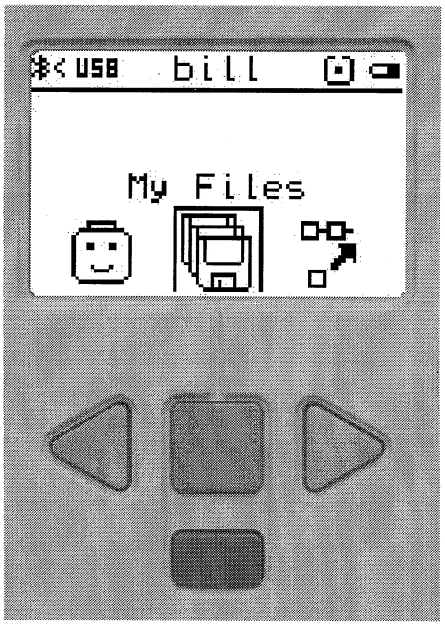
Checking Sensors and Wheel Rotations

As you are learning how to program, it helps to be able to test the sensors to make sure they are working or if there is a problem. That way, you can see if your program has a problem or if the sensor or cord is having a problem.

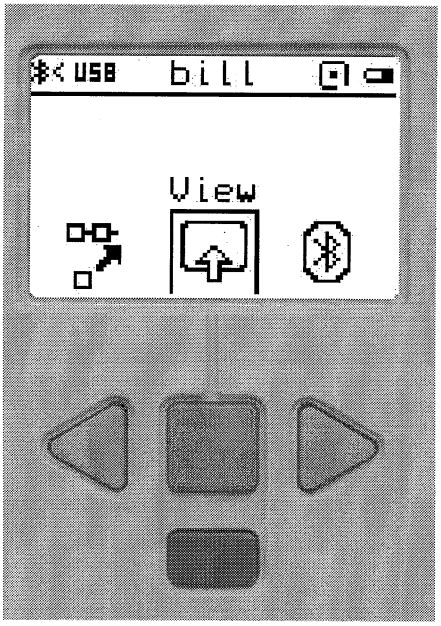
Be sure to have the sensor plugged into one of the ports of the intelligent brick and notice what port the sensor is plugged

First, this is how you get to the sensor view part.

1. Start with the level that says My Files.



2. Scroll to the right by pushing the right gray button until you see View. Push the center orange button.



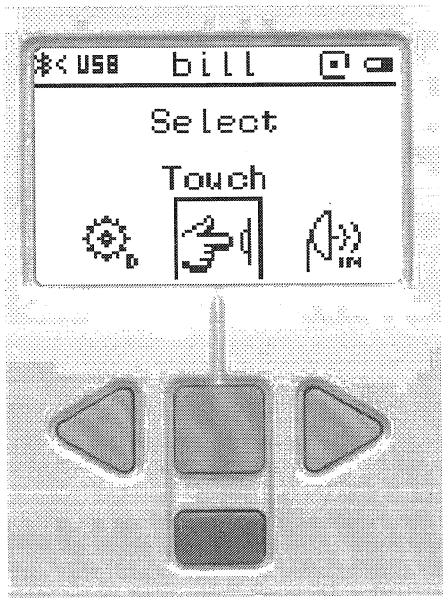
This will open up the view section so you can check the various sensors as well as the rotations of the motors.

Note: The program used to make the illustrations of the intelligent brick is freeware program called NeXTScreen, and is found at http://bricxcc.sourceforge.net/utilities.html. It shows the screen of the NXT intelligent brick on the screen of your computer.

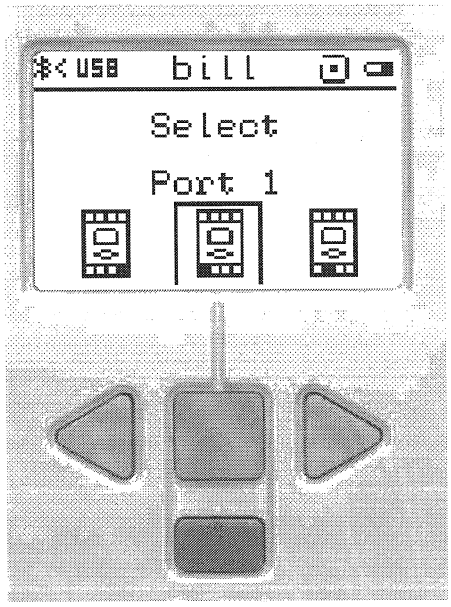
Touch Sensor

Once you get into the View section, you can use it to get readings on various sensors and motor rotations. Here is how you check the touch sensor. Be sure it is plugged into a port.

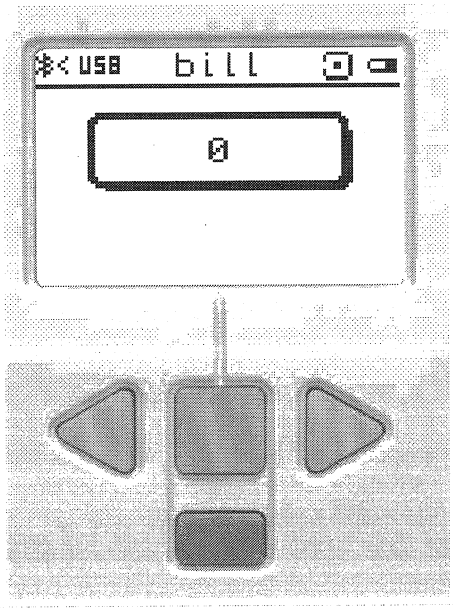
1. The touch sensor looks like this. Push the center orange button to access it.



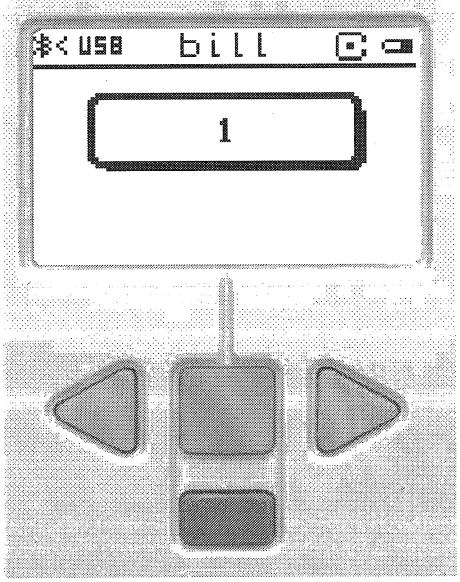
2. The touch sensor is usually attached to Port 1.



3. The touch sensor will say 0 if it is not pushed.

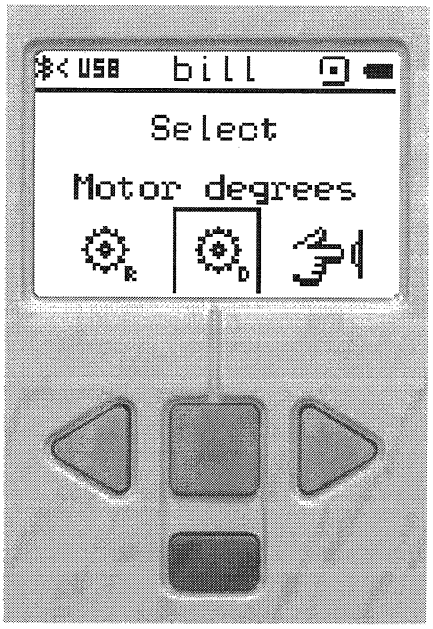


4. It will say 1 if the touch button is pushed.

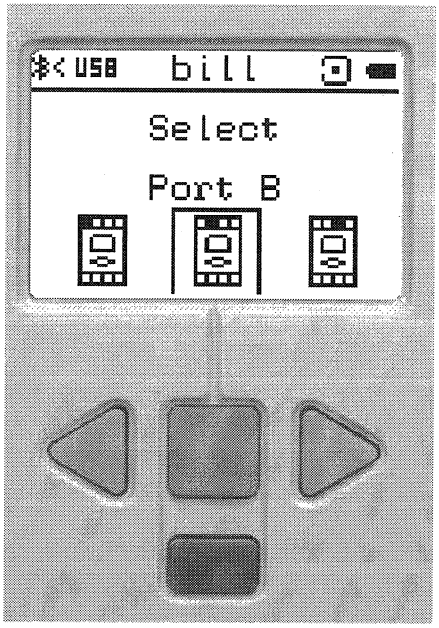


Motor Rotations

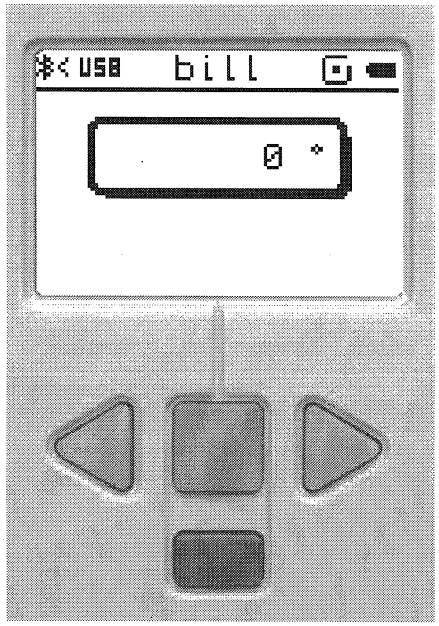
1. Go to Motor degrees and push the orange button.



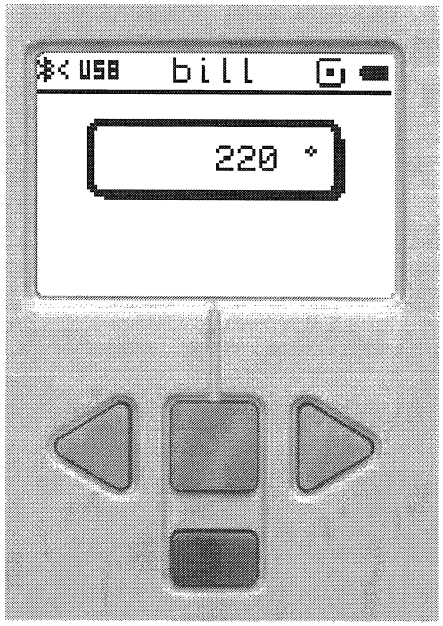
2. Use the side buttons to pick a port connected to the motor you are monitoring.



3. It starts out at zero.



4. The number goes up as the wheel turns forward.

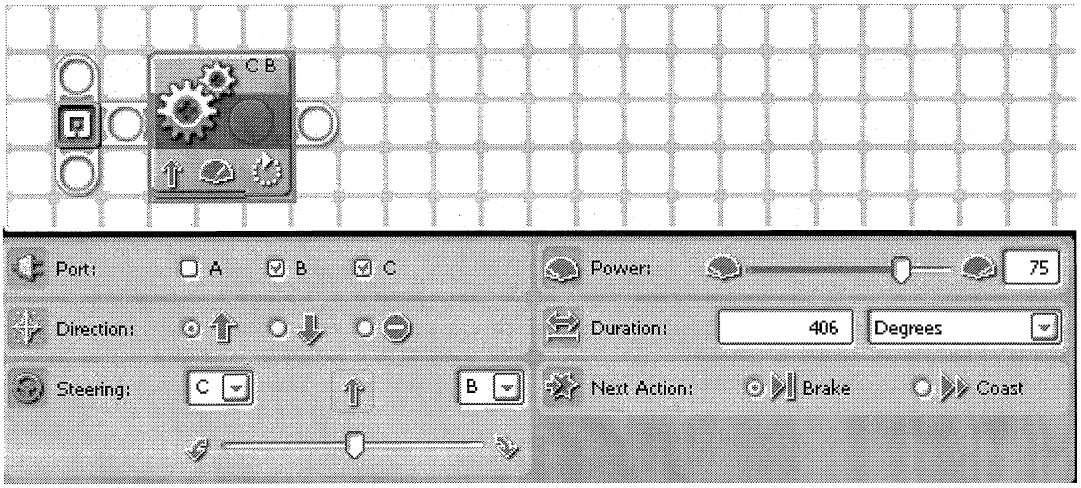


Remember that 360 degrees equal one rotation.

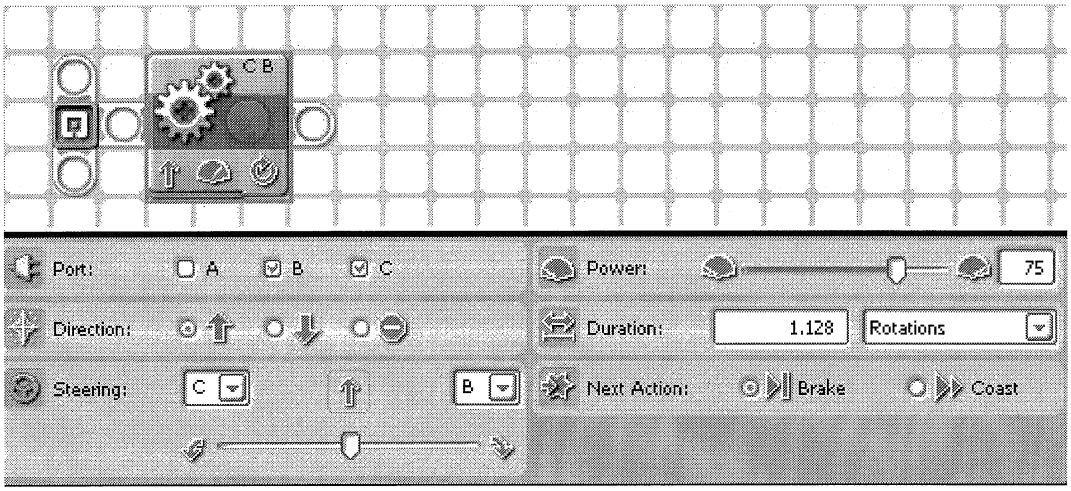
Changing degrees to rotations

When reading the degrees a motor has turned, it can be a pain to do the math to change it to rotations. Lucky for you, the Mindstorms program can do it automatically. You can also just leave it as degrees, but if you prefer rotations, you can have rotations by following the steps below.

Set the rotations drop down menu to degrees. Type in the number of degrees you measured.

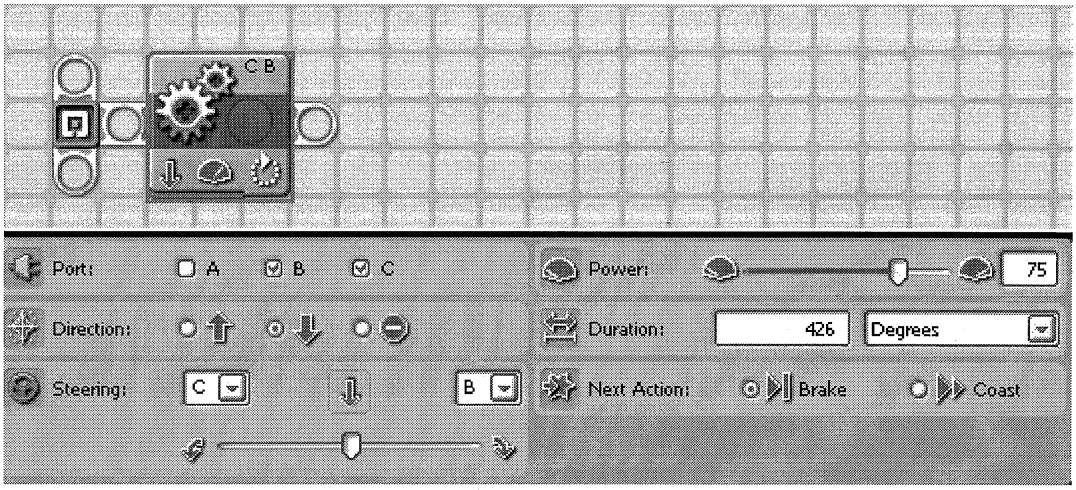


If you like working with rotations, you can change the degrees back to rotations by changing the drop down menu.

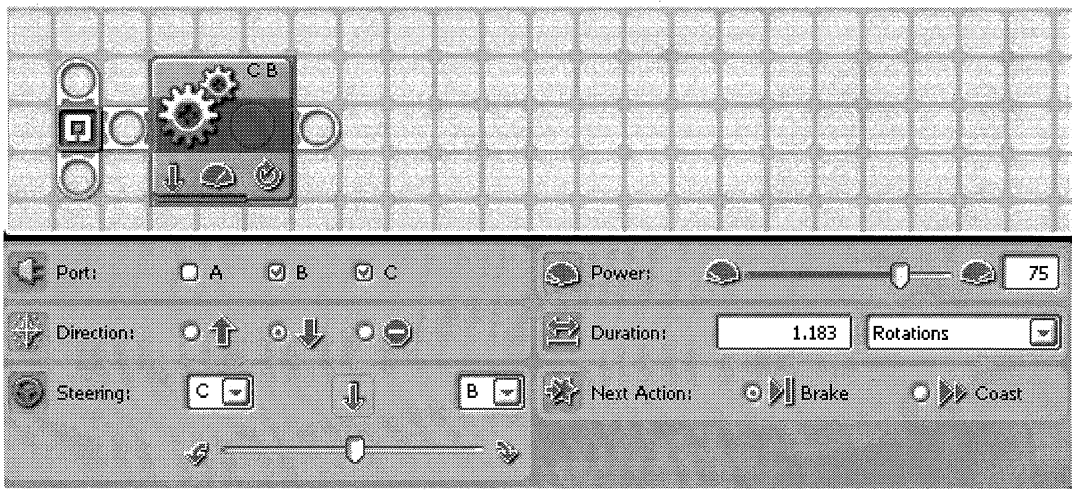


Dealing with negative numbers

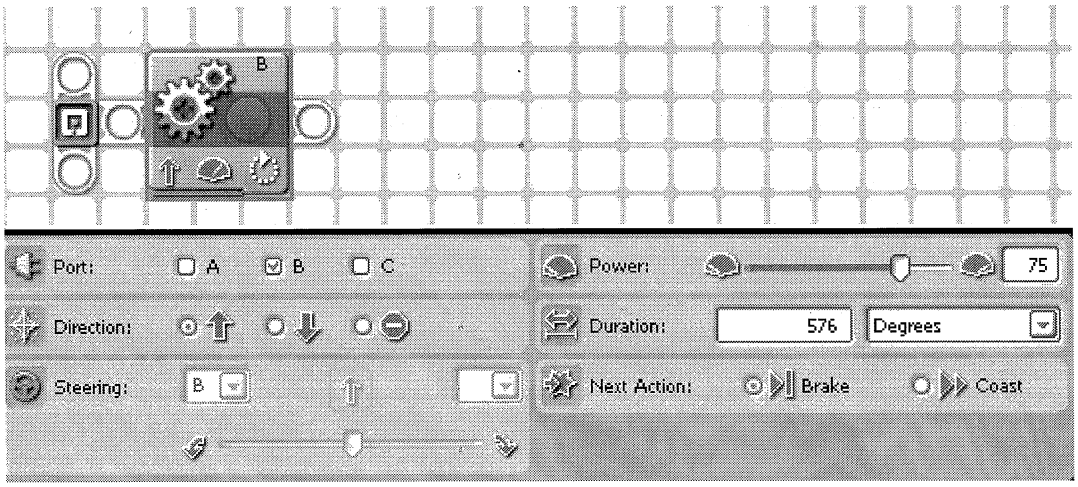
If you pulled the robot backwards instead of pushing it forward, you can get a negative number. Since the move blocks do not use negative numbers, you can use the negative degrees by changing the robot to go in reverse by clicking on the arrow pointing down and by changing the negative degrees to positive degrees.



And again, if you want to change it to rotations, you can do that by just changing to rotations on the drop down menu.



You can also just program one wheel for a turn. Here one wheel is going to rotate to make the robot turn. Click on C so it is no longer selected. Change the move block to degrees. Type in the number.



And you can change it back to rotations if you like. You don't have to change it if you don't like it that way.