UNIVERSITI TEKNOLOGI MARA

FINAL REPORT :

AUTOMATIC PLANT IRRIGATION SYSTEM

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ABSTRACT

Irrigation is the key to a successful garden. Long gone are the days of manual watering or relying on a friend to water when you are on vacation or away on business. The project presented here waters your plants regularly when you are out for vocation. The circuit used Hex Inverter 7404 as the main components to sense the moisture of the soil by receiving inputs from two probes that are inserted into the soil. This project can help to understand the resistivity of soil and how well one can build an irrigation system based on the resistivity. Therefore, one can develop a small-scale automated irrigation system for indoors that would use water in a more efficient way, in order to prevent water loss. The simulation is done using Proteus 8 Software Simulation. This application will help you to construct and simulate PCB. It also lets you work in electronic 3D design and make compound projects as well. Its interface are arranged and organize with plenty of commands and tools that are needed to create and test circuit boards.

CHAPTER 1

INTRODUCTION

1.1 Background of study

Water is a resource that all living species need. It is therefore very precious and has to be used with moderation to be preserved for the generation to come. Gardening is an activity that uses a lot of water. Most of the time, this resource is not used efficiently and substantial amounts of water are wasted. In the near future, these wasted will represent a large sum of money. The ones who manage this resource efficiently will be winning time and money.

The automatic plant irrigation is a project that is suggested to minimize the water input, while satisfying the plants' needs. Other than that, it is useful in watering plants automatically without any human interference. This project is useful for those who planned on going on a vacation or always do not have the time to water their plants everyday. This project also applicable for large farm.

The advantage of this project is low cost and reliable circuit. This is because with the use of low cost sensor and the simply circuit make this project a low cost product. The other advantage of this project is its works according to the soil condition and its really highly sensitive. This project completely elimanate the manpower and only using the power of technology. This project system also can be switched into manual mode whenever required.

A basic concept is used in this circuit i.e. soil have high resistance when it is dry and has very low resistance when it is wet. Two probes are inserted in the soil in such a way that they will conduct when the soil is wet and the will not conduct when the soil is dry. So, when the probes did not conduct, system will automatically detect this situation by using HEX inverter which will become high when the input is low.