

Arduino Lesson: Using various analog sensors

Set up a breadboard exactly the same as in lesson 3, "Potentiometer with Analog Input", and with the same program running ("File --> Examples --> Basic --> AnalogReadSerial"), and make the modification shows at the end of that lesson. Test the program and ensure it is working: turning the pot shows up as a "wave" on your screen.

Then remove the pot, and in its place put various other sensors. You may have to spread out the jumper wires to accommodate a wider sensor.

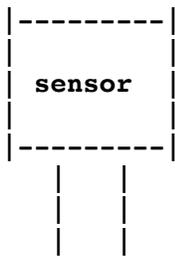
With the help of a supervisor, get one each of all the different kinds of simple analog sensors available in the lab. We have a few other forms of potentiometers, such as a set designed to be stroked by a finger. We have flex sensors which change resistance when flexed (gently bent). We have pressure sensors which respond to being squeezed. We have some ultra-sonic distance sensors with three pin outputs (power, ground, signal) just like a pot. We have light and temperature sensors as well.

Try as many of these as you wish. Put a flame near a temperature sensor. Then touch it with an ice cube. Shine a flashlight at a light sensor. Cup your hands around it to block the light. Turn off the room lights and see how it reacts.

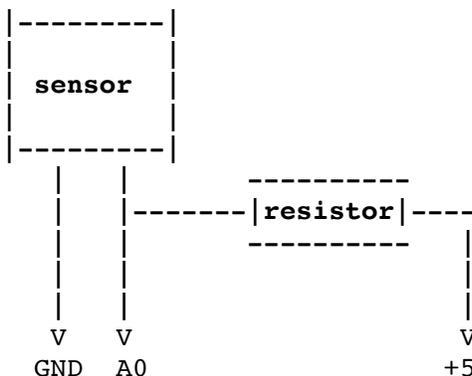
PROBLEM: SOME OF THESE SENSORS ONLY HAVE TWO PINS

A number of the above sensors, especially the pressure, temperature, and light sensor, have only two pins instead of 3.

Here is how to connect them. Instead of this:



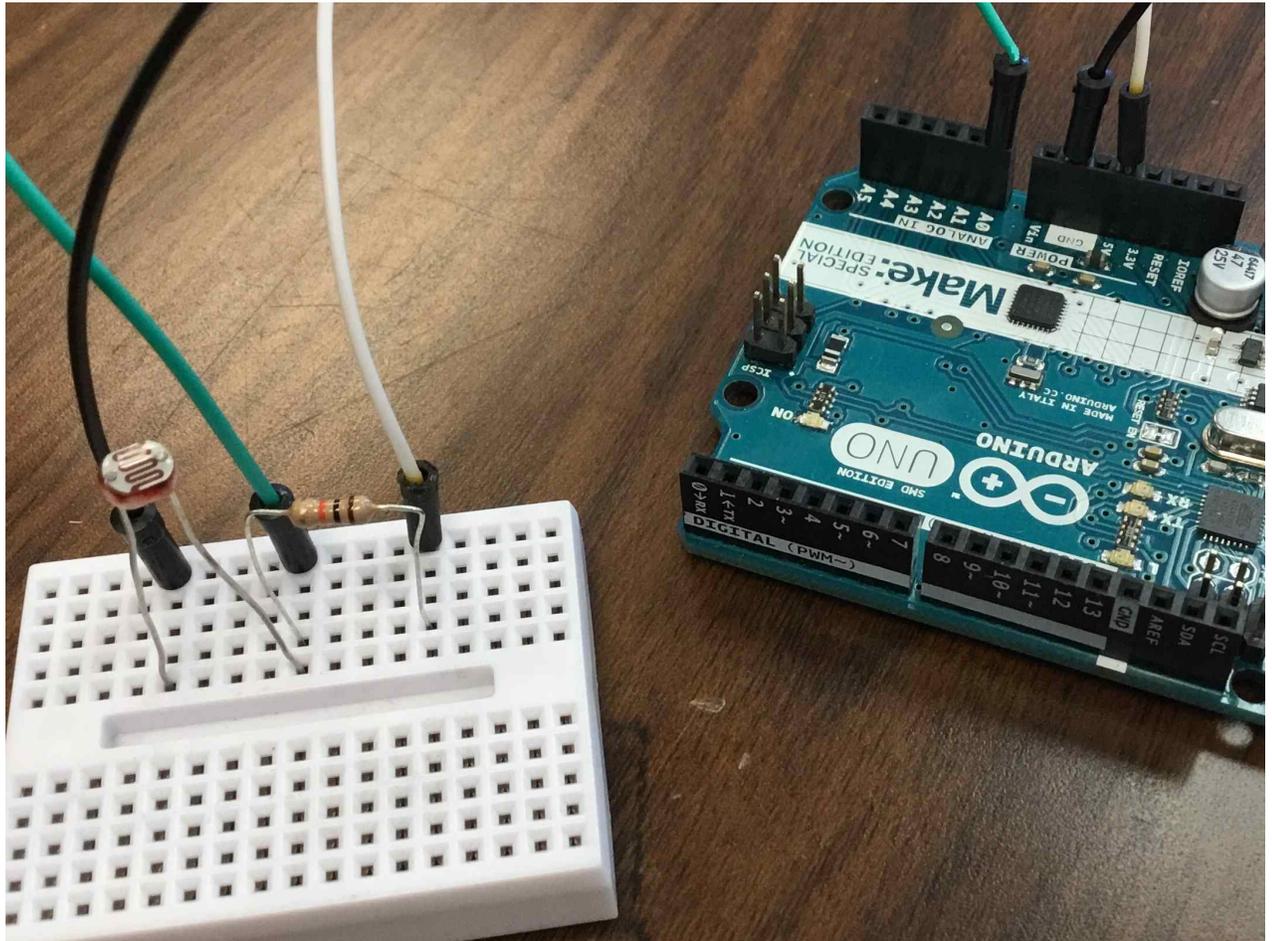
Add a 10K resistor on the breadboard like this:



Connect these three wires exactly as you had connected the pot in lesson 3. You will probably want

to spread them out a little more to make more room -- we used three consecutive rows of the breadboard before, because the pots were very small; here we may want to space the three jumper wires out to rows 4 or 5 holes apart.

Here is a picture of what it should look like, using a photocell:



Note that one end of the photocell and one end of the resistor are sharing a single row, with the green (A0) wire. And the other two ends of both are connected to power and ground with white and black jumpers.

Now re-run the lesson 3 program. Observe what happens in the Serial Monitor window.

Try various sensors: pressure sensor, light sensor, temperature sensor.

END OF LESSON.