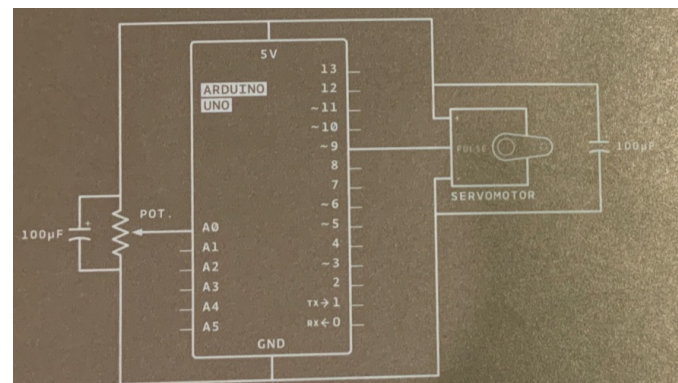Juan Manuel Barillas

Project 5: Mood Indicator

Servomotors are a special type of motor that do not rotate, instead, they move to an specific position and wait until you tell them to move again. These motors only rotate 180 degrees, (half a circle). Servomotors wait for a certain number of pulses to indicate how far to move. These pulses always have the same time interval but their width may vary between 1k and 2k microseconds. The Arduino includes a library that allows to control the motor easily.

Since servomotors only rotate 180 degrees and your analog input goes from 0 to 1023, you will have to use a function named map(), to change the scale of values that come from the potentiometer.

Building the Circuit:

- A potentiometer is a type of voltage divider. When you rotate it, we change the relation of voltage between the central pin and the power source. When we connect the central pin to the analog pin 0. We will be able to control the position of the Servomotor.

- The servomotor has three cable outputs. The red one is the current, the black one is ground and the white one is the control line that will receive the information from the Arduino. We have to plug the 5V input to the red cable, the ground to the black cable and the white one to pin 9.

Voltage Divider: Application of an element, system or net to a power source that will consume current out of it. The more intense the current is, the greater will be the charge effect.

- When the servomotor starts moving, it consumes more current than when it's already in movement. This will cause a voltage drop on our breadboard. If we connect a 100 f capacitor between the current and the ground pin beside the contact covers, we can smooth any voltage change that may occur. We can also insert a capacitor between the current and the ground connected to the potentiometer. They are called decoupling capacitors because they reduce or decouple the changes caused by the rest of components in the circuit.

Decoupling capacitors:
(Capacitores de desacoplamiento)

Negative side