Save the lake project

Greece is a country with a Mediterranean climate, which means that almost every summer it is plagued with long periods of drought which has a serious impact on flora and fauna.

(“ So if during the summer months there is a decrease in the water level in a lake this is interpreted as a threat to life in a habitat)

So we need a way to monitor the level of the water and immediately notify about any change in the normal conditions in the habitat.

Suppose that we place a detector (sencor) in an aquatic environment for example a lake, to measure at all times the water level and inform us with a light indicator for the water level ,

but especially in the event of a drop in the level an red alarm is automatically activated which means the ecosystem is in great danger

As part of our project to represent life in the lake , we will take a large square laboratory tank , we will add water up to a certain level and we will place our sensor vertically on the surface of the water, that is, towards our "artificial lake".

We could place it under sunlight and observe how the water gradually evaporates and when it exceeds the predetermined limit, we can see that a red light indicator is on , so something went amiss

'When the water is between the desired thresholds, the yellow light will light up indicating that there is enough water in the lake

and in case it exceeds the ceiling we will receive a green indicator from our lamp which means that the water level is at normal levels for the season .

In our circuit, we used the following components

\*one ARDUINO UNO R3 board,

\* one Breadboard (generic) ,

\* twelve Jumper cables (overhead) ,

\* one ultrasonic distance sensor (serbo) ,

\*three lightbulbs, LED (generic)

\* and three 300 Ohm resistors

For the construction of the circuit :

To connect the serbo:

VCC is connected to 5V

TRIGis connected to pin 4

ECHO is connected to pin 3

GND is conected to GND grounding

To connect the LED lights :

For the red lightbulb:

The ( - ) negative pole connectes with the GND grounding

The ( + ) positive pole with pin 12

Also don't forget to connect the resistance of 300Ω

I do the same for the rest of the lightbulbs the only thing that changes is the connected pin

Initially we define the outputs of each led lightbulb. for the green one , the yellow one and the red led in positions 12, 8 and 5 of the Arduino Uno board

As soon as the distance sensor exceeds the first limit we have set to be 70 centimeters (to make it look better in the simulation) , it will turn off the green light bulb that was originally lit and turn on the yellow one.

As soon as the water level exceeds the second threshold of 120 cm, then , only the red lightbulb will be lit and signal that the habitat may be in danger