irrigating with recycled water - All

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My idea to reduce the consumption of water, is to use the water generated as waste by the domestic air-conditioner, and use this water to irrigate the plants, just collecting this water in a tank,and using a water pump and a sensor

Initially I measured that my air conditioner set at 25 ° C (77 ° F) produce about 2 liters of water every hour. So in a normal day I can collect enough water for all my plants.

To provide an automatic irrigation system I used :

١. tank for collecting water
٢. small water pump (12V - 5 W) and some pipe
٣. relay
٤. soil moisture sensor
٥. Arduino micro for the control of the system

Step 1: Connect all components

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I used a 12 V power source for all the system. 12 V it is perferct for the water pump and arduino as well.

The water pump is controlled by a relay, and the relay is controlled by the digital pin 4 of arduino.

The soil moisture sensor is checked by the analog pin A0.

Step 2: Write the code

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You can see the full code in the picture. I made it as simple as possible., so I think it will be very easy to understand.

This is a very easy control system, so of course it can be improved, but for my needs it is good enough.

First, I tested the soil moisture sensor in different situations, and I measured the following value with the analog pin:

١. 100 into the water
٢. 150 in wet soil
٣. 600 in dry soil
٤. 900 in air

So I set the threshold = 400 as the maximum level of dry soil admitted.

Then I measured the water flow, and decided to set in 10 seconds the duration of the irrigation.

Here you can read the full code:

/* this simple sketch allows you to irrigate the plants when the soil becomes dry

* with a soil moisture sensor I measured the following value:

* - 100 into the water

* - 150 in wet soil

* - 600 in dry soil

* - 900 in air */

int threshold = 400; // Maximum level of soil moisture allowed

int sensor = 0; // soil moisture sensor connected in A0

int relay = 4; // relay controlled by the digital pin 4

void setup() {

```
pinMode(relay,OUTPUT); // The relay control the water pump
}
void loop() {
int level = analogRead(sensor); // check if the soil moisture level
if (level > threshold) { // when the moisture level is too low
digitalWrite(relay,HIGH); // it activate the water pump
delay (10000); // and irrigates for 10 seconds
digitalWrite(relay,HIGH);}
else {
digitalWrite(relay,LOW);}
delay(600000); // check the soil every 10 minutes
}
```

Step 3: Enjoy your irrigation system

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Now it's time to install all the components and check that everything works.

So insert the water pump in the tank and connect all the pipe through the plants, insert the soil moisture in the ground and when you power on, it should start working.

This little sistem I created for 2 chili-pepper plant it could be used for much bigger situation, whit much more water and much more plants, to reduce the water consumption, and for sure there are many little improvements that sould be made, but I hope you like my idea and it will be of inspiration for all the readers, to a more rational use of the important resource that water is.

جهت ترجمه کتاب میتوانید از قسمت (تماس با ما) درخواست دهید.

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