**TITLE OF THE THESIS**

**A Degree Thesis**

**Submitted to the Faculty of the**

**Escola Tècnica d'Enginyeria de Telecomunicació de Barcelona**

**Universitat Politècnica de Catalunya**

**by**

**Student's name**

**In partial fulfilment**

**of the requirements for the degree in**

*(Write the name of your Degree)* **ENGINEERING**

**Advisor: name of the advisor**

**Barcelona, June 2014**

Abstract

Every copy of the thesis must have an abstract. An abstract must provide a concise summary of the thesis. In style, the abstract should be a miniature version of the thesis: short introduction, a summary of the results, conclusions or main arguments presented in the thesis. The abstract may not exceed 150 words for a Degree’s thesis.

Resum

Translate abstract to Catalan

Resumen

Translate abstract to Spanish

Dedication: A Dedication page may be included in your thesis just before the Acknowledgments page, but it is not a requirement.

Acknowledgements

It is appropriate, but not mandatory, to declare the extent to which assistance has been given by members of the staff, fellow students, technicians or others in the collection of materials and data, the design and construction of apparatus, the performance of experiments, the analysis of data, and the preparation of the thesis (including editorial help). In addition, it is appropriate to recognize the supervision and advice given by your advisor.

Revision history and approval record

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List of Tables:

Each table in the thesis must be listed in the “List of Tables” and each must be given a page number for its easy location.

# Introduction

An Introduction that clearly states the rationale of the thesis that includes:

1. Statement of purpose (objectives).
2. Requirements and specifications.
3. Methods and procedures, citing if this work is a continuation of another project or it uses applications, algorithms, software or hardware previously developed by other authors.
4. Work plan with tasks, milestones and a Gantt diagram.
5. Description of the deviations from the initial plan and incidences that may have occurred.

The minimum chapters that this thesis document should have are described below, nevertheless they can have different names and more chapters can be added.

## Topic

## Topic

# State of the art of the technology used or applied in this thesis:

A background, comprehensive review of the literature is required. This is known as the Review of Literature and should include relevant, recent research that has been done on the subject matter.

## Topic

## Topic

# Methodology / project development:

The Methodology is included in this chapter and should include all relevant methods that were utilized as well as research methods and measurements, software and hardware development, ...

# Results

This should include your data analysis and findings

# Budget

Depending on the thesis scope this document should include:

* Components list with approximate costs (prototype)
* Design and prototyping costs separate by main tasks (hours person x cost)
* Economic and/or financial viability analysis

If the object of the thesis is not a prototype at least you should include in this section an estimation of the number of hours you have dedicated to the thesis, evaluated at cost of junior engineer.

If you have used a specific software you should also include the license and amortization costs.

# Environment Impact (Optional)

Whether the tasks that have led to the realization of this thesis, as if its results have identifiable environmental impact, describe it in this section.

The impact can be negative (environmental cost), positive (solution that improves the environmental impact of other projects) or both.

# Conclusions and future development:

This should include your summary, conclusions and recommendations.

Bibliography:

A thorough reference list as in the following examples: Conference paper [1], journal paper [2], book [3], standard-1 [4], standard-2 [5], online reference [6], patent [7], M.S. thesis [8] and Ph.D. dissertation [9].

1. J. Polastre, R. Szewczyk, D. Culler. "Telos: enabling ultra-low power wireless research". *In Proceedings of the Fourth International Symposium on Information Processing in Sensor Networks, IPSN 2005*, 25-27 April 2005, Los Angeles, USA. pp. 364-369. doi: 10.1109/IPSN.2005.1440950.
2. V.C. Gungor, B. Lu, G.P. Hancke. "Opportunities and challenges of Wireless Sensor Networks in Smart Grid". *IEEE Transactions on Industrial Electronics*, vol. 56, no. 10, pp. 3557-3564, October 2010. DOI: 10.1109/TIE.2009.2039455.
3. R. Faludi. *Building Wireless Sensor Networks: with ZigBee, XBee, Arduino, and Processing*, 1st ed. Sebastopol, USA: O'Reilly Media, 2010.
4. *Internet Protocol, Version 6 (IPv6) Specification*. IETF RFC 2460, December 1998.
5. *IEEE Standard for Information technology. Telecommunications and information exchange between systems Local and metropolitan area networks. Specific requirements. Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications*. IEEE Std 802.11-2012.
6. T. Tarun, P. Viswanathan, S. Suman. "Wireless Sensor Network White Paper". *Tetcos Engineering*, 2012. [Online] Available: http://www.tetcos.com/Enhancing\_Throughput\_of\_WSNs.pdf. [Accessed: 23 October 2012].
7. J. P. Wilkinson, “Nonlinear resonant circuit devices,” U.S. Patent 3 624 125, July 16, 1990.
8. M.V. Alvarez Fernández. "Feasibility study and design for Wireless Sensor Networks in a space environment". M.S. thesis, Faculty of Electrical Engineering, Mathematics and Computer Science, Delft University of Technology, Delft, The Netherlands, 2011.
9. J. O. Williams, “Narrow-band analyzer,” Ph.D. dissertation, Department of Electrical Engineering, Harvard University, Cambridge, MA, USA,1993.

Appendices (optional):

Appendices may be included in your thesis but it is not a requirement.

Glossary

A list of all acronyms and the meaning they stand for.