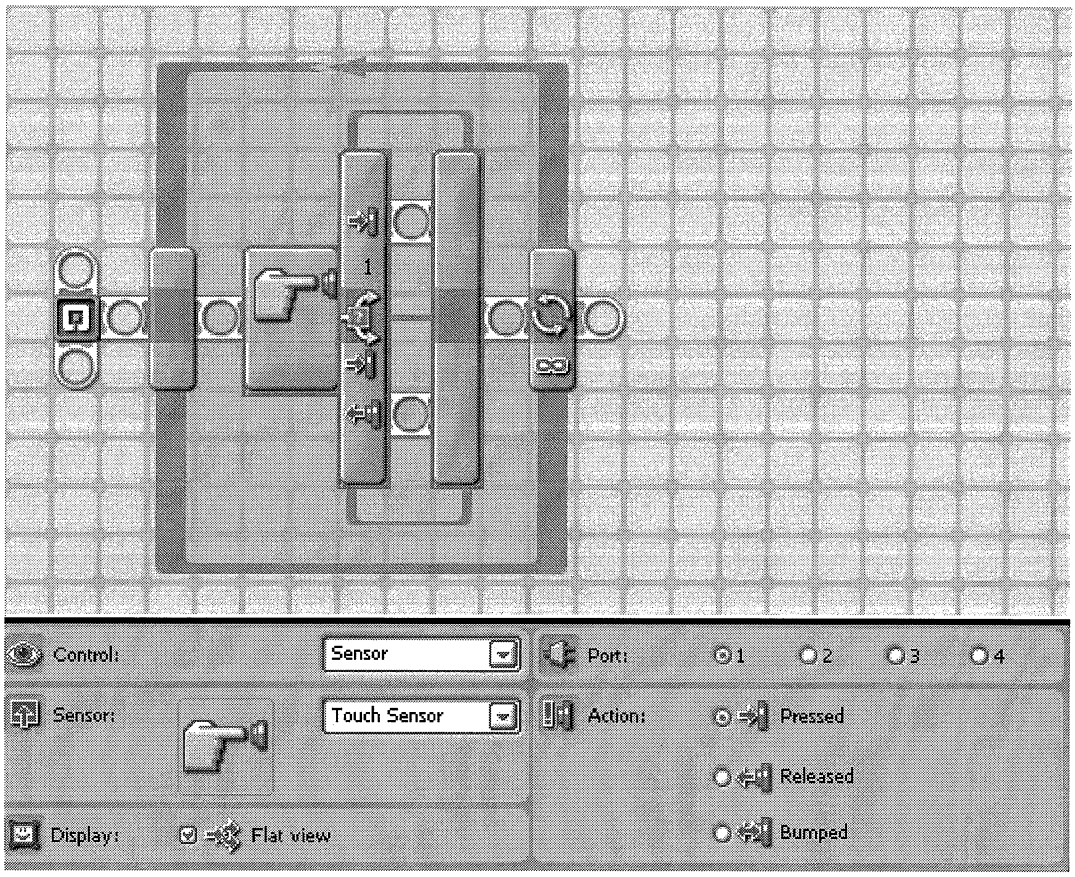
Directions:

1. Place a loop on the bar. Leave it set to forever.

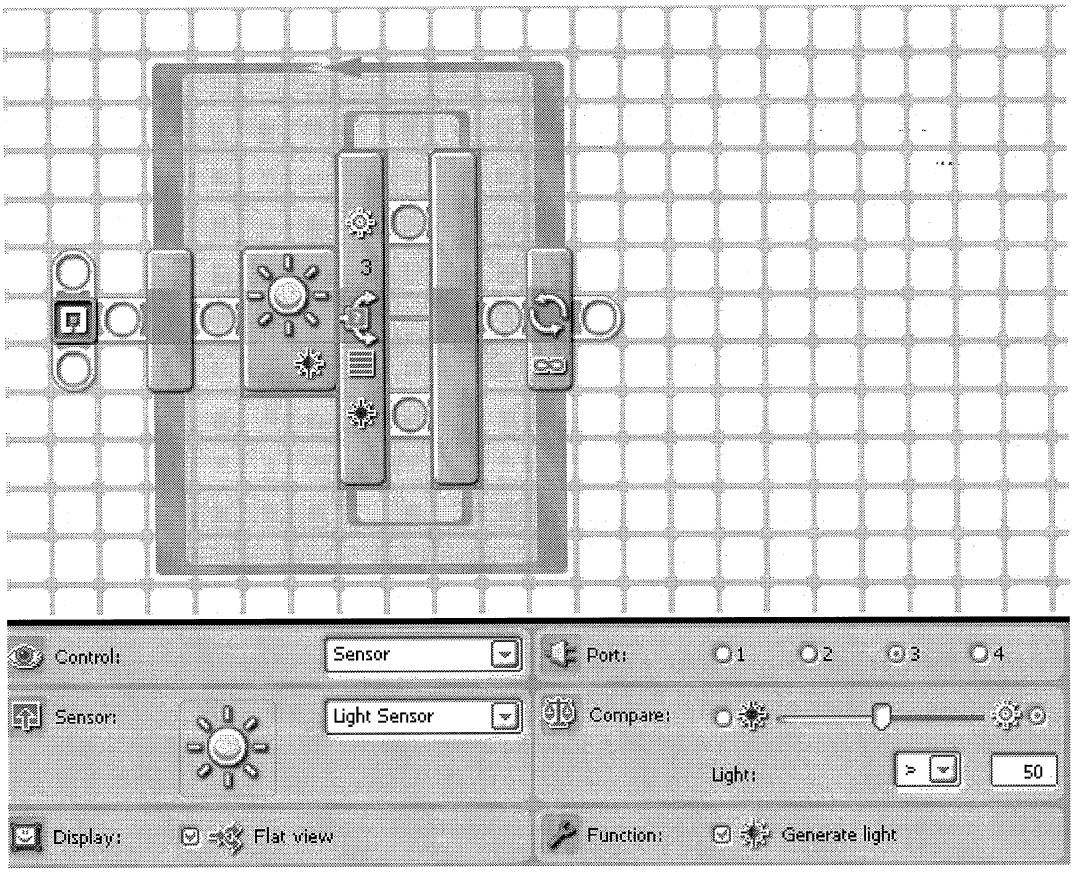


This will make the program repeat over and over until it is turned off.

2. Place a switch block inside the loop.



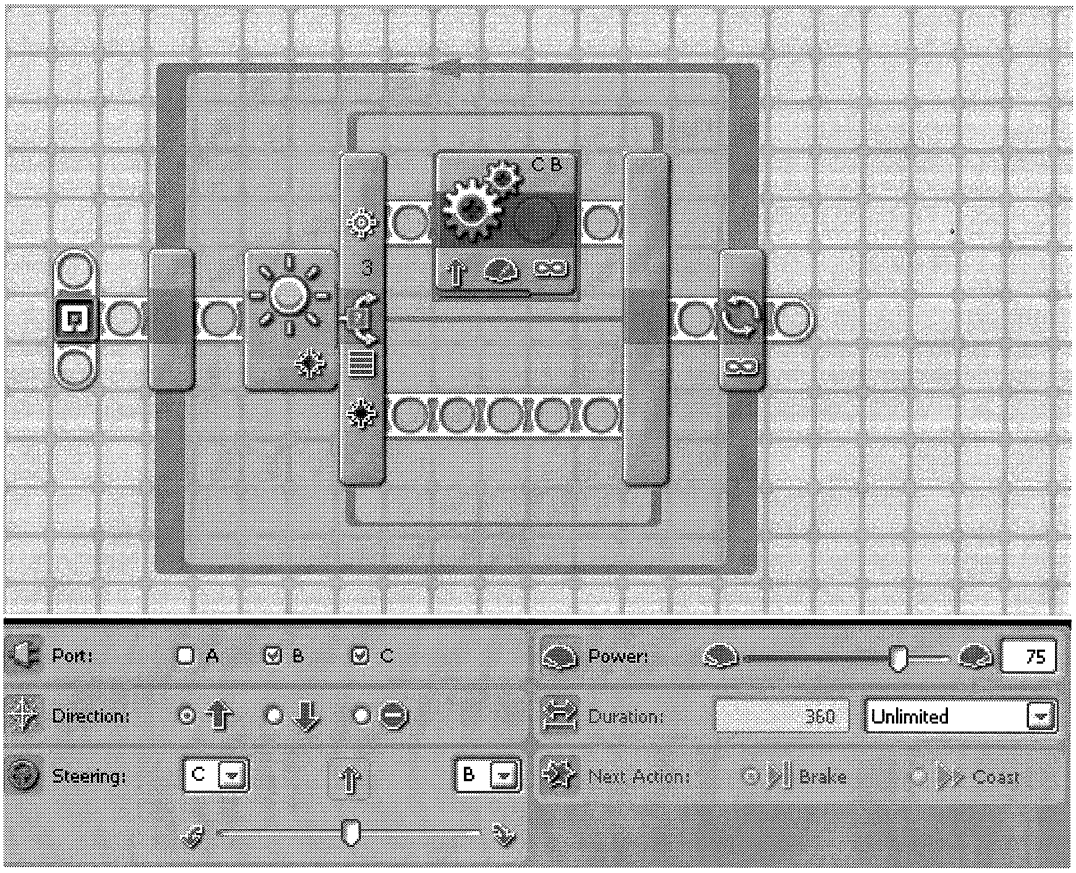
3. Change the touch switch block into a light switch block by using the drop down menu to the left of where it says Sensor in the bottom left.



This will make the program make a decision about how bright the light is above the robot. Set it 3 points less than the light reading outside the box on the practice pad.

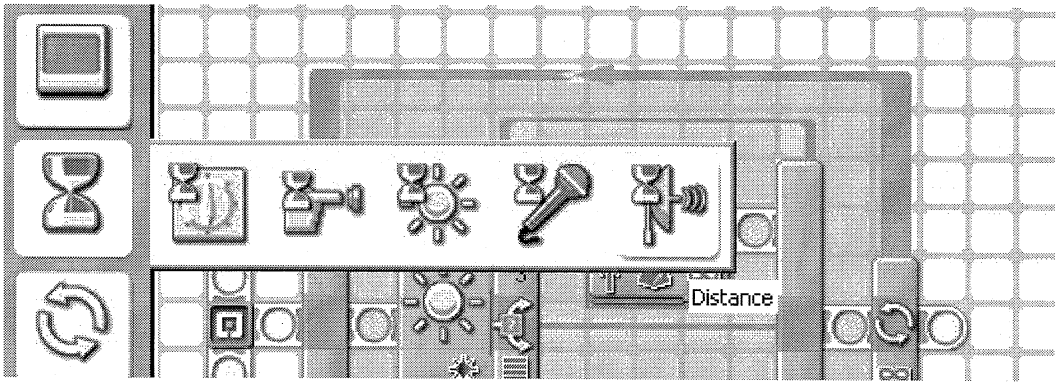
Be sure to take the reading without leaning over the robot and casting a shadow on it.

4. On the top line of the switch, set a move block and set it to unlimited.

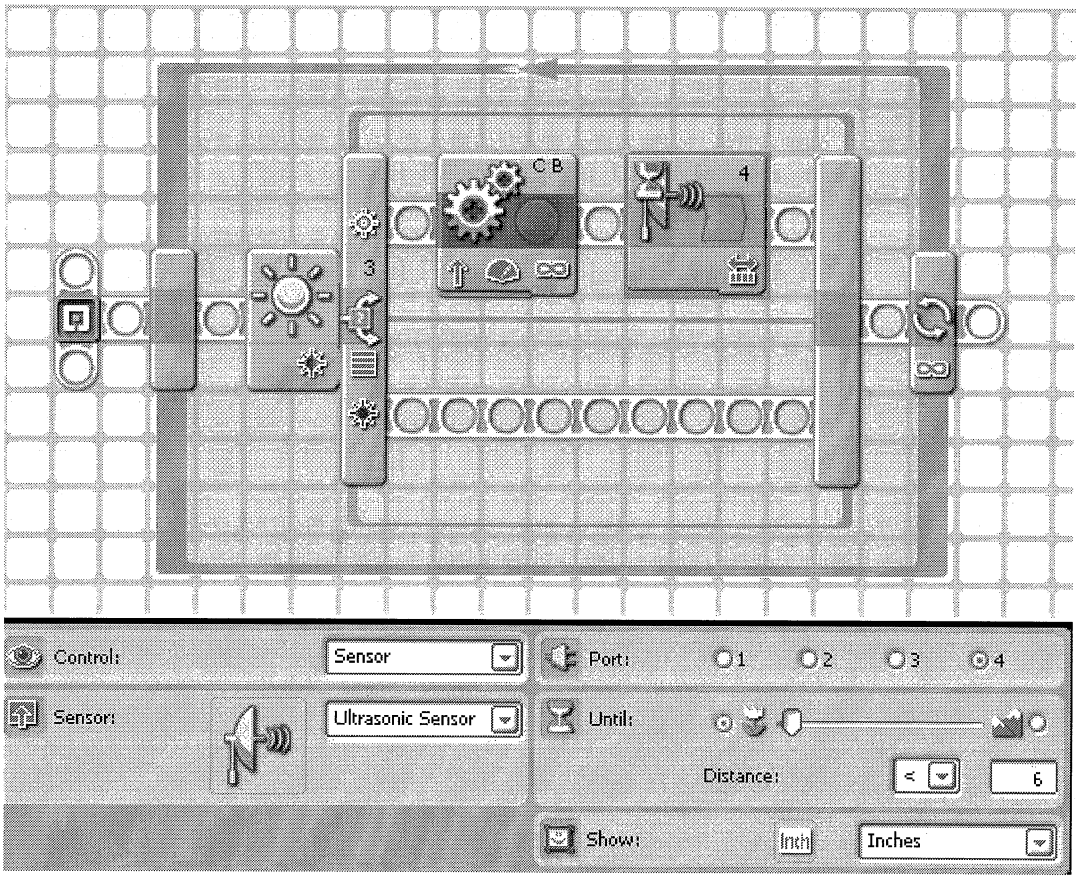


This will make the robot keep moving until the wait block you will put down next stops it.

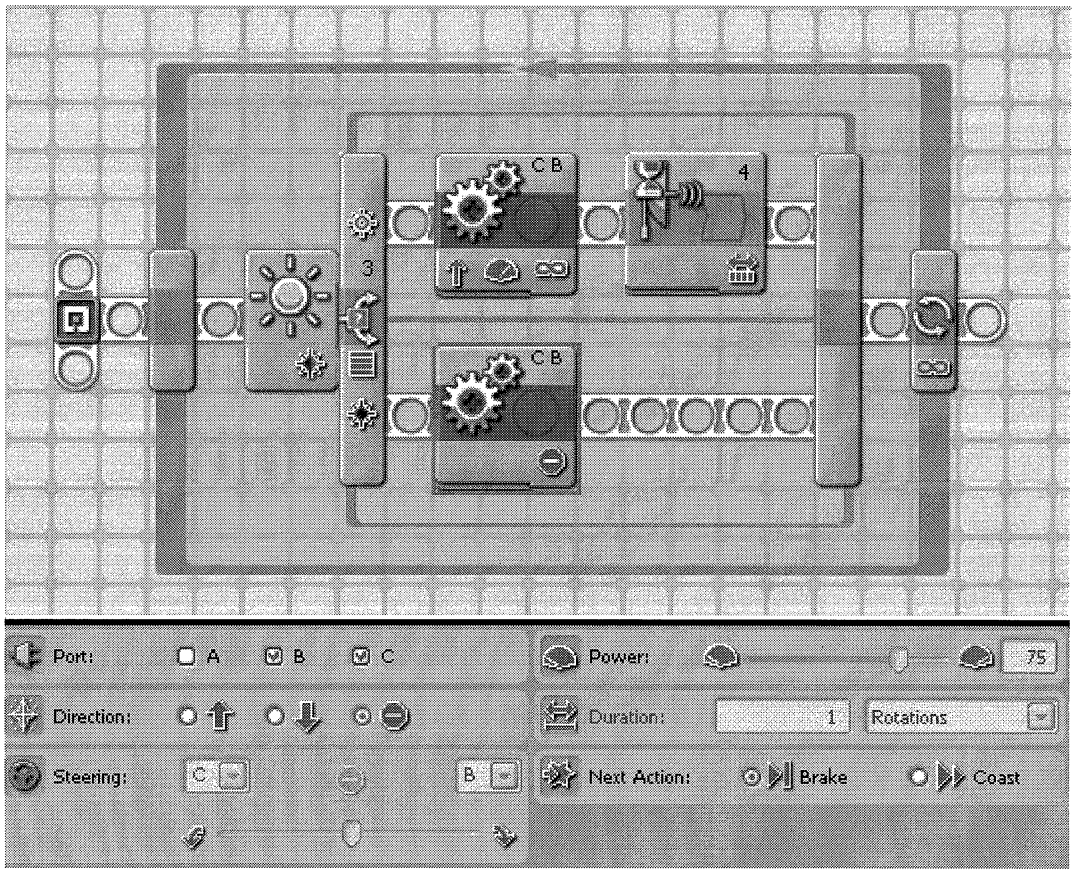
5. Put your cursor over the wait block and a menu will open up. Pick the distance block.



6. Place the distance block to the right of the move block and set it to less than 6 inches (16 cm).



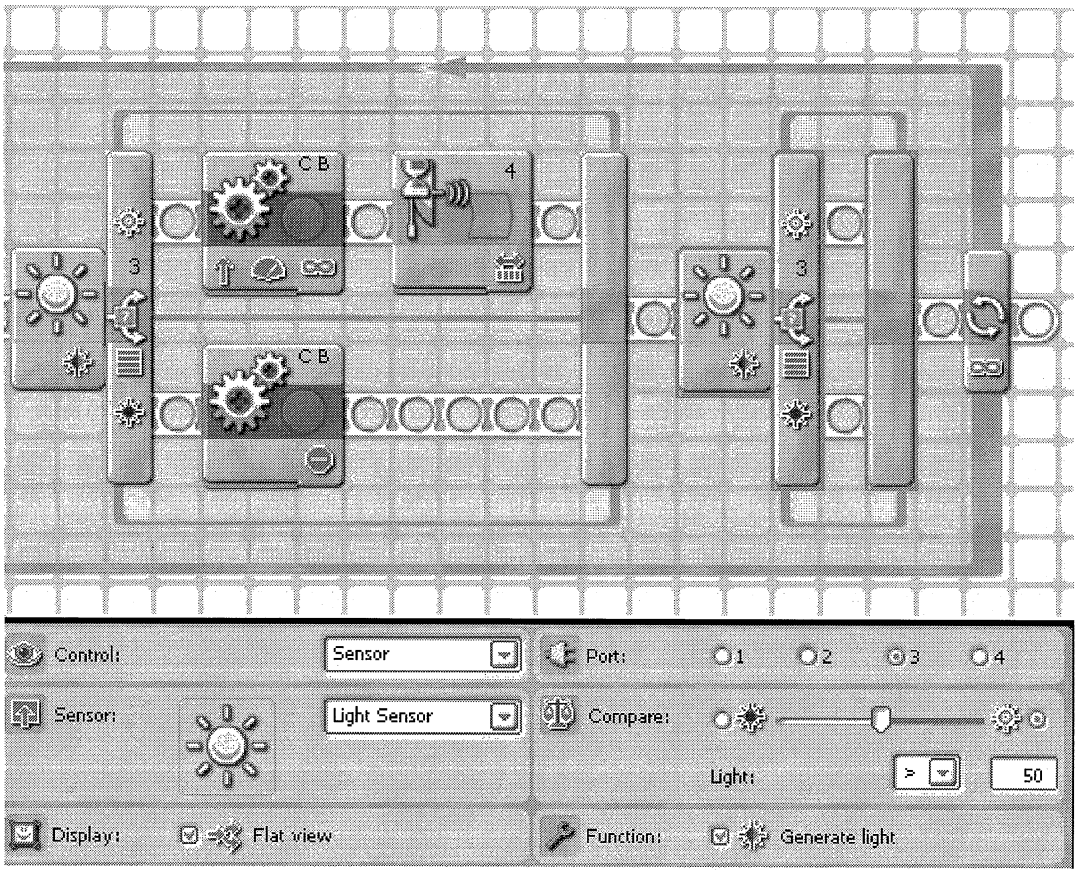
7. Place a move block on the lower line and set it to stop.



If the light switch decides that the light is too low so the robot is in the shade, it will use the bottom line of the program and make the robot stop. This will continue until the program is stopped or the box is moved away and lets the light shine on the robot.

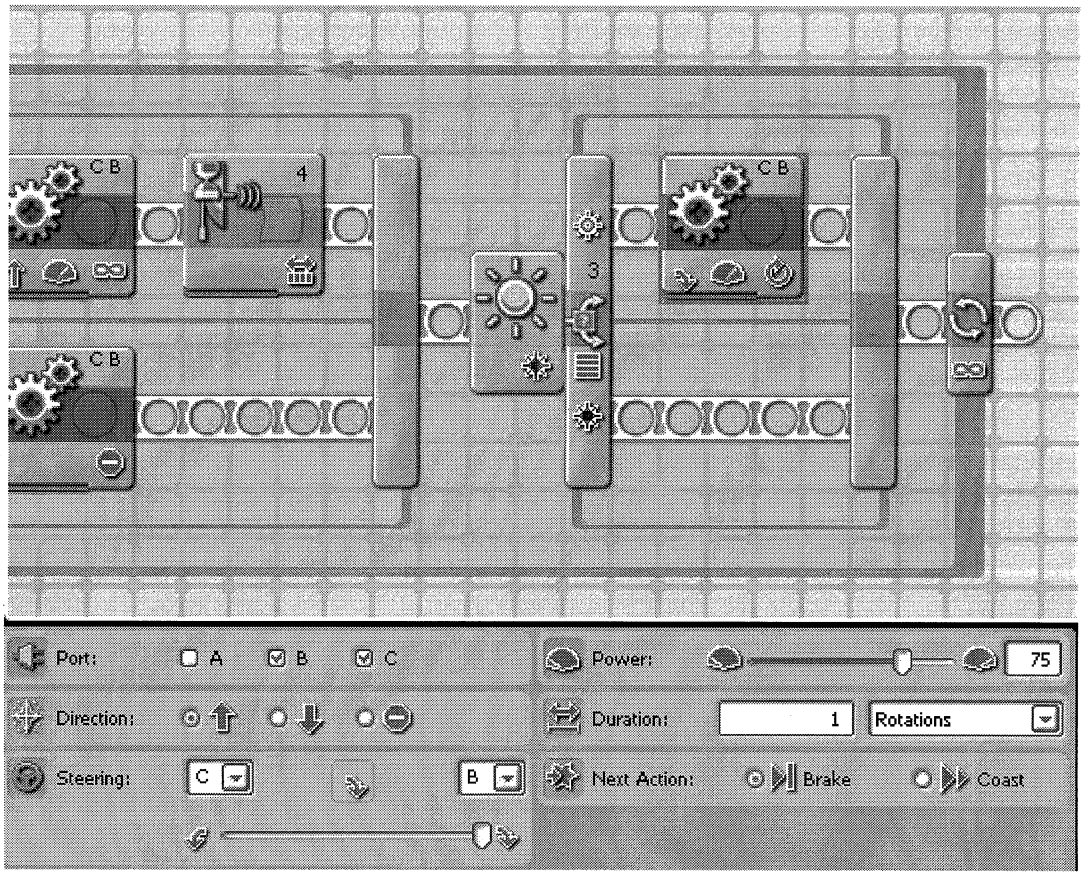
To review, this part of the program has a loop to repeat the action, inside the loop there is a switch to measure how bright the light is. If it is bright enough, the program decides the robot is in the light, takes the top line of the program. The robot moves until it comes close to a wall. If the light is not bright enough, the robot decides that it is in the dark and it takes the bottom line of the program and the robot stops.

8. Place a switch on the bar after the first switch and change it to a light switch.



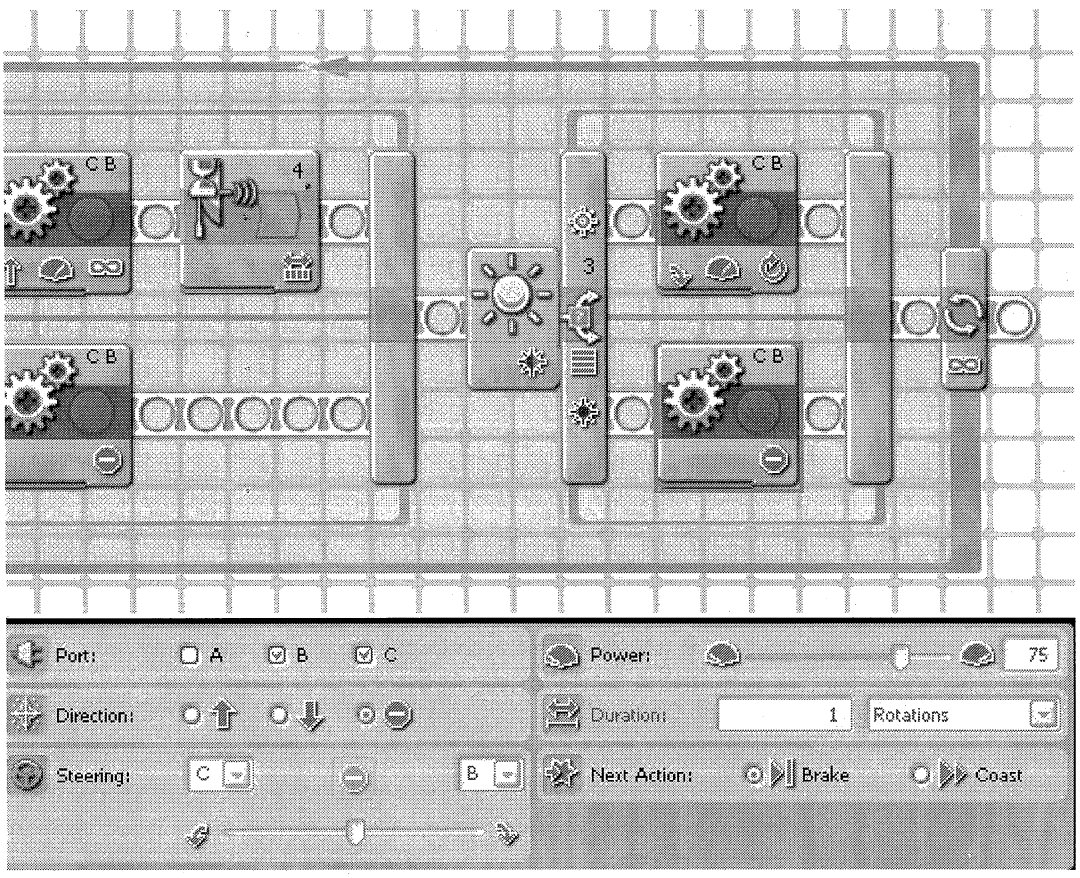
This will test the light level again to see if the robot is in the dark now that it has moved close to a wall.

9. Place a move block on the top line and leave the rotations at 1. Slide the steering slider all the way to the side.



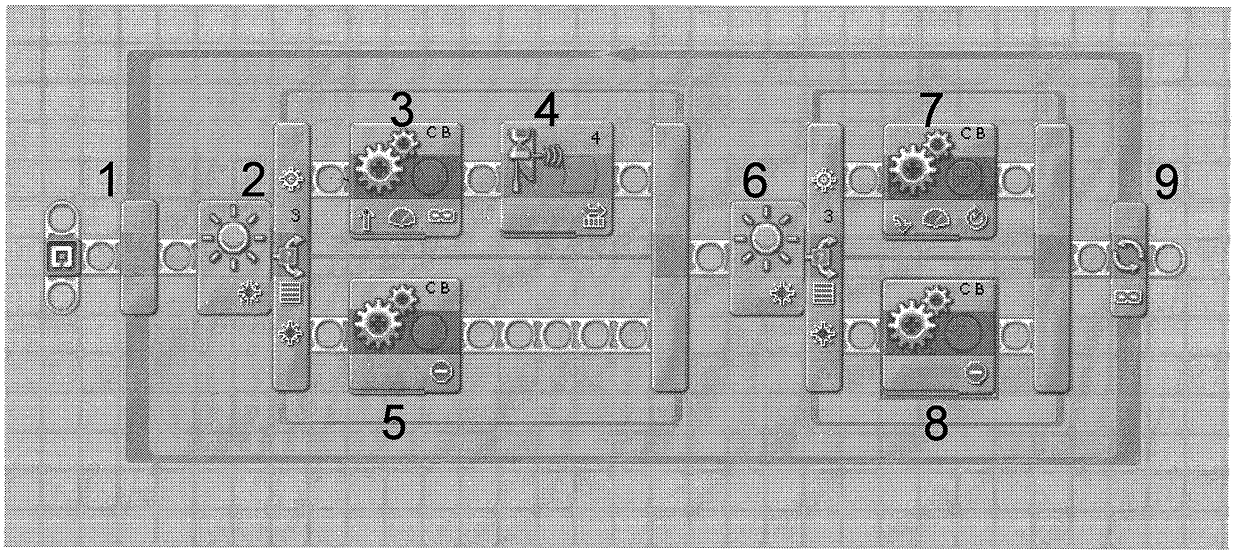
The switch decides if the light is bright enough. If it is bright enough, the program follows the top line and turns the robot so that it will be ready to move to another wall when the program repeats. It will repeat because of the loop.

10. Place a move block on the bottom line and set it to stop.



If the switch block decides the brightness is dark enough, it assumes the robot is in the shade and follows the bottom line. The move block is set to stop so the robot stops.

11. This is the whole program.



1. The loop will make the program repeat endlessly until the program is ended.
2. The light switch will test the light to see how bright it is. This will decide if the robot is in the light or in the shade from the box.
3. If the switch decides it is in the light, it takes the top line and has the robot move until the next block stops it.
4. The distance block uses an ultrasonic sensor to check how close to a wall the robot has come. When it is less than six inches (15 cm) away, it stops the move block and the program moves to the next step which is the next light switch.
5. If the light switch decides that the robot is in the dark, it follows the bottom line. The move block is set to stop the robot so it stops. It will stay stopped as long as the robot stays in the dark or until the program is stopped.
6. The next light block tests the brightness again. If it decides the brightness is high it takes the top line. If it decides the brightness it not high, it takes the bottom line.
7. If the robot is in the light, it turns to get ready to move again.
8. If the robot is in the dark, it stops. It will stay stopped as long as the robot stays in the dark or until the program is stopped.
9. The loop causes the program to return to the beginning and start the whole process over.