

بسم الله الرحمن الرحيم

Sudan University of Science & Technology
Collage of Graduate Studies

M.sc Program In MECHATRONIC Engineering

**Designing An Automatic Irrigation System Of
Plants**

تصميم نظام الري الآلي للنبات

Thesis in partial fulfillment of the requirement for the degree
of master and science in mechatronic engineer

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بِسْمِ اللَّهِ الرَّحْمَنِ

الرَّحِيمِ

أُولَئِكَ الَّذِينَ كَفَرُوا أَنَّ السَّمَاوَاتِ وَالْأَرْضَ
كَانَتَا رَتْقًا فَفَتَقْنَاهُمَا ۖ وَجَعَلْنَا مِنَ الْمَاءِ كُلَّ شَيْءٍ
حَيٍّ ۖ أَفَلَا يُؤْمِنُونَ (30)

ص ٩:٥٢

DEDICATION

To my father

The first resource of inspiration he had recourse of caring and mercy (god bless him) he once was my guide teacher may Allah mercy up on his self.

To my beloved mother

Resource of clemency and kindness, she supported me with her supplications and prayers.

To my lovely wife

My partner who always supported our living in order to seek and research.

To my supervisor D/mohd. Elnour

For the unlimited efforts that he undertook with patience, he provided me to go forward with magnificent advices and experience may through seeking and more research.

Acknowledgments

I am very grateful to all my teachers at Sudan University for Science and Technology College, who have taught me the skills for this work. I am very thankful to my supervisor, who has been very cooperative and understanding. And, I would like to thank the authors who write nice scientific books and articles which are a source of knowledge for many people.

Abstract

Irrigations of plants is usually time-consuming activity to be done in a reasonable of time, it require a large amount of human resources therefore loss of time and high cost. Herein we introduce automatic plant watering system, which is considered as one of the most commonly used and the most beneficial-automated systems nowadays, which help people in their daily activities by reducing or completely replacing their effort. An automatic irrigation system has been designed from two sensors, after testing it gave good results.

In this project scientific method has been followed to finish the design , firstly the data has been collected to determine the optimum design, then materials data has been collected to ensure choosing correct ones, the simulation has been done then design is finished according to simulation results.

المستخلص

الري الاصطناعي للحقول عادة يعتبر من المسائل التي تستهلك الزمن وتحتاج لكمية كبيرة من الموارد البشرية وبالتالي تكلفة كبيرة . ولذا كان الهدف من المشروع تصميم نظام الى للري الاصطناعي لانه من اكثر الوسائل المستخدمة حاليا ويساعد الناس في النشاط اليومي وتوفير الجهد .
تم تصميم نموذج نظام الى للري الصناعي يتكون من حساس تربة وحساس لقياس مستوى المياه في الخزان ، وبعد الاختبار تم الحصول على نتائج جيدة.
في هذا البحث تم اتباع المنهج العلمي لاكمال التصميم ، تم اولا جمع البيانات لتحديد التصميم الامثل ، كما اختيرت المواد المكونة بعناية لضمان الاختيار المناسب ، وكذلك تم عمل المحاكاة واخيرا تم اكمال التصميم النهائي وفقا لنتائج المحاكاة.

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