Water quality measurement project

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Why did I choose to do this project?

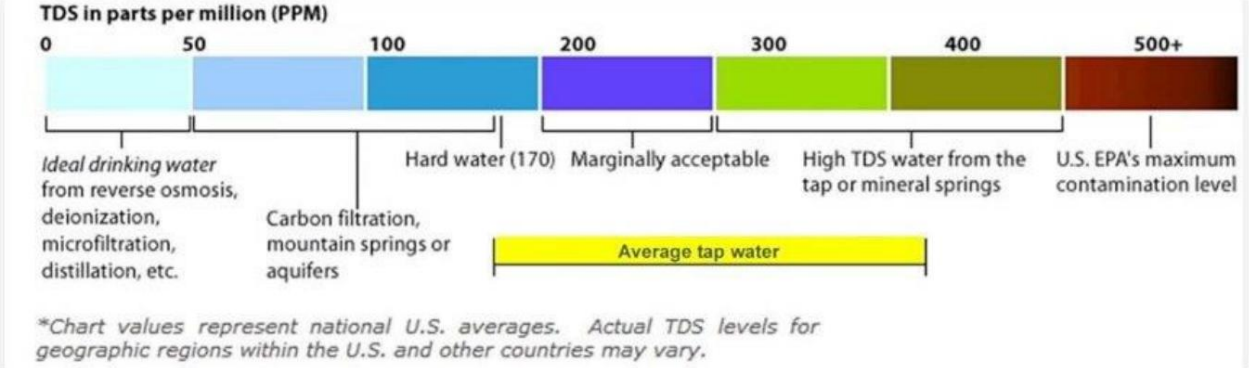
The reason I chose this project is because there is a real problem with water quality, a problem I want to solve with this project. It can be harmful to us humans or even animals if we don't pay enough attention to it. We all know that there is a lack of drinking water in certain places on earth: Africa, Syria, Iraq, Iran, even in Romania. The concrete example that made me start this project is that in the city where I grew up, the water flowing from the tap is often so dirty that you can see with the naked eye. It is a problem that cannot be solved even today.

What is the purpose of the project?

In the first phase, I want to prevent the danger that can be caused by non-potable water. How can I do that? By measurements, more precisely with the help of sensors. Sensors are important since we can no longer differentiate water quality with the naked eye.

Sensor explanation

TDS (Total disolved solids) and waterproof temperature sensor - indicates how many milligrams of soluble solids are dissolved in one liter of water. In general, the higher the TDS value, the more soluble solids dissolved and the less clean the water. Sometimes you can't realize this just by looking at a glass of water, they are solids that can dissolve easily but the color of the water remains the same. Measuring the value of TDS in water means measuring the total amount of various organic or inorganic substances dissolved in water, in units of ppm or milligrams per liter. The sensor electrode can measure conductive materials, such as suspended solids, heavy metals, and conductive ions in water. The temperature sensor is an important benchmark in water quality and is recommended for use with the TDS sensor for accurate measurements.



Turbidity sensor - detects water quality by measuring the level of turbidity. It is able to detect particles suspended in water by measuring the light transmission and the spread rate which changes with the amount of solids suspended in water. (TSS) As TTS we increase the level of turbidity of the liquid increases. This sensor can be used to measure the quality of water in rivers and streams, to measure wastewater and effluents, to investigate the transport of sediments and in laboratory measurements. When making measurements with this sensor we must take into account when the turbidity is higher
high, the voltage will be lower. Turbidity is caused by the large number of particles suspended in the water that cannot be seen with the naked eye. Free particles absorb heat from the sun, in which the water temperature rises.

Costs

1. Arduino one + cable -
https://www.aliexpress.com/snapshot/0.html?orderId=8141432297960394 35.32 RON

2. Turbidity sensor -
https://www.aliexpress.com/snapshot/0.html?orderId=8141432297920394&productId=10050023
56905611 & edm_click_module = order_detail & tracelog = rowan & rowan_id1 = postArriveV3_1_en_
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her 28.78 RON (RIP - water entered the module that was in the sensor and burned out)

3. TDS Meter V1.0 -
https://www.aliexpress.com/snapshot/0.html?orderId=8141432297940394&productId=33049865

730 & edm_click_module = order_detail & tracelog = rowan & rowan_id1 = postArriveV3_1_en_US_2021-12-

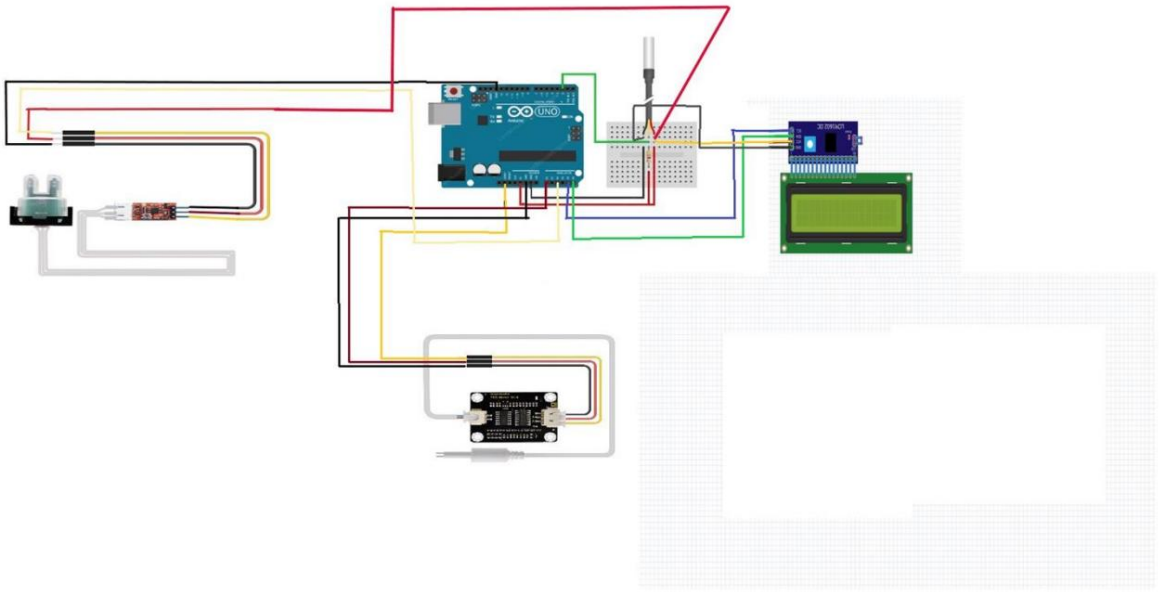
08 & rowan_msg_id = 0394814143229795 $ 43d7e2a0180a4ba287bb84f3a97421d5 & ck = in_edm_other 37.53 RON (RIP - a resistor on the module burned out when I connected arduino to my laptop.)

3.2 TDS Meter V1.0 - https://www.robotshop.com/eu/en/gravity-analog-tds-sensor-meter arduino.html 29 EURO (I spent more on transport, but considering that the first sensor it burned for Christmas and as there is no sensor in any store in Romania, I had to buy it from here to come to me as soon as possible)

4. LCD - https://cleste.ro/ecran-lcd-1602-iic-i2c.html 25.05 RON

5. Waterproof temperature sensor - https://www.optimusdigital.ro/ro/senzori-senzori-de Temperature / 586-water-resistant-temperature-sensor.html 8.49 RON

6. Breadboard + fire - https://cleste.ro/breadboard-400-puncte.html, https://cleste.ro/10-x-fire dupont-tata-tata-10cm.html, https: // cleste .ro / 10-x-fire-dupont-mama-mama-10cm.html - 11 RON



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