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ABSTRACT

Controlling in irrigation is done by microcontroller and sensors.

It's comprised from microcontroller (atmega32), soil moisture sensor, temperature sensor, solenoid valve, sprinklers and rain expectations sensors. And it's a program of geographical information done by the internet. The soil moisture sensor measures the moisture of soil and its output is considered as an input to microcontroller which compares it with the less value of soil moisture that preserves plants growing. When it equals the less value or it is less than it, the microcontroller reads the output of rain expectations which is a photo of rainy clouds taken by satellites. If there is no pictures of white clouds that has been captured the valve is opened for irrigation and if it's captured the valve is closed for the coming rain. The irrigation sprinklers give a high productivity and provide a great deal of water compared by traditional irrigation.

المستخلص

التحكم في الري الزراعي بواسطة المتحكم الدقيق والمتحسسات . يتكون من متحكم دقيق (atmega32) ، حساس رطوبة التربة ، حساس درجة الحرارة ، الصمام ، الرشاشات و متحسس توقعات الامطار (نظام المعلومات الجغرافية عبر الانترنت) . يعمل حساس رطوبة التربة علي قياس رطوبة التربة وخرجه عبارة عن دخل للمتحكم الدقيق يعمل علي مقارنته مع أقل قيمة لرطوبة التربة التي تحافظ علي نمو النبات ، اذا ساوت هذه القيمة او قلة منها يقوم المتحكم الدقيق بقراءت خرج توقعات الامطار عبارة عن صورة للسحب الممطرة تأخذ بواسطة الاقمار الصناعية ، اذا لم يتم رصد صورة لسحب بيضاء يتم فتح الصمام للري وعند رصدها يقفل الصمام وينتظر هطول الامطار . الري باستخدام الرشاشات يعطي انتاجية أعلى و يوفر قدر كبير من المياه مقارنة بالري التقليدي.

TABLE OF CONTENTS

الاستهلال.....	
الإهداء.....	I
ACKNOWLEDGMENT.....	II
ABSTRACT.....	III
المستخلص.....	IV
TABLE OF CONTENTS	V
list of tables	VIII
list of figurer	IX
list of abbreviation.....	X
chapter One.....	<u>1</u>
INTRODUCTION.....	١
1.1- Back Ground	٢
1.2- problem statement	3
1.3-Proposed solution.....	٣
1.4- objective.....	٣
1.6 Methodology	٤
1.5- Research Outline.....	٤
Chpter tow	٥
2. LITERATURE review	٥

2.1-Back Ground.....	٦
2.2-Related Work.....	٦
Chapter thre	١٠
hardwaer disgn.....	١٠
3.1-Components of Circuit	١١
3.1.3-Soil Temperature	١٥
3.1.4- Switching Logics	١٦
3.1.5-Solenoid Valve:	١٨
3.1.6- Liquid Crystal Display	١٩
3.1.7-Power Supply	٢٠
3.1.8-Rain expectations:.....	٢٠
3.2-How the System Works	٢٠
chapter four	٢٣
4. SOFTWAEr.....	٢٣
4.1-Overview	٢٤
4.2 Flowchart.....	٢٦
Chapter five	٢٧
result and discuses.....	٢٧
5.1 Overview.....	٢٨
5.2 Results of Soil Moistures Sensor:	٢٩
5.3 Results of forecast rain	٣٠
Figure 5.3 photo of cloud by satellite	٣١
-The color of cloud is white this mean that forecast rain.....	٣١
5.4 -Results of Switch Logic.....	٣١
Chapter six	٣٣
Conclusion and Recommendation	٣٣
6.1 Conclusion.....	٣٤

6.2 Recommendation ۳۵

References: ۳۶

APPENDICES ۳۷

LIST OF TABLES

Table (5.1) Measurement Moisture Soil In One Day	29
Table (5.2) Read Of Sensor In One Day.....	32

LIST OF FIGURE

figure3 1 Block diagram of Microcontroller based irrigation system	12
figure3 2 Pin out ATmega32	14
figure3 3 Soil moisture sensor	15
figure3 4 photo of Relay Board	17
figure3 5 solenoid valve	19
Figure 5.1 system design	28
Figure 5.2 measurement of moisture sensor soil	30
Figure 5.3 photo of cloud by satellite	31
Figure 5.4 measurement moisture soils	32

LIST OF ABBREVIATION

LCD :	liquid crystal display.
LED:	light emitted diode
BUS:	base station unit.
VU:	valve unit.
SU:	sensor unit.
GSM:	global system for Mobil communications.
SMS:	short message service.
CMOS:	completer metal oxide semiconductor.
RISC:	reduced instruction set computing.
MIPS:	million instructions per second.
EEPROM:	electrical erasable programmable read only memory.
SRM:	static read memory.
JTAG:	joint test action group.
ADC:	analog digital.
USART:	universal synchronous a synchronous receiver/transmit
SPI:	serial peripheral interface
TQFP:	thin quad flat pack.
GIS:	geographic information system.
WFV:	water fraction by volume