

User manual

1. GENERALITIES ABOUT THE AQUAPONICS SYSTEM ?	2
2. HOW TO CONNECT ELECTRONIC COMPONENTS ?	2
2.1. LCD	3
2.2. TEMPERATURE SENSOR	4
3. CODE PROGRAMMATION	4
3.1. MODIFY THE CLOCK	4
3.2. SWITCH THE WATER PUMP	4

1. Generalities about the aquaponics system ?

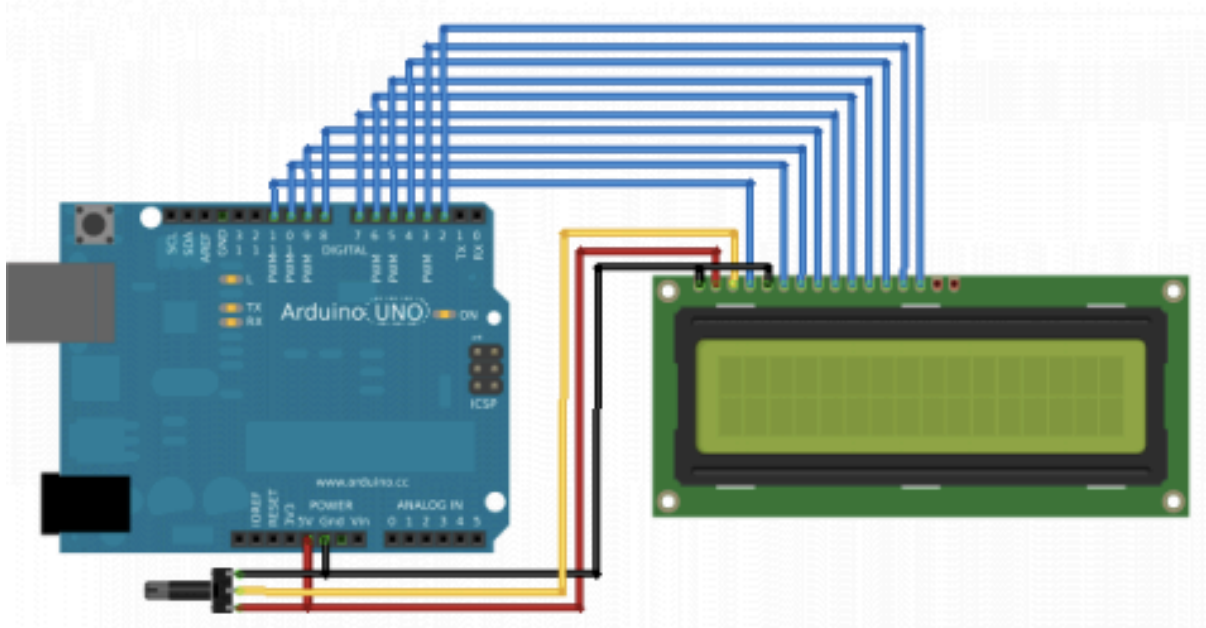
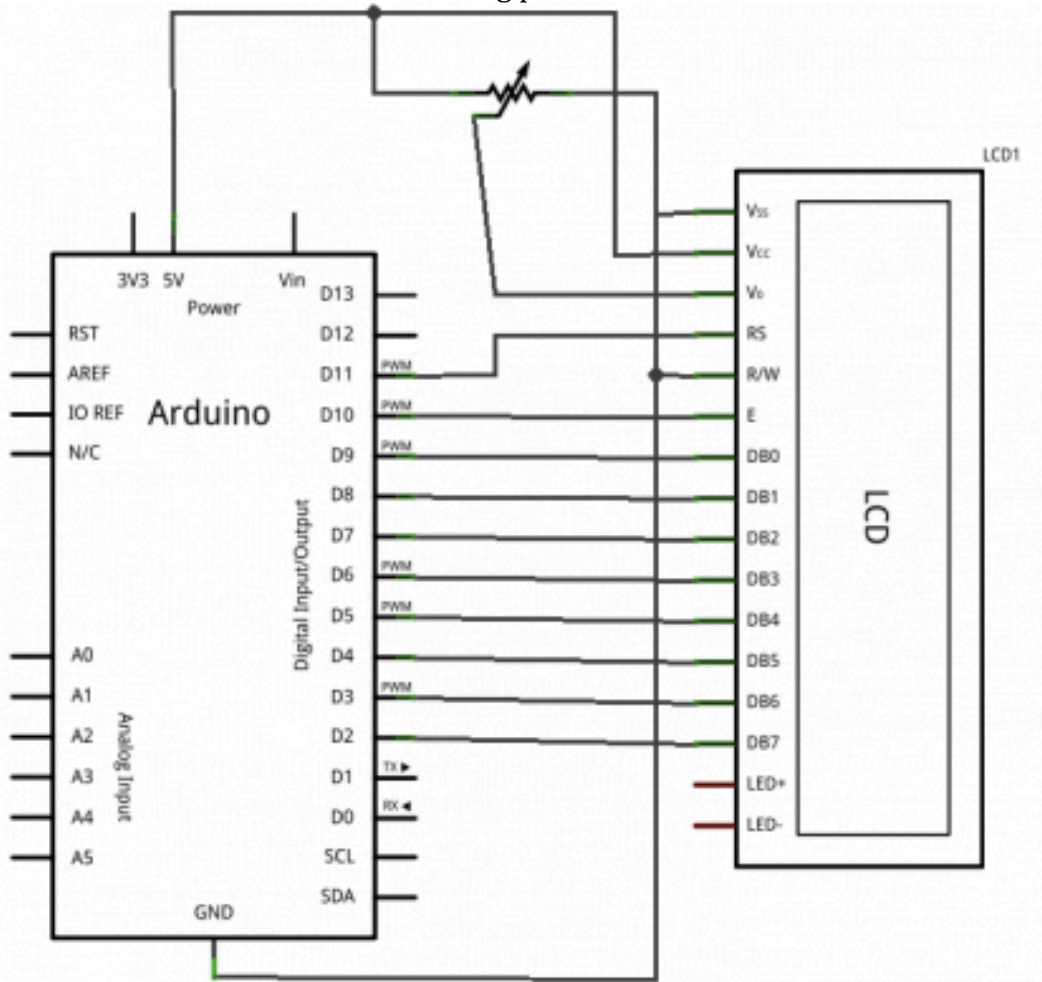
As all aquarium, you must be careful with the glass and sometimes need to clean the fish tank.

2. How to connect electronic components ?

Some components in the aquaponics system can be changed. You can find these components in the following points:

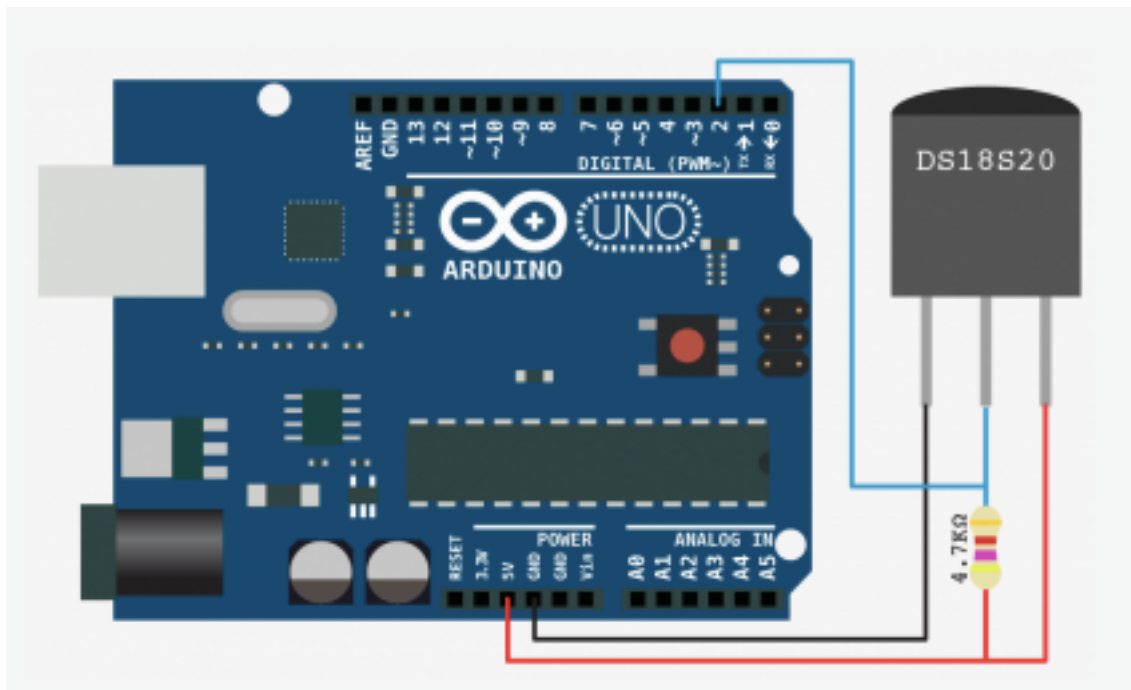
2.1.LCD

You must connect the LCD as the following picture.



2.2. Temperature sensor

Without the phidget, the temperature sensor must be connected as the following picture but the connection to the Arduino motherboard can be different.



3. Code programming

3.1. Modify the clock

The clock is set at 12:00:00, if you want to modify the actual time, you need to restart the arduino board few seconds before 12a.m.

3.2. Switch the water pump

The actual code programation to switch ON and OFF the water pump is set to 5 min OFF and 10 s ON. To change the time, go to this line in the actual code programation:

```
//----- variables: -----
```

```
int led_state = LOW;    // led state used to set the LED
int horas = 12 , minutos = 0 , segundos = 0;
char hora[16]="";
```

```
unsigned long previous_time0 = 0;    //will store last time, time was up
unsigned long previous_time11 = 0;
unsigned long previous_time12 = 0;
unsigned long previous_time2 = 0;
```

```
unsigned long/*CHANGE TIME HERE ----> */time_waterpump_OFF = 5/* minutes */;  
unsigned int/*CHANGE TIME HERE ----> */time_waterpump_ON = 10/* secondes */;  
unsigned int/*CHANGE TIME HERE ----> */time_read_Tsensor = 5/* secondes */;
```