University of Khartoum

Faculty of Engineering

Department of Electrical and Electronic Engineering

Title of your thesis size 18

A thesis submitted in partial fulfillment of the requirements of the B.Sc. degree in Electrical and Electronic Engineering

Submitted by

Full-name1 (IndexNumber-1)

Full-name2 (IndexNumber-2)

Supervised by

Supervisor's Name

November 2021

الآية

Dedication

This page optional: you can dedicate the work to someone (or a group of people) who are close to you, e.g. your parents, etc

Acknowledgements

You should acknowledge on those individuals who had contributed to this work, e.g. your supervisor and those who provided you with data or discussed some aspects of the project with you. Don't include your parents and the likes

المستخلص

Abstract

The abstract is a short summary of the work you did. It should be one paragraph, with a number of sentences. Should not exceed one page. The Abstract should include a (1) brief introduction (few lines), (2) the objective, (3) a summary of the methodology and (4) summary of your results. The Abstract should not include citations to references.

Table of Contents

List of Figures

List of Tables

Chapter One

Introduction

This chapter should not more than two and a half pages. The sections are as follows:

1.1 Overview

A brief overview of the subject you are studying (less than Half a page)

1.2 Problem Statement

The problem you are studying. Why do you need to study this area, and the reason for the study (less than half a page).

1.3 Objectives

Clearly mention the objectives (few lines- brief and concise)

1.4 Methodology

Summarize the methodology you will follow in this work

1.5 Layout of the Thesis

Describe the remaining chapters. Starting from Chapter 2. This section should be written in one paragraph. It should not be more than 6 or 7 lines.

Chapter Two

Literature Review

2.1 Introduction

This chapter should include the following:
The Theoretical background
A review of the research that has been conducted by other researchers in this field.

2.2 Figures

To help you generate the figures in the list of figures, use the format of the figure below. This will automatically populate the figures into the List of Figures. Note that the caption of the figure should be BELOW the figure
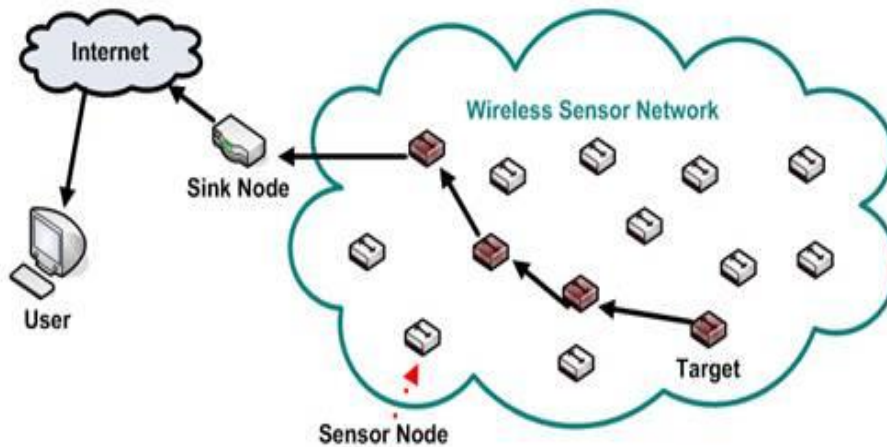

Figure 2.1: An example of wireless sensor networks.

2.3 References

Use the format provided in this report. You refer to the reference by number as e.g [1]. To help you control the references, use Insert/Cross Reference and then select the reference number you need.

Chapter Three

Methodology

3.1 Introduction

This chapter describes the work you did. Describe the tools you used. The scenarios, the network you build and the equations you derived.

3.2 Equations

Make sure the equations are clear. Please type your equations and DO NOT copy from a PDF file. All equations MUST be numbered. You refer to the equation using Eq. (3.1).

$$d_{ki} = \sqrt{(x_k - x_i)^2 + (y_k - y_i)^2}$$

(3.1)

Chapter Four

Results &discussions

Show the results you obtained. And discuss the results. Tell us about the significance of the results. Discuss how do your results compare with other researchers. Discuss what do the graphs mean and table mean.

Do not show graphs without discussing them

4.1 XXXX-1

Examples of subtitles

4.1.1 Sub-1

Example of layer 2 sub-subtitle – see h

4.1.2 Sub-sub-1

Example of layer 2 sub-subtitle – see table of contents

4.2 XXXX-2

Examples of subtitles

4.3 Tables

Use the format below to make sure the data is correctly populated in the table

Table 4.1. Summary of the number of minimum number sensors and achieved, target is 70%.

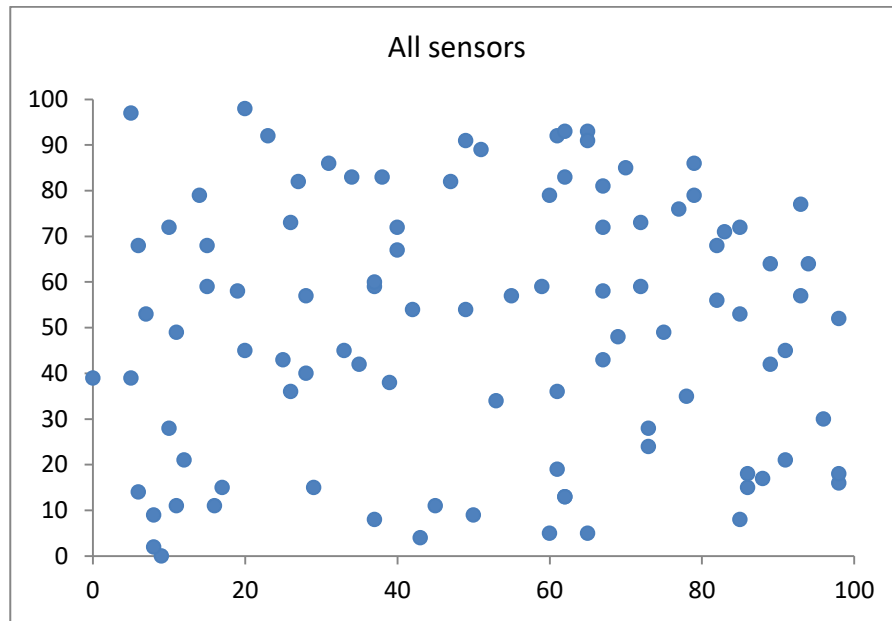| Sets of WSN	Number of WSN	Percent Coverage Cells	Run Time
First	27	71.63%	
Second	28	70.32%	10.75 mins
Third	45	64.07%	

More figures

Figure 4.1. The locations of a set of 100 wireless sensors

Another table:

Table 4.4. The number sets of WSNs selected and coverage achieved, target Coverage is 70%.

Number Sets of WSN	Number of WSN	Percent Coverage Cells	Run Time
First	26	70.76%	
Second	29	70.65%	04.42 mins
Third	41	67.05%	
Fourth	4	10.17%	

Figures 4.19, 4.20, 4.21 & 4.22 represent locations of selected sensors, noted first set has 26 sensors cover is 70.76%, second set has 29 sensors cover is 70.65%, third set has 41sensors cover is 67.05% ; because high effect of overlap. The last set has 4 sensors; because cover same cells was covered by other sensor.
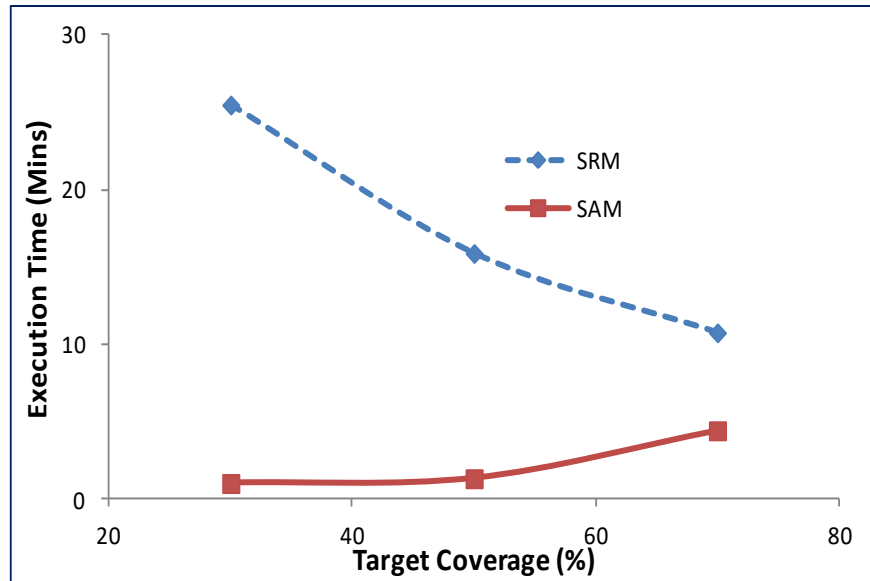
Figure 4.39: Comparison of execution time using the SAM and SRM

Chapter Five

Conclusions and Recommendations

This chapter should not be more than one and a half page long

5.1 Conclusions

List your conclusions

5.2 Recommendations

- List the recommendations for future work

References

[1] Ning Jin, Renzhi Ma,Yunfeng Lv, Xizhong Lou & Qingjian Wei, "A novel design of water environment monitoring system based on WSN", International Conference On Computer Design and Applications, Qinhuangdao, China, 2010.

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[12] Liqi Shi & Abraham O. Fapojuwo,"TDMA Scheduling with Optimized Energy Efficiency and minimum delay in Clustered Wireless Sensor Networks", IEEE Transaction on Mobile Computing, July, 2010.

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[14] Ruchi Aggarwal, Anupam Mittal & Ramandeep Kaur,"Various Optimization Techniques Used in Wireless Sensor Networks", International Research Journal of Engineering & Technology (IRJET), June, 2016.

Appendix A- xxxx

See the numbering for the appendices. If you have more than one appendix, the numbering for the second should be B-1, B-2 etc, then C-1, C2,