Circuit Diagrams

Diagram #1: Load Cell

Load cells convert a force such as tension, compression, or pressure into electrical signals that can be measured. As the force applied to the load cell increases, the electrical signal changes proportionally. The amplifier, the board connected to the load cell, amplifies the signals so they can be converted to an output value. The amplifier is connected to an Arduino board and an LCD which reads the weight being placed on the load cell.

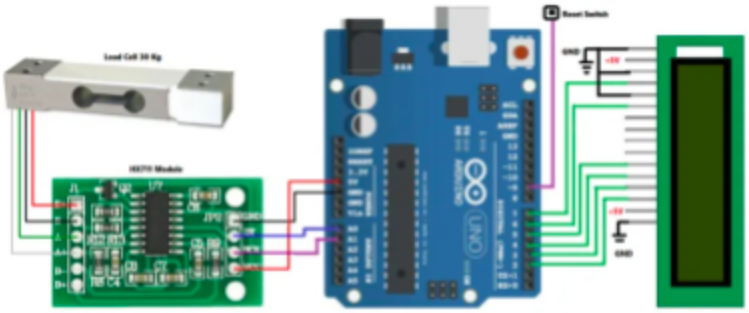

Figure 6. *Weight Sensor*

Diagram #2: pH Sensor

The pH sensor's probe Change in pH is detected at the inner reference electrode. This results in a change in the cell voltage which can be now related to change in pH. These changes in cell voltage are then taken as input in the processor of the pH meter and then converted to the pH value which is displayed on the serial monitor.

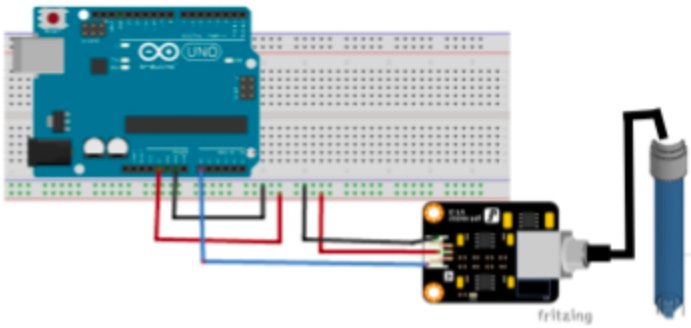

Figure 7. *pH Sensor*

The probe is attached to a BND connector, which is linked to the breadboard; this, in turn, links with the Arduino board.

Diagram #3: Moisture Sensor

The Soil Moisture Sensor uses capacitance to measure dielectric permittivity of the surrounding medium. In soil, dielectric permittivity is a function of the water content. The sensor creates a voltage proportional to the dielectric permittivity, and therefore the water content of the soil. The sensor averages the water content over the entire length of the sensor. It is attached to an amplifier which connects it to the Arduino board.

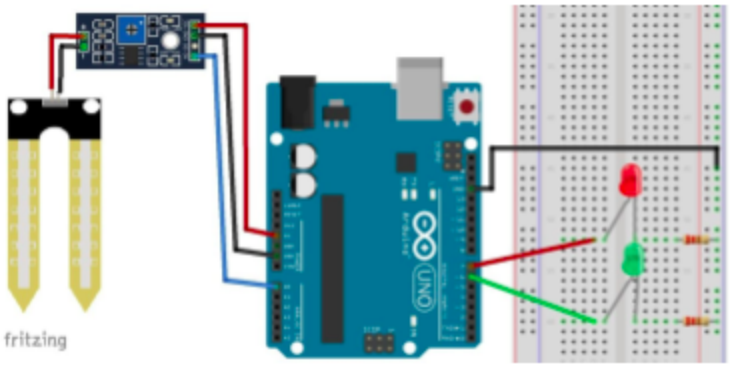

Figure 8. *Moisture Sensor*

Diagram #4: Liquid Level Sensor

The liquid level sensor works on the basis of resistance change. On the sensor, there are parallel lines that are connected to ground and when they are placed in water, a conductor, there will be a short circuit and the resistance will decrease. When the module is in a liquid container, the variable resistance sets on a specific value based on the water level. The module measures this analog resistor and sends it to Arduino. The Arduino board then converts this value to a digital amount that can be read on an LCD.

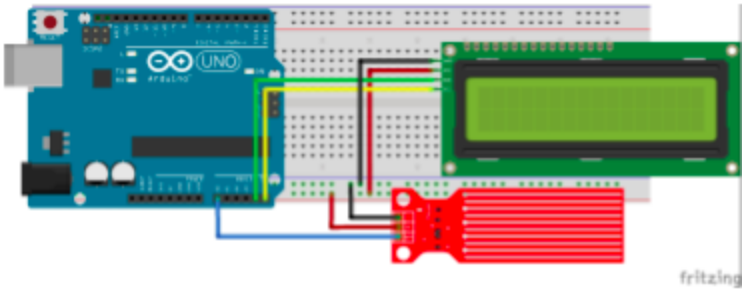

Figure 9. *Liquid Level Sensor*