TD 5

Sensors

1. Photoresistor 💡

🎯 **Goal**: Use a photoresistor to monitor light intensity

📚 **Rules**:

1. The photoresistor is wired to the Arduino
2. An RGB LED changes colour based on the light intensity
    1. Lowest value: blue
    2. Highest value: red

👍 Call the teacher for verification once the setup is complete

📝 Keep the setup for later

2. Ultrasonic Sensor 🔊

🎯 **Goal**: Use an ultrasonic sensor to measure obstacle distance

📚 **Rules**:

1. The ultrasonic sensor is wired to the Arduino
2. The distance is displayed on 6 LEDs in line
    1. The LEDs are controlled with a shift register (74HC595N)
    2. The closer the obstacle, the more LEDs are lit
3. The distance changes the tone of a buzzer
    1. The closer the obstacle, the higher the pitch (buzzer tone)

👍 Call the teacher for verification once the setup is complete

📝 Keep the setup for later

3. Temperature Sensor 🥵

🎯 **Goal**: Use an temperature sensor to measure ambiant temperature

📚 **Rules**:

1. The temperature is displayed in terminal in Celsius

👍 Call the teacher for verification once the setup is complete

📝 Keep the setup for later

4. BONUS 🎰

🎯 **Goal**: Display everything on an LCD screen

📚 **Rules**:

1. The light intensity is displayed on the screen's first line, in % (0: pitch black, 100: smartphone flash directly above sensor)
2. The temperature is displayed on the screen's first line in Celsius
3. The obstacle distance is displayed on the screen's second line in cm
    1. If you want to pimp the display by making a visualisation (represent Sensor, Obstacle, and vary the distance between them on screen), it will be appreciated !
4. The buzzer beeps at a frequency based on the distance
    1. The closer the obstacle, the more frequent the beeping

👍 Call the teacher for verification once the setup is complete

📝 Keep the setup for later