

THESIS TITLE

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April 29, 2016

Submitted in partial fulfillment of the requirements of the
Degree Program

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Acronyms

IP Internet Protocol

QoS Quality of Service

RAM Random Access Memory

ROM Read Only Memory

List of Algorithms

1	Protocol 1 - Mother Mote	5
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Chapter 1

Introduction

Introduction page. Some of the key usages of latex are,

- List items
- Graphs
- Algorithms
- Tables
- And many others

Additional Description

1.1 Next Section

Random access Memory(RAM) is the way to add acronyms.

Wireless Sensor Networks are being used in different applications[1]. This is the way to add citations.

This is how you add images. Figure 1.1 is the way to refer the figure.

1.1.1 Sub section

Text

Sensor motes are the main devices used to build sensor networks. These devices will cost over \$100 ¹².This is the way to add footnotes

¹CM5000 TelosB: <http://www.advanticsys.com/shop/mtmcm5000msp-p-14.html>

²Tmote Sky: <https://telosbsensors.wordpress.com/2013/04/26/why-buying-a-tmote-sky/>



Figure 1.1: Sample Image

Chapter 2

Background

2.1 section

Add background details.
This is a sample table.

Table 2.1: MAC Protocol comparison

Name	Implemented	Applications	Synch. requirement	Overhead
S-MAC	Hardware	Event-driven, long idle periods, delay order of message time	Loose	RTS, CTS, ACK, SYNC
B-MAC	Simulation/hardware	Delay tolerant	None	Preamble
PW-MAC	Hardware	Low delay, long idle periods	None	Beacon
LEACH	Simulation	Periodic data collection and monitoring	Tight	ADV, Join-Req, schedule
Pedamacs	Simulation	Delay bounded	Tight	RTS, CTS, ACK, Synch, topology learning
PRIMA	Simulation	Different QoS	Tight	Synch, Schedule, CH election
IEEE 802.11	Simulation/hardware	High data rates, large energy source, smart terminals	None	RTS, CTS, ACK
IEEE 802.15.1	Simulation/hardware	Medium to low data rates, low-energy consumption	Tight	Synch transmissions, S, C
IEEE 802.15.4	Simulation/hardware	Medium to low data rates, low-energy consumption	Tight	Beacon, ACK
WirelessHART	Simulation/hardware	Process automation	Tight	Synch, schedule, routing, other
ISA100a	Simulation/hardware	Process automation	Tight	Synch, schedule, routing,



(b) Image two

Figure 2.1: Image set

Chapter 3

Design

Sample Equation

Total time for a data cycle can be written as following.

$$T_{total} = T_{data_request} + T_{data_reply} + T_{sleep_delay} \quad (3.1)$$

Sample Algorithm

Algorithm 1 Protocol 1 - Mother Mote

```
1: procedure MOTHERMOTE
2:   while TRUE do
3:     for  $\forall nodeId \in NodeList$  do
4:       BROADCASTREADINGREQUEST(nodeId)
5:       while channelIsClear & listenTime  $\leq$  BACKOFF_TIME do
6:         listen
7:       end while
8:       if listenTime > BACKOFF_TIME then
9:         continue
10:      end if
11:    end for
12:  end while
13: end procedure
```

Chapter 4

Implementation

Implementation details.

Chapter 5

Evaluation

Evaluation chapter text.

Chapter 6

Conclusion and Future Work

6.1 Conclusion

Simple conclusion.

6.2 Future Work

Future work description.

References

- [1] M. A. Ameen, S. M. R. Islam, and K. S. Kwak, “Energy saving mechanisms for mac protocols in wireless sensor networks.,” *International Journal of Distributed Sensor Networks*, vol. 2010, 2010.