Building a Soil Moisture Sensor

Liquid Prep

June 12, 2020 | V 1.0.0

Sensor Description

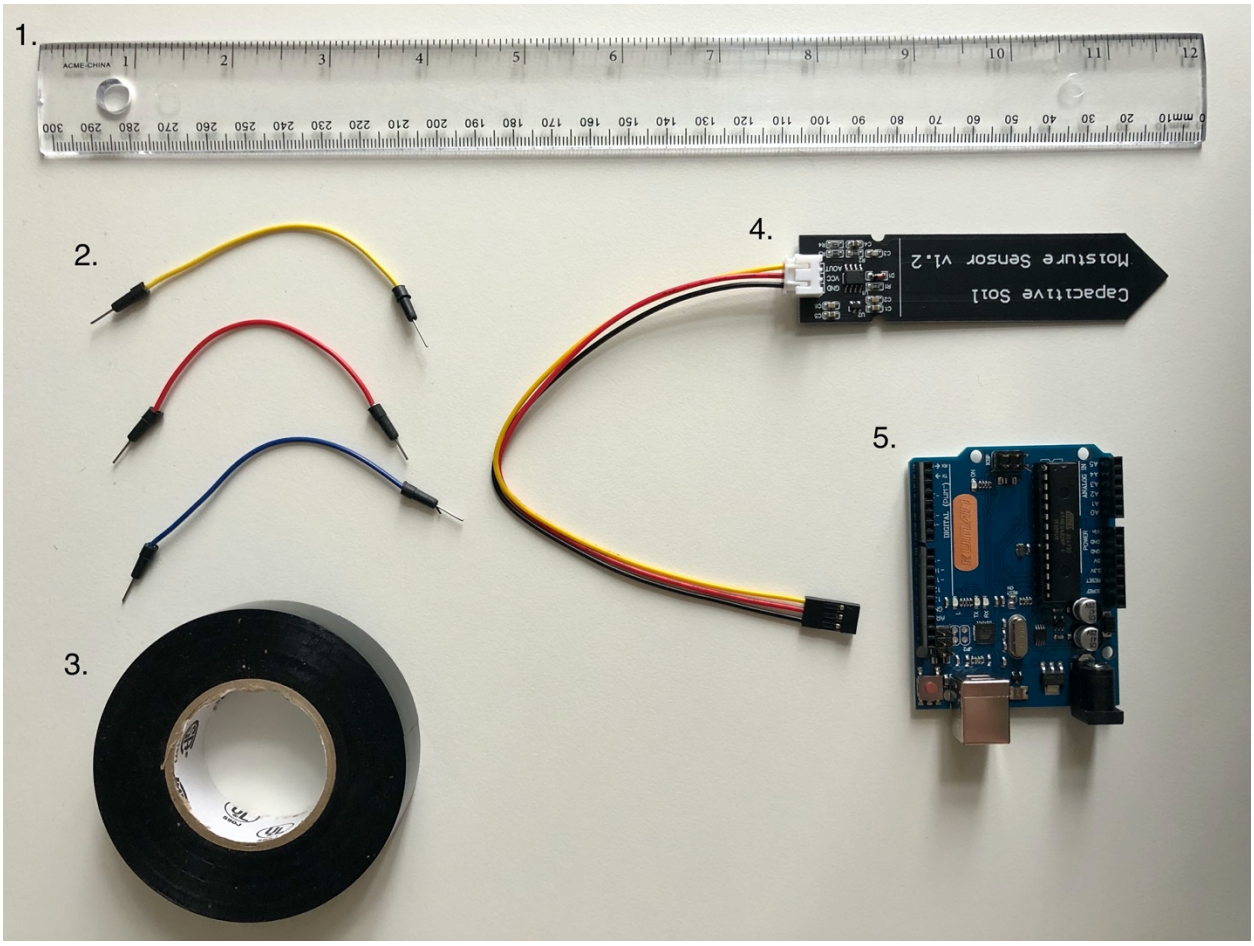
The soil moisture sensor allows a user to read their local soil moisture level around their crop.

Materials

Software

You will need the Arduino IDE to install the firmware on your Arduino device. Download here: https://www.arduino.cc/en/main/software

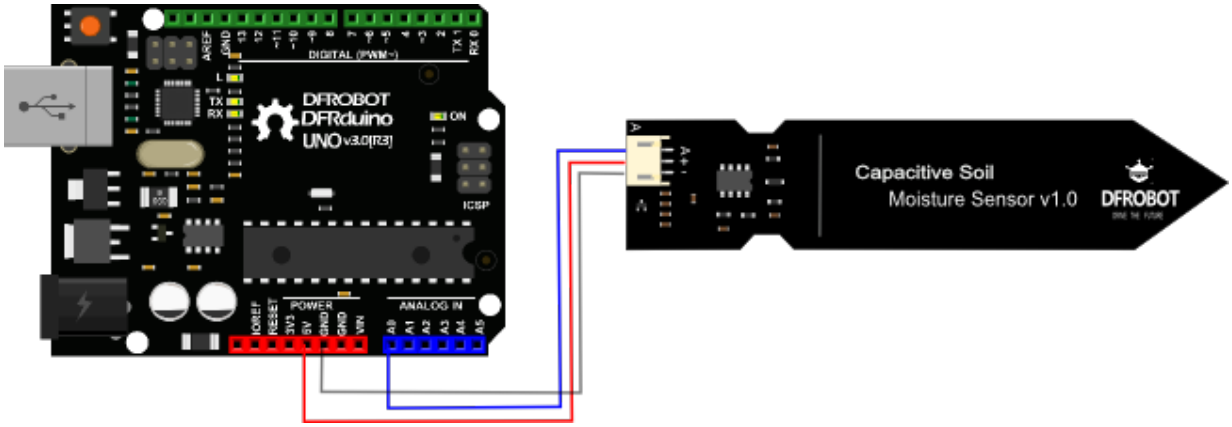
Hardware



1. Plastic ruler (30 cm) - https://amzn.to/30IkLaF
2. Jumper wire (x3) - https://store.arduino.cc/usa/10-jumper-wires-150mm-male
3. Electrical tape - https://amzn.to/3dY8YIY
4. Soil moisture sensor - https://amzn.to/2MPbrtk
5. Arduino Uno - https://amzn.to/2Yq9PeS

Assembly

1. Connect the soil moisture sensor to the Arduino Uno as follows:



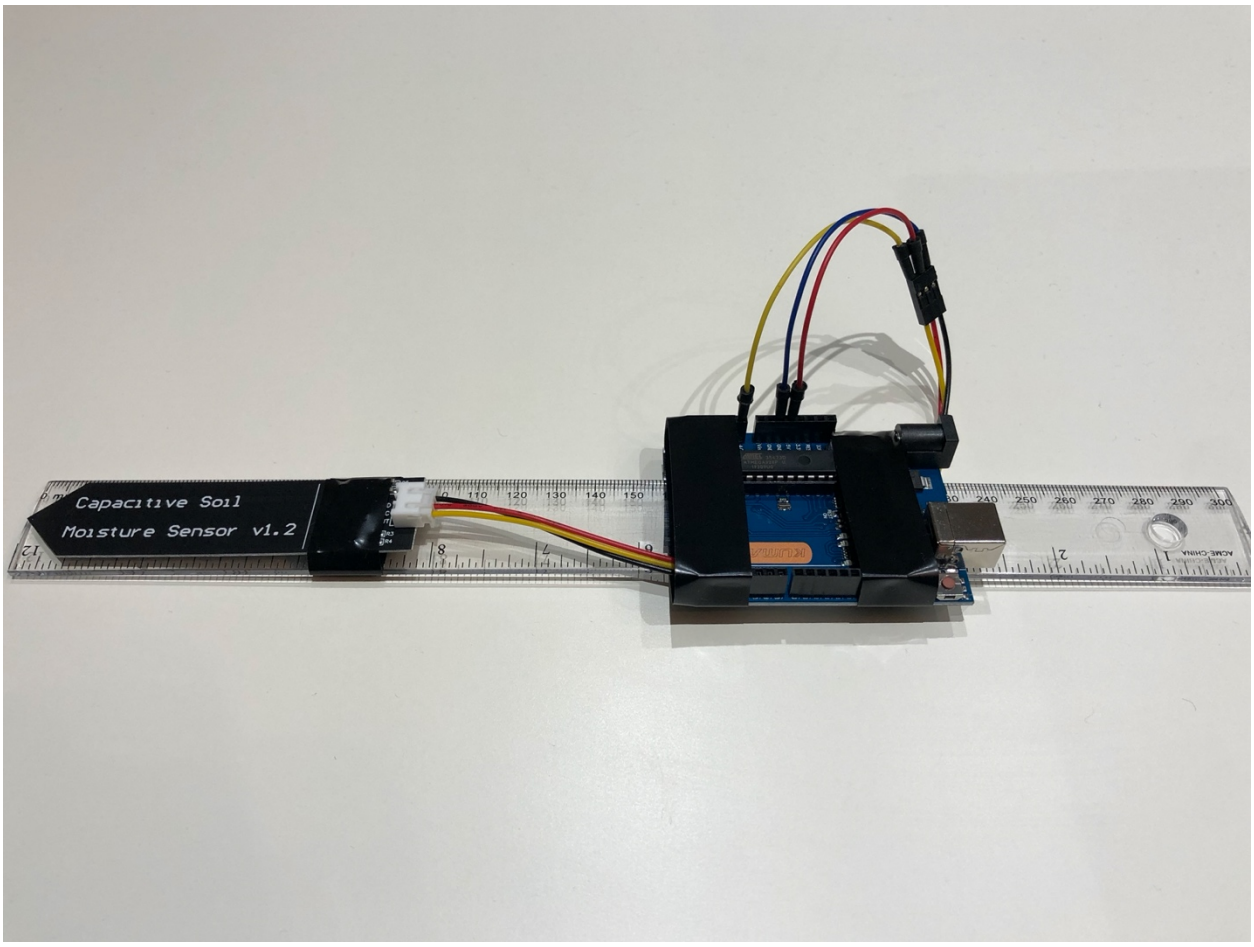
Connect the **AOUT** cable on the moisture sensor to **A0** port on the Arduino.
Connect the **VCC** cable on the moisture sensor to the **5V** port on the Arduino.
Connect the **GND** cable on the moisture sensor to the **GND** port on the Arduino.

Note: if the sensor cables will not directly plug into the Arduino - use the jumper wire cables (x3) to extend the wires from the moisture sensor so that the sensor can connect to the Arduino ports.

2. Carefully tape the soil moisture sensor and the Arduino to the ruler stick using electrical tape. Be sure to not cover the portion of the moisture sensor that must be touching the soil.

   Note: It is recommended you also use the electrical tape to cover as much of the wires/connections as possible to minimize the risk of water damage/exposure.

The built soil moisture sensor stick should look something like this:

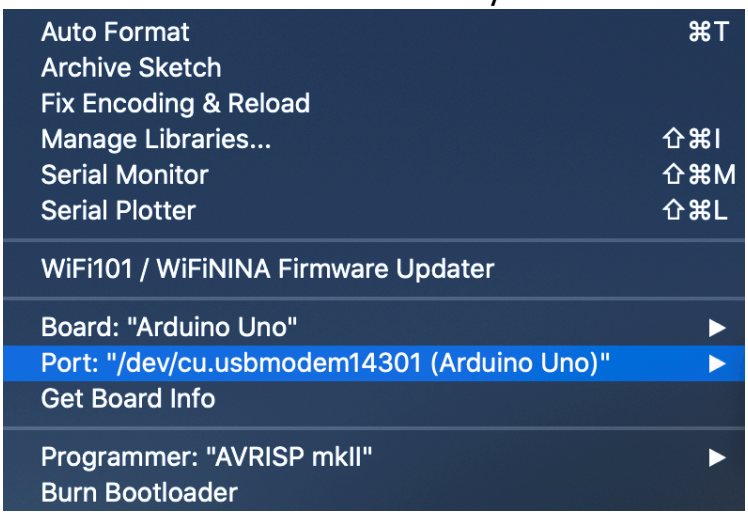


Installing Firmware

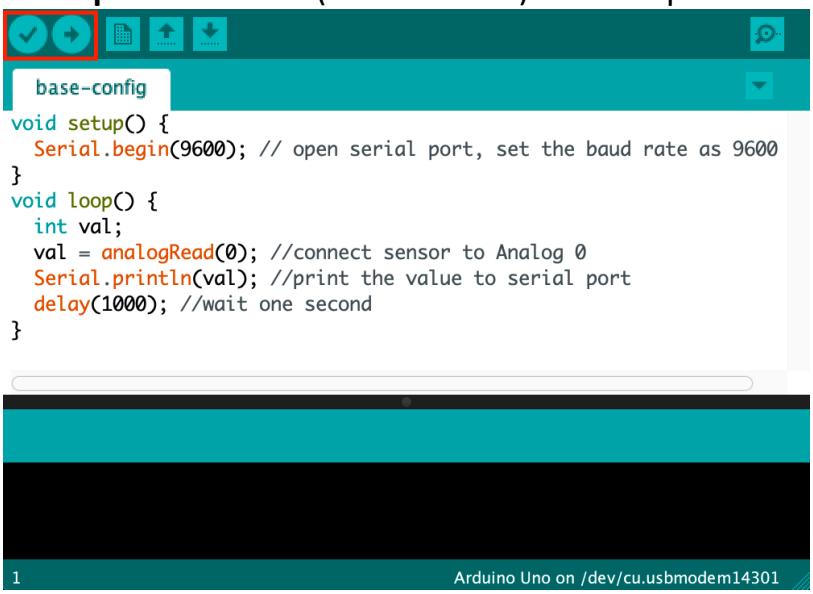
1. Clone the Liquid-Prep GitHub repository found here: https://github.com/Code-and-Response/Liquid-Prep

2. Open the **base-config.ino** file using the Arduino IDE: https://github.com/Code-and-Response/Liquid-Prep/tree/master/soilSensor/base-config/base-config.ino

3. Plug in the Arduino to your computer using a USB cable and ensure your device is selected under **Port** in your Arduino IDE tool settings



4. Install the firmware onto your Arduino Uno device by clicking the **Verify** and **Upload** buttons (in that order) in the top left side of the screen



5. Your sensor should now be running. You can verify by checking its serial output in the Arduino IDE tools: