

Abstract

Our irrigation system has an automatic system that will be connected to the water network. At the time that our system activates, a quantity of water will be released, this will be controlled by Arduino, which will be in charge of obtaining the data from the sensors used, will process them and once a series of conditions are met, for example, If the soil is wet, if it is day or night to know when to water the plants and release the water necessary for the plants.

Introduction

Nowadays, it is important to implement an automated irrigation system since the introduction of these new technologies is intended to supply the amount of water needed to irrigate at the right time and for an established period of time, helping to increase yield and profitability in nurseries, as shown in Figure 1.



Figure 1 Multiple water-saving irrigation systems

Materials and methods

1. Monitor the temperature of the greenhouse environment.
2. Show the humidity of the soil in the greenhouse.
3. Control the water flow with a pump.
4. To know the conditions that are needed for what is going to be planted.

Figure 2 shows part of the circuits that will be built in the system to be implemented, involving arduino and multiple sensors and display.

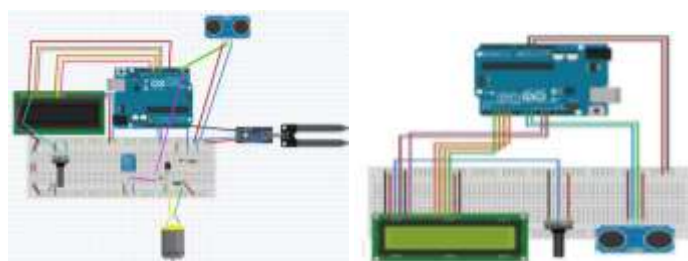


Figure 2 Examples of irrigation system circuit simulations

References

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Results



Figure 3 Circuit construction

Figure 3 shows part of the construction of the circuits, observing on the left side the initial construction and arrangement of sensors, on the right side the system is observed working, in the same way in Figure 4 it is possible to observe the construction of the system and the simulation in a sample greenhouse, made with elements found at home.



Figure 4 Multiple irrigation systems for water savings

Conclusions

Through the first tests the results were favorable, having readings of the sensors which provide the necessary data to have greater control of the irrigation system seeking to generate savings of 15% in water supply, in addition to having the display of the values and operation of the pump that supplies water to the plants that were installed, important to mention that the tests were conducted with low cost equipment, generating very good measurement results.

Future of research

We plan to expand the system to control multiple greenhouses, as well as to store information in a database of all the results generated from the greenhouses and the use of an app or a web system to monitor each of the variables remotely, so that growers can have control of production, water savings and crop health status.