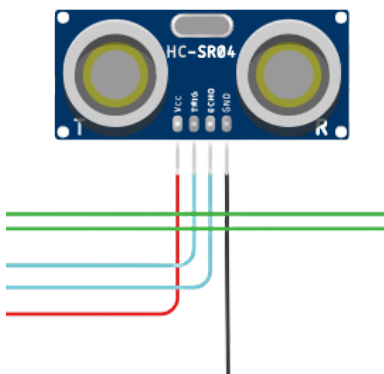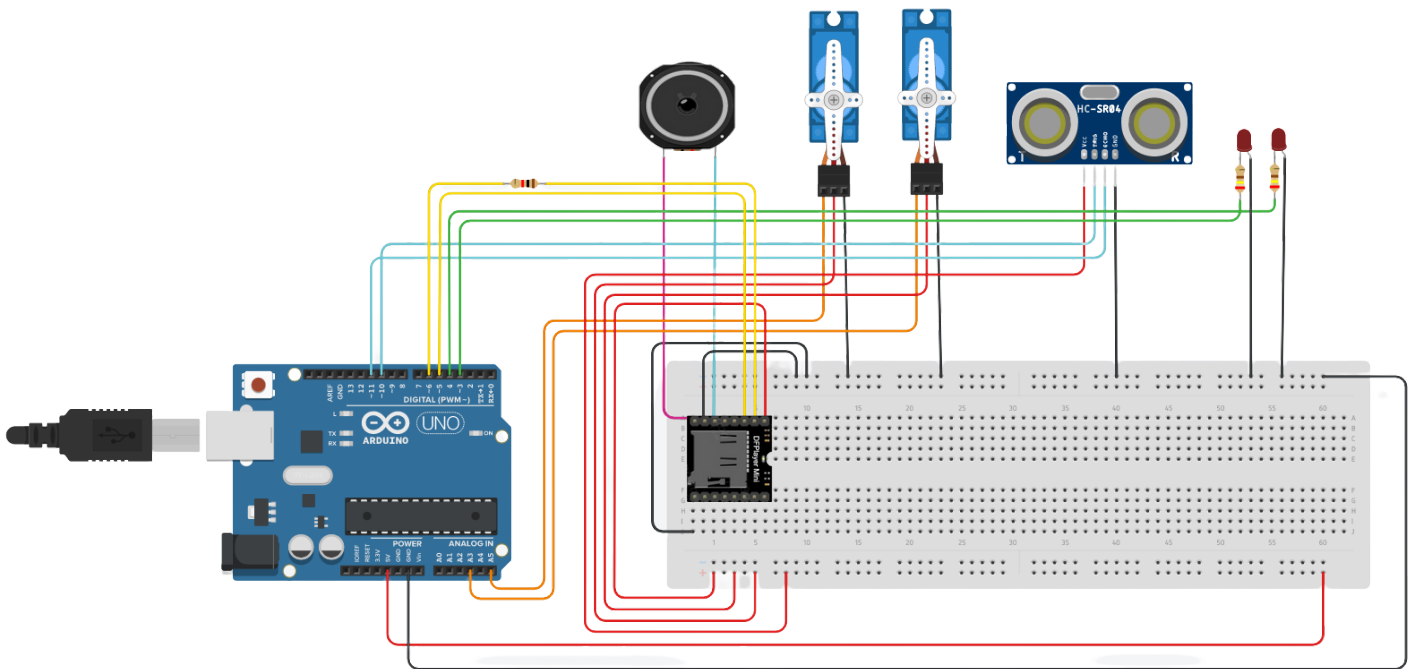# STEP 2 - SCHEME OF ELECTRICAL CONNECTORS

In this section, you can see how the different components are connected to the Arduino UNO. To make it easier to read, it has been explained element by element according to the function they play in the code and in the prototype.


1 ULTRASONIC DISTANCE SENSOR

This element is used to detect if there is movement near the prototype, which is located behind the head of the skull. For this, it has 4 pins that helps it to receive and provide information to the Arduino. The ECO, is the one that allows to capture the movement around it and is connected to pin 11. The Trig is the one that sends the signal to the Arudino, which is connected to pin 10, and finally, the VCC and GND pin which are the ones that provide current and ground to the device.

2   SERVO HEAD AND MOUTH

The function of this element is to allow the movement of the mouth and head so that, later, the other actions can be carried out. This consists of 3 pins that are identified by the color of their wires: the red that is the one that is connected to the power source, the black or brown that is the one that goes directly to ground and, finally, the orange or other color that corresponds to the servo signal, which in our case, will be connected to pin A3 for the head and the A5 for the mouth.

In this case, it has been connected here as there are no other sensors in the circuit. However, the most efficient way would be to connect it to the Digital part of the board.
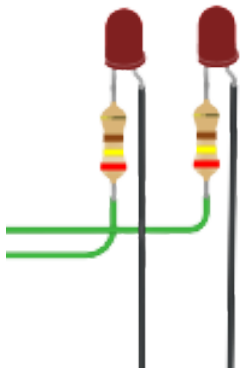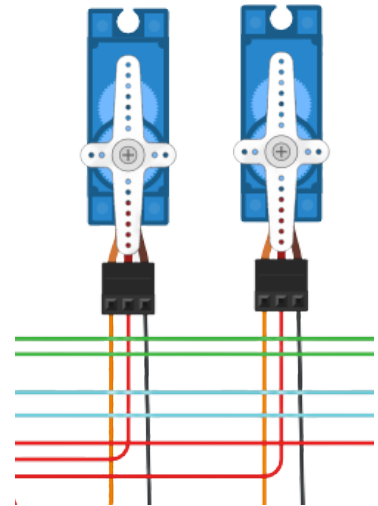
3   RED LEDS

In this prototype the LEDs are used to simulate the eyes of the skull, hence two are used. So, a ground wire is connected to the anode of the LED and the cathode is connected to one of the 240Ω resistors, which will go directly to the pin. In this case one of the LEDs will be in pin 3 and the other one in pin 4.

4   AUDIO SYSTEM

In order to add sound to the prototype, different elements have been used to do so. The first one is the **speaker**, which has only two connections, the ground and the voltage. These are connected to the next component, which is the **DF Player mini** which is the one that contains the **SD card** with all the audio files and the one that is linked to the PCB and the Arduino.

This itself, consists of several pins. The first one on the left is the VCC which corresponds to the one that will be connected to the voltage source, the second and third on this same side are the RX and TX pins, which are the ones that will be anchored to pins 5 and 6 respectively. They are the responsibles for reading the information they receive from the SD card. The last and the antepenultimate left pins correspond to the positive and negative pole of the speaker (the 5V and GND) and the one between these two is the ground of the whole set.