DESIGN AND ANALYSS OF VARIOUS FACTORS OF IRRIGATION SYSTEM USING VHDL CODE

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Abstract: This project presents the most important factors for the quality of plants growth are temperature, moisture, dew point and humidity. Continuous monitoring of these environmental variables gives information to the grower to better understand of the variables which can increase the productivity and reduce the loss of crops due to environment and drought condition , then How much each factors affects growth and how to manage maximal crop productiveness and reduce the minimum loss of crop .Firstly we can enable us to improve productivity and to achieve remarkable energy savings . Before design and analysis of the various parameters of irrigation system .

IndexTerms **– Temperature, Humidity, Dew Point, VHDL, Xilinx14.7 VIVADO**

I. INTRODUCTION

After the exploration in the horticultural field, scientists found that the yield of agribusiness continues diminishing step by step. Utilization of innovation in the field of agribusiness assumes imperative part in expanding the generation and also in diminishing the additional labor endeavors, water necessity and compost prerequisite. A portion of the scientists strove for better states of ranchers and gives the frameworks that utilizations new and extraordinary and tedious innovations which are useful for expanding the agrarian yield and productivitiness.

The most essential elements for the quality and efficiency of plant development are temperature, mugginess or humidity, light a. Constant observing of these natural factors gives a data to the producer to better comprehension of yields, how each factor influences the development and how to deal with the maximal harvest productiveness. The prime objective is to select the appropriate parameters to analyze and collect the data from various calculation of the field, which is very effective parameters for irrigation system to monitor the proper drip of water along with the fertilizer.

The objective of this research was to develop a low cost g system to obtain measurements of current field conditions in real-time. To identify the suitable facility for maintaining certain recommended parameters. To indentify proper monitoring and device required for the farming data like soil moisture, soil temperature, soil fertilizer & chemical constituents temperature, humidity and dew point.

II. METHODOLOGY

Farming has assumed a key part in the advancement of human development however we know horticulture is generally subject to climatic condition and subsequently climatic condition, for example, dry spell, surge, and so on severely influences the agrarian field consequently cause misfortune underway. That is in dry season lack of water cause misfortune in yield and on other turn in finished inundated zone misfortune in yield is because of access of water. To stay away from such misfortune underway legitimate water administration must be required. In this way proficiently composed water system framework is required to legitimately circulate the water in field. This framework must be ecological well disposed and conveyed water in water system field in savvy way that is water is given to those regions of field where it is required with the goal that wastage of water can maintained a strategic distance from and give appropriate administration of water in field.

The current situation and flow work expects to build up a based ease soil temperature, dampness and dampness checking framework that can track the dirt dampness at various areas of the field progressively and in this way enable water to be sprinkled on to the field if the dirt temperature goes above as well as the dirt dampness falls underneath an endorsed constrain depending in the idea of yield developed in the dirt. The sensors take the information sources like dampness, temperature and give these contributions to the microcontroller. The ADC changes over these contributions to its coveted frame with the program that is running on it and gives yields in the method of direction of water stream as indicated by the present information conditions. The product or a little working Framework that is running on the Xilinx gives an extremely easy to utilize User Interface.

2.1 TEMPERATURE MEASUREMENT

We have taken the temperature reading from the range of 0-150℃ through . Taking the measurement and reading and ADC converts its into digital output . Making the lookup table for store and processing on that readings and the output measure on the waveform or in the 0 or 1's.

Lookup table for temperature in which values are noted in the short range or direct from 0-5 v only.

Voltage	Temperature	Binary Code
0	23	00010111
0.5	46	00101110
1	69	01000101
1.5	92	01011100
2.0	115	01110011
2.5	138	10001010
3.0	152	10011000
3.5	184	10111000
4.0	207	11001111
4.5	230	11100110
5	253	11111101

TABLE 1

2.2 HUMIDITY AND DEW POINT

To comprehend mugginess or humidity, you initially need to understand that there's water noticeable all around surrounding you. "However, I'm not wet!" you may state. That is valid. A large portion of the air around you has water as a gas called water vapor. Dampness is the measure of water vapor noticeable all around. Excessively or too little humidity can be hazardous. For instance, high dampness joined with hot temperatures is a blend that can be a wellbeing hazard, particularly for the exceptionally youthful and the extremely old.

Relative humidity is the ratio of the current absolute humidity to the highest possible absolute humidity, which will depend upon the current air temperature. Relative humidity is the term weather forecasters use most often.

3.3 DEW POINT

If unsaturated air is cooled, at first the **humidity content** and the partial pressure of the water remain constant. However, the relative humidity increases since saturated water vapour pressure coming from above more and more approximates the partial water vapour pressure.

Humidity 20%

Temperature	Dew point
26	1
27	2
30	4
31	5
35	8
38	11
40	12
42	14
45	16
48	19

50	20
52	22
55	24
58	26
60	28
62	30
65	32
68	34
70	36
73	38
75	40
78	42
82	45
86	48
91	52
95	55
100	59

Humidity 30%

Temperature	Dew point
26	7
27	8
30	10
31	11
35	14
38	17
40	19
42	20
45	23
48	25
50	27
52	29
55	31
58	33
60	35
62	37
65	40
68	42
70	43
73	46
75	47
78	50
82	53
86	56
91	60
95	64
100	68

Table 2

And rest of all calculation to finding humidity and dew point using a formula that is given below. And continue rest of all values of humidity are measure in this way.

These formula used to find the DEW POINT.

$$T_D = \left(\frac{f}{100}\right)^{1/8}(112 + 0.9T) + 0.1T - 112$$

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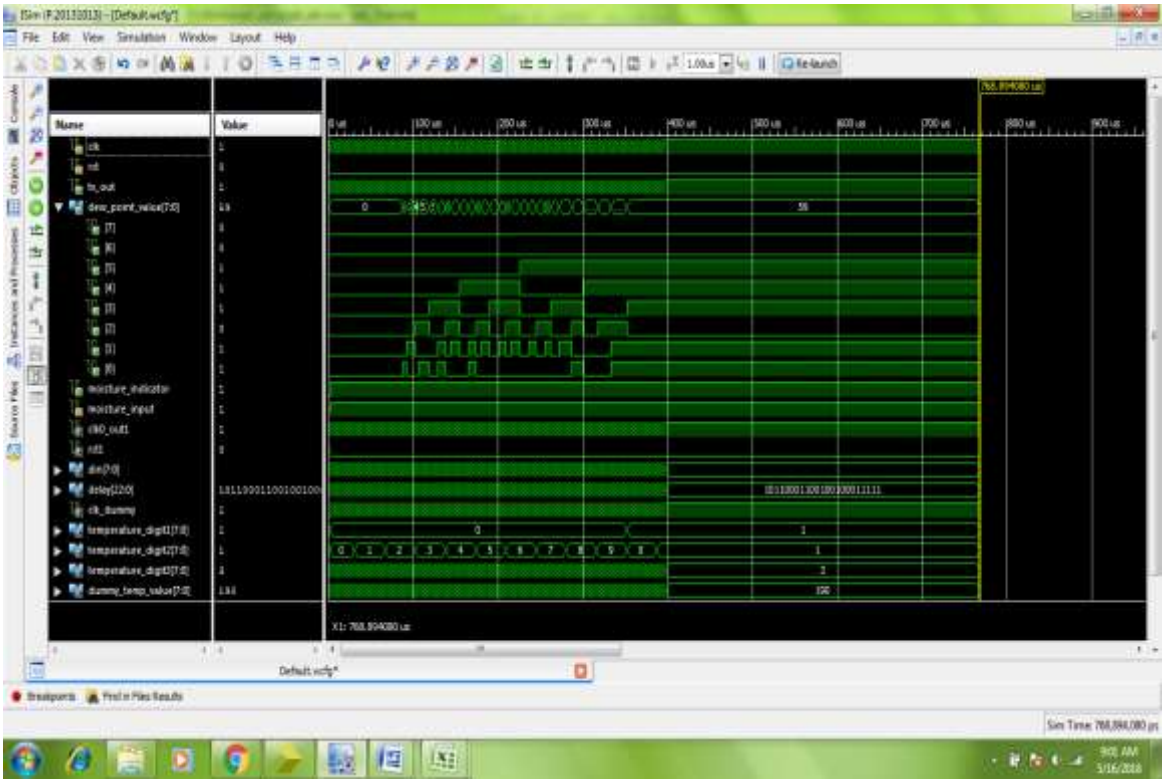
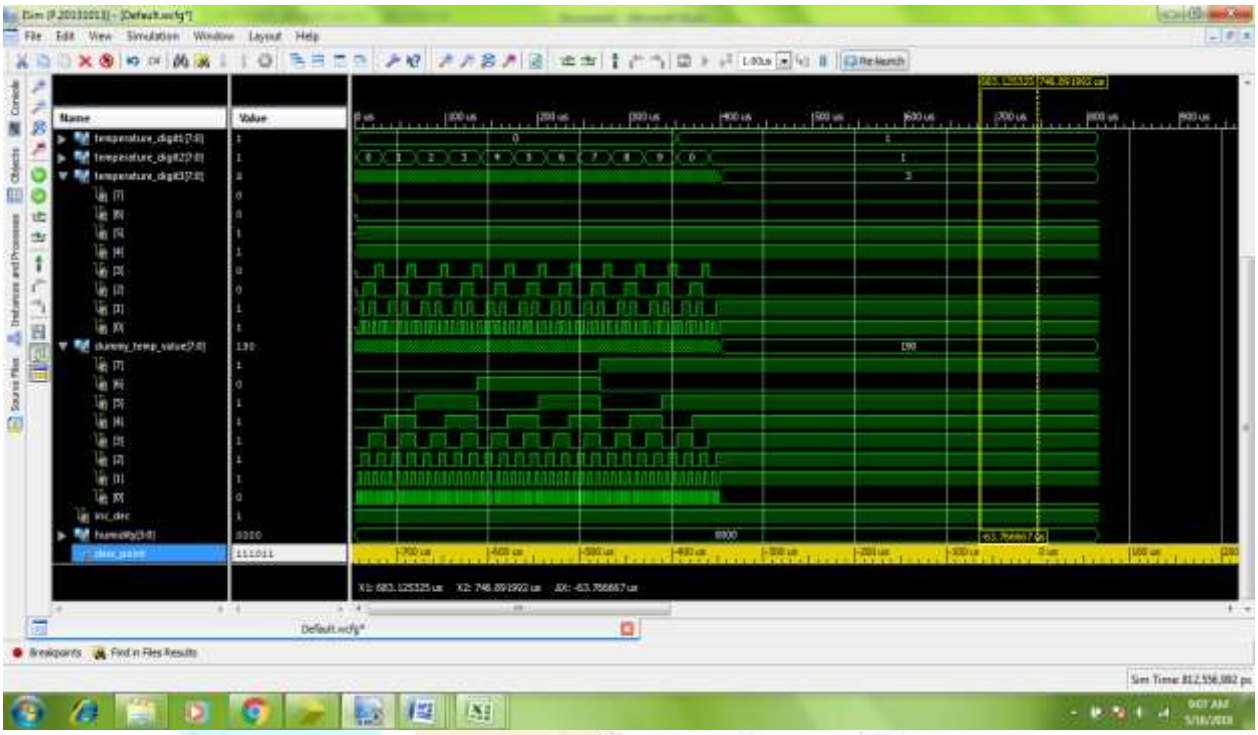
In this paper presents the designing and analysis of various factos which are important in irrigation system.

Simulation Result



Simulation 1



Simulation 2

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