

Abstract

A long, long time ago...

This section should summarize the content of the dissertation, namely: explain the context of problem, describe the problem itself and address the work done to mitigate/solve the problem. Results and/or contributions should be mentioned.

Resumo

Há muito, muito tempo

See the Abstract.

Agradecimentos

Obrigado a todos, obrigado ...

Dedico a ...

Conteúdo

Abstract	i
Resumo	iii
Agradecimentos	v
Conteúdo	viii
Lista de Tabelas	ix
Lista de Figuras	xi
Lista de Blocos de Código	xiii
Acrónimos	xv
1 Introdução	1
1.1 Organização	1
2 Background	3
2.1 Before Starting	3
2.2 Bibliography	3
2.2.1 Bibliography Section	4
2.3 Inserts	4
2.3.1 Copyrights and image usage	4
2.4 Chapters/Organization	4

2.4.1	Contents of each chapter	6
3	Estado da Arte	7
3.1	Section example	7
3.2	Second Section example	8
3.2.1	SubSection example	8
4	Desenho e Desenvolvimento	11
4.1	Exemplo de código	11
4.2	Acrónimos	11
4.3	Figuras	12
4.3.1	Formato	12
4.4	Referências a bibliografia	12
4.5	Capa	13
4.6	Tabelas	13
4.7	Unidades	13
4.8	Sugestões na escrita e uso do tex	13
4.9	Sugestões na escrita	14
4.10	Referências para outras fontes de informação	14
5	Experiências e Testes	17
6	Resultados e análise	19
7	Conclusões	21
7.1	Trabalho Futuro	21
	Bibliografia	23

Lista de Tabelas

4.1	BSN vs WSN	14
4.2	Sensor examples	15

Lista de Figuras

4.1	FCUP logo velho	12
-----	---------------------------	----

Lista de Blocos de Código

4.1	CommandDaemonCallsItf	11
4.2	Capas tese	13

Acrónimos

BS	Base Station	HTTP	Hypertext Transfer Protocol
BSN	Body Sensor Network	MRI	Magnetic Resonance Imaging
DCC	Departamento de Ciência de Computadores	TCP	Transmission Control Protocol
ECG	ElectroCardioGram	UDP	User Datagram Protocol
FCUP	Faculdade de Ciências da Universidade do Porto	USA	United States of America

Capítulo 1

Introdução

Este template pretende dar uma base para a escrita de dissertações no Departamento de Ciência de Computadores (**DCC**)/Faculdade de Ciências da Universidade do Porto (**FCUP**).

1.1 Organização

Vejam o capítulo 2 para algum contexto sobre o conteúdo de uma dissertação. O capítulo 4 tem alguns pontos sobre o uso do L^AT_EX e ao longo do texto são utilizados alguns exemplos para mostrar algumas das funcionalidades.

Capítulo 2

Background

This chapter has the “Instructions for preparing and writing M.Sc. Dissertations” (Research-oriented work), Version 1.0, January, 7th, 2015 from prof. Inês Dutra. It was originally written in English so it was kept as such. It was some additions from Pedro Brandão.

2.1 Before Starting

Before starting your dissertation, you need to **define** what is the subject you are going to work with and perform a **thorough systematic** bibliography review of the theme you chose. What is a systematic review? It is the one where you search the web or books for the subject, and define rules for filtering papers in two sets “included” and “excluded” and explain why some papers go to one set or the other. In order to start the search, you need to prepare keywords related to your subject and prepare queries to be used in Google Scholar, Scopus, MesH etc. These search engines will return a number of papers on the subject you are looking for. **You need to read at least the abstract and conclusions of every paper retrieved after your search.** Now, you filter out only the ones you think are very closely related to your research work, and give a reason for choosing those papers.

2.2 Bibliography

Start organizing your bibliography file. Choose one of the standards available to start organizing your references. Usually your department/faculty has clear rules about the standard to be used. If you are formatting your text using L^AT_EX, most references found during your bibliographic search can be exported in BibTeX format.

2.2.1 Bibliography Section

Your dissertation needs to have a Bibliography Section with a list of the cited works you have in the text. In the process of writing your dissertation, make sure to properly refer the authors you are basing your text on. For example, “Yaacoub et al. [7] discovered that...”. In this sentence, Yaacoub is the first author of one of the publications you list in the Bibliography Section of your dissertation and [7] is the link that connects this citation to the publication in the bibliographic list. If your bibliographic entry has only one author, you cite only the author’s surname. If the bibliographic entry has two authors you cite the two authors’ surnames (e.g., Clausen and Jacquet [2]). If the bibliographic entry has more than two authors, you can use the expression “et al.”, like in the example shown before.

You should avoid as much as possible web site references. Only in some cases, illustration, showing trends, are they acceptable.

References should be used to back up claims made. Specially in the introduction section, sentences that stipulate something should be backed by references that assert that claim (e.g.: Android, in December 2016, was the most widely used mobile operating system [4]¹

2.3 Inserts

Every picture, graph, diagram, algorithm etc needs to have a caption and a number and needs to be cited and explained in the text. The mere existence of a picture, etc. does not exempt it of a description.

2.3.1 Copyrights and image usage

If you want to use any picture, graph, diagram etc available in one of the publications in your dissertation, you need to make sure that you can use it (check the copyright rules). If the copyright rules allow you to reproduce the picture (or others) in your text, you need to insert a reference to the source (where the picture was taken from) in the caption. If you are allowed to use a picture, but want to slightly modify it, you need to say in the caption: Adapted from [1] (where [1] is the number of your reference in the Bibliographic Section).

2.4 Chapters/Organization

Chapter 1: Introduction: This should be a summary of what comes in the next chapters.

Here you explain in two to five pages: (1) the context of your work highlighting and defining

¹An example where a web link to a recognized market analysis company would be valid. Note that the time which the report was seen is very relevant.

the problem you need to solve, (2) what you want to do (objectives) and (2) why you want to do it (motivation), (3) how you want to achieve your objectives (methodology), always supporting your text on the available literature, (4) contributions (Results that confirm that you achieved your objectives) and (5) organization of the chapters that come next.

Chapter 2: Basic Concepts: In this chapter you need to present the foundations of your work: theoretical aspects, background material etc, all that is needed to understand the terminology and expressions used in the remaining chapters.

Chapter 3: Related Work: Here you need to discuss about other works in the literature that do something similar to what you want to do. You need to cite and discuss the relevant papers you chose to include in your study during your survey. Explain what others do, why it is not sufficient, and why you need to do what you want to do. It is helpful to define some criteria to compare your work against others, and build a table with main characteristics of other works contrasting to what you want to do. In other words, in which aspects is your work different from others?

Chapter 4: Your Work: this chapter describes the contributions of the work done. If it is based on prior work (continuation of the project or using prior developed work), the should only describe what is the new work done. If references are needed, it should be clear what is the prior work and what is the new contribution.

Chapter 5: Materials and Methods: should have:

- Definition of Experiments (if any)
- Definition of Evaluation Metrics

Chapter 6: Results and Analysis

Chapter 7: Conclusions and Future work: this should restate the problem and iterate through the solution(s) analyzing the advantages and contributions. The limitations and unsolved problems should also be described. It should also describe the potentiality of new research/development that the work enables, the future work.

- Research Summary
- Main Findings
- Limitations
- Future Work
- Conclusion

During writing, some of these chapters may collapse into just one. **Your work (chapters 4-7) should account for at least 50% of your whole dissertation.**

2.4.1 Contents of each chapter

You should start each chapter with a summary of it is its objective and contents, preferably relating to previous ones. At the end of the chapter provide a conclusion/summary of it, preferably connecting it to the next one.

Capítulo 3

Estado da Arte

Sem conteúdo relevante, apenas com texto para ocupar o espaço.

3.1 Section example

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nonummy eget, consectetur id, vulputate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Mauris ut leo. Cras viverra metus rhoncus sem. Nulla et lectus vestibulum urna fringilla ultrices. Phasellus eu tellus sit amet tortor gravida placerat. Integer sapien est, iaculis in, pretium quis, viverra ac, nunc. Praesent eget sem vel leo ultrices bibendum. Aenean faucibus. Morbi dolor nulla, malesuada eu, pulvinar at, mollis ac, nulla. Curabitur auctor semper nulla. Donec varius orci eget risus. Duis nibh mi, congue eu, accumsan eleifend, sagittis quis, diam. Duis eget orci sit amet orci dignissim rutrum.

Nam dui ligula, fringilla a, euismod sodales, sollicitudin vel, wisi. Morbi auctor lorem non justo. Nam lacus libero, pretium at, lobortis vitae, ultricies et, tellus. Donec aliquet, tortor sed accumsan bibendum, erat ligula aliquet magna, vitae ornare odio metus a mi. Morbi ac orci et nisl hendrerit mollis. Suspendisse ut massa. Cras nec ante. Pellentesque a nulla. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Aliquam tincidunt urna. Nulla ullamcorper vestibulum turpis. Pellentesque cursus luctus mauris.

Nulla malesuada porttitor diam. Donec felis erat, congue non, volutpat at, tincidunt tristique, libero. Vivamus viverra fermentum felis. Donec nonummy pellentesque ante. Phasellus adipiscing semper elit. Proin fermentum massa ac quam. Sed diam turpis, molestie vitae, placerat a, molestie nec, leo. Maecenas lacinia. Nam ipsum ligula, eleifend at, accumsan nec, suscipit a, ipsum. Morbi blandit ligula feugiat magna. Nunc eleifend consequat lorem. Sed lacinia nulla vitae enim. Pellentesque tincidunt purus vel magna. Integer non enim. Praesent euismod nunc eu purus. Donec bibendum quam in tellus. Nullam cursus pulvinar lectus. Donec et mi. Nam

vulputate metus eu enim. Vestibulum pellentesque felis eu massa.

Quisque ullamcorper placerat ipsum. Cras nibh. Morbi vel justo vitae lacus tincidunt ultrices. Lorem ipsum dolor sit amet, consectetur adipiscing elit. In hac habitasse platea dictumst. Integer tempus convallis augue. Etiam facilisis. Nunc elementum fermentum wisi. Aenean placerat. Ut imperdiet, enim sed gravida sollicitudin, felis odio placerat quam, ac pulvinar elit purus eget enim. Nunc vitae tortor. Proin tempus nibh sit amet nisl. Vivamus quis tortor vitae risus porta vehicula.

Fusce mauris. Vestibulum luctus nibh at lectus. Sed bibendum, nulla a faucibus semper, leo velit ultricies tellus, ac venenatis arcu wisi vel nisl. Vestibulum diam. Aliquam pellentesque, augue quis sagittis posuere, turpis lacus congue quam, in hendrerit risus eros eget felis. Maecenas eget erat in sapien mattis porttitor. Vestibulum porttitor. Nulla facilisi. Sed a turpis eu lacus commodo facilisis. Morbi fringilla, wisi in dignissim interdum, justo lectus sagittis dui, et vehicula libero dui cursus dui. Mauris tempor ligula sed lacus. Duis cursus enim ut augue. Cras ac magna. Cras nulla. Nulla egestas. Curabitur a leo. Quisque egestas wisi eget nunc. Nam feugiat lacus vel est. Curabitur consectetur.

Suspendisse vel felis. Ut lorem lorem, interdum eu, tincidunt sit amet, laoreet vitae, arcu. Aenean faucibus pede eu ante. Praesent enim elit, rutrum at, molestie non, nonummy vel, nisl. Ut lectus eros, malesuada sit amet, fermentum eu, sodales cursus, magna. Donec eu purus. Quisque vehicula, urna sed ultricies auctor, pede lorem egestas dui, et convallis elit erat sed nulla. Donec luctus. Curabitur et nunc. Aliquam dolor odio, commodo pretium, ultricies non, pharetra in, velit. Integer arcu est, nonummy in, fermentum faucibus, egestas vel, odio.

3.2 Second Section example

3.2.1 SubSection example

Sed commodo posuere pede. Mauris ut est. Ut quis purus. Sed ac odio. Sed vehicula hendrerit sem. Duis non odio. Morbi ut dui. Sed accumsan risus eget odio. In hac habitasse platea dictumst. Pellentesque non elit. Fusce sed justo eu urna porta tincidunt. Mauris felis odio, sollicitudin sed, volutpat a, ornare ac, erat. Morbi quis dolor. Donec pellentesque, erat ac sagittis semper, nunc dui lobortis purus, quis congue purus metus ultricies tellus. Proin et quam. Class aptent taciti sociosqu ad litora torquent per conubia nostra, per inceptos hymenaeos. Praesent sapien turpis, fermentum vel, eleifend faucibus, vehicula eu, lacus.

Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Donec odio elit, dictum in, hendrerit sit amet, egestas sed, leo. Praesent feugiat sapien aliquet odio. Integer vitae justo. Aliquam vestibulum fringilla lorem. Sed neque lectus, consectetur at, consectetur sed, eleifend ac, lectus. Nulla facilisi. Pellentesque eget lectus. Proin eu metus. Sed porttitor. In hac habitasse platea dictumst. Suspendisse eu lectus. Ut mi mi, lacinia sit amet,

placerat et, mollis vitae, dui. Sed ante tellus, tristique ut, iaculis eu, malesuada ac, dui. Mauris nibh leo, facilisis non, adipiscing quis, ultrices a, dui.

Morbi luctus, wisi viverra faucibus pretium, nibh est placerat odio, nec commodo wisi enim eget quam. Quisque libero justo, consectetur a, feugiat vitae, porttitor eu, libero. Suspendisse sed mauris vitae elit sollicitudin malesuada. Maecenas ultricies eros sit amet ante. Ut venenatis velit. Maecenas sed mi eget dui varius euismod. Phasellus aliquet volutpat odio. Vestibulum ante ipsum primis in faucibus orci luctus et ultrices posuere cubilia Curae; Pellentesque sit amet pede ac sem eleifend consectetur. Nullam elementum, urna vel imperdiet sodales, elit ipsum pharetra ligula, ac pretium ante justo a nulla. Curabitur tristique arcu eu metus. Vestibulum lectus. Proin mauris. Proin eu nunc eu urna hendrerit faucibus. Aliquam auctor, pede consequat laoreet varius, eros tellus scelerisque quam, pellentesque hendrerit ipsum dolor sed augue. Nulla nec lacus.

Suspendisse vitae elit. Aliquam arcu neque, ornare in, ullamcorper quis, commodo eu, libero. Fusce sagittis erat at erat tristique mollis. Maecenas sapien libero, molestie et, lobortis in, sodales eget, dui. Morbi ultrices rutrum lorem. Nam elementum ullamcorper leo. Morbi dui. Aliquam sagittis. Nunc placerat. Pellentesque tristique sodales est. Maecenas imperdiet lacinia velit. Cras non urna. Morbi eros pede, suscipit ac, varius vel, egestas non, eros. Praesent malesuada, diam id pretium elementum, eros sem dictum tortor, vel consectetur odio sem sed wisi.

Capítulo 4

Desenho e Desenvolvimento

O referente ao “Your work” do capítulo 2.

No contexto deste template, este capítulo serve de exemplos de uso do L^AT_EX de algumas regras de tipografia. Note-se que as regras sobre a formatação estão disponíveis [Estrutura e Layout de teses](#). Pode-se ver exemplos de tese (para a formatação e conteúdo) no repositório da UP <https://repositorio-aberto.up.pt/handle/10216/9535>.

4.1 Exemplo de código

```
public interface CallbackCmdMeasurements { // comment
    public abstract void newMeasure(MeasurementBasic measure, int reqId);
    public abstract void newMeasuresAggSimp(MeasurementBasic[] measuresAggSimp,
        'A string');
}
```

Bloco de Código 4.1: CommandDaemon callback interfaces

É possível como referir o código, por exemplo o bloco de código 4.1.

4.2 Acrónimos

Deve-se acrescentar os acrónimos no ficheiro `acros.tex` e ordená-los alfabeticamente nesse ficheiro. Vamos usar o acrónimo Transmission Control Protocol (**TCP**) que deve estar expandido, assim como no capítulo 5. Os acrónimos devem aparecer expandidos em cada capítulo (o que está já configurado para esta dissertação).

Podem usar `\acs` para apenas mostrar o acrónimo, `\acl` para mostrar a expansão. Ver mais na documentação do pacote `acronym`.

4.3 Figuras

Podem ver a figura 4.1 muito bem. Notem que na lista de figuras não aparece tudo o que está na legenda, mas apenas o que está entre [].



Figura 4.1: O logo da FCUP antigo

As figuras devem usar o posicionamento [htb] para serem preferencialmente colocadas no local onde foram declaradas.

4.3.1 Formato

Devem colocar as figuras sempre que possível em pdf. Usem o programa (ou aplicação web) para exportar para pdf. Desse modo a qualidade das mesmas é sempre maior.

No caso em que o pdf gerado ocupe uma página A4 inteira (por exemplo nas ferramentas do MS Office) podem usar o [pdfcrop](#) no pdf gerado. Este comando está disponível na maior das distribuições de L^AT_EX.

4.4 Referências a bibliografia

Algumas referências para se ver a ordenação [7] (estão ordenadas pelo apelido do autor). Aqui outra ainda [3].

Temos aqui o Clausen [2]. E para ver várias [3, 6, 7].

No ficheiro bib de referências deve-se colocar entre {} o que se quiser manter com maiúsculas no título. Exemplo: title = {Addressing the {WLAN} Problem} resulta em

Addressing the WLAN problem, note-se o **p** de *problem*.

Para saber os campos do bibtex relevantes para cada tipo de entrada pode-se utilizar um editor de bibtex como o [JabRef](#).

Os meses indicados no ficheiro bib poderão aparecer em inglês, caso se pretenda deve-se colocar o texto em português explicitamente no ficheiro bib.

4.5 Capa

Para a inclusão da formatação correta para a capa, pode-se criar um pdf usando o pptx disponível (CapaMSc_PowerPoint.pptx) e depois incluí-lo com o comando seguinte (comentado no tex original).

```
\includepdf[pages=1]{FrontPage-MSc.pdf}  
\cleardoublepage  
\includepdf[pages=2]{FrontPage-MSc.pdf}  
\cleardoublepage
```

Bloco de Código 4.2: Incluir capas oficiais

4.6 Tabelas

Exemplo de uma tabela mais complexa na tabela 4.1.

Uma tabela de lado exemplificada em 4.2.

4.7 Unidades

Deve-se usar o sistema ISO de unidades e respeitar a capitalização das unidades de acordo com a norma. Ver *Quantities and units* em [Typographic conventions](#) (podem e devem dar uma olhada nas outras partes da página).

4.8 Sugestões na escrita e uso do tex

- usar o ~ para ligar as referências, evita a possível mudança de página: ex.: como o Brandão refere~\cite{bran99}
 - também se deve seguir a mesma regra para \ref, unidades de dados, nº de standard (ex.: IEEE~802.11).

Tabela 4.1: BSN versus WSN (with input from Latré and Guang)

	BSN	WSN
Distribution	i) Existence of a BS; ii) BS collects, maintains and processes the data; iii) Nodes will do minimal processing, sending all data to the BS; iv) Centralized system where BS controls all nodes; v) Node replacement is difficult in in-body sensor nodes; vi) Smaller number of nodes; vii) Nodes need to take biocompatibility, wearability into account.	i) A BS may or not exist or there may be several BSs (e.g. mobile nodes collect info, clustering); ii) As in BSN, but also on-demand querying; iii) Nodes will do processing, aggregation to alleviate communication or correlate results; iv) Distributed system, nodes decide cooperatively; v) Node replacement is difficult due to location, scale, etc.; vi) (usually) Wide areas covered by large number of nodes. vii) Nodes may need to be environment friendly, indiscernible from surroundings.
Comm.	i) One hop to BS; ii) Close range but attenuated by body; iii) Data rates heterogeneous.	i) Multi hop through network of sensor nodes; ii) Long(er) range; iii) Data rates homogeneous.
Data	This is some text on this cell. The multirow package does not know the height of the cell and can not center the cell to the right. This is because of the X from tabularx.	This is on two rows of the table
Energy	Some more text just to show something	

4.9 Sugestões na escrita

- em inglês não usar a *short form*. Em textos formais deve-se manter a *long form*. Incorreto: “don’t use”. **Correto:** “do not use”
- em inglês (e também português) não usar a forma reflexiva ou indireta, preferir sempre a forma direta (que é mais assertiva e torna as frases menos complexas).
 - incorreto: “Python was used to program”; Correto: “we used Python”

4.10 Referências para outras fontes de informação

Tabela 4.2: Sensor examples

Device	Availability	Sensed	Technology	Frequency	Data Rate [∞]	Energy [◇]
BioHarness BT	commercial	HR!	detection of <i>QRS</i> complex in ECG	1 Hz	8 bps	21 h transmitting
		Breathing rate	conductive elastic measurement of thorax excursion	1 Hz	7 bps	
		3D Accelerometer	variability of a weight reference	50 Hz [⌘]	500 bps [⌘]	
		ECG	potential difference across electrodes in body	250 Hz	2500 bps	
		Gyroscope	angular momentum	1 Hz	9 bps	
Actigraph GT3X+ [1]	commercial	Skin temperature	thermistor	1 Hz	9 bps	31 days
		3D Accelerometer	variability of a weight reference	30-100 Hz [⌘]	360-1200 bps [⌘]	
Shimmer Research GSR Sensor	commercial	Galvanic skin response	measure skin conductivity	up to 15.9 Hz	191 bps	60 μ A
Nonin Onyx II [5]	commercial	O ₂ saturation (full waveform) O ₂ saturation (display format)	measure light absorption by blood haemoglobin	75 Hz	1200 bps	2×1.5 V AAA (600 tests)
			electrochemical detection of glucose through its reaction with glucose oxidase	1 Hz	8 bps	
Medtronic iPro CGM	commercial	continuous glucose meter		0.1 Hz [◁]	1 bps [▷]	up to 72 h
Brain sensor by Nurmikko et al.	in research [‡]	brain activity	microelectrode arrays detect neuron firing	40 k samples/sec×16 channels [⌘]	N/A	12 mW
Molecular biomarkers by Ling et al.	research prototype [*]	serum cardiac troponin I, creatinine kinase, myoglobin	magnetic properties of sensors vary according to presence of biomarker			
Electrochemical dopamine sensor by Chan et al. [⊗]	research	dopamine	Interdigitated micro electrodes measured electrochemical reaction	50 Hz	–	10 pA

[∞] data rates are based on the frequency and the accuracy in bits stated in the references; they do not include time stamps or message headers.

[◇] values taken from the references as available.

[⌘] for each of the 3 axis.

[◁] sensor data is collected every 10 s by collector.

[▷] our assumption of 9 bits per measure (up to 512 mg/dL (USA glucose units)).

[‡] prototypes and clinical trials exist for devices with 16 channels.

[⌘] more channels are needed (e.g. for decoding arm joint angles); 100 channels arrays are being developed.

^{*} tested on mice; measurement using Magnetic Resonance Imaging (**MRI**), but test values were extracted from explanted sensors.

[⊗] the developed sensor was not made of nano tubes, which according to the authors, led to poor sensitivity.

Capítulo 5

Experiências e Testes

O referente ao “Materials and Methods” do capítulo 2.

Outro acrónimo pode ser Transmission Control Protocol (TCP) (que deve estar expandido aqui, apesar de ter sido usado já no capítulo 4.

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nonummy eget, consectetur id, vulputate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Mauris ut leo. Cras viverra metus rhoncus sem. Nulla et lectus vestibulum urna fringilla ultrices. Phasellus eu tellus sit amet tortor gravida placerat. Integer sapien est, iaculis in, pretium quis, viverra ac, nunc. Praesent eget sem vel leo ultrices bibendum. Aenean faucibus. Morbi dolor nulla, malesuada eu, pulvinar at, mollis ac, nulla. Curabitur auctor semper nulla. Donec varius orci eget risus. Duis nibh mi, congue eu, accumsan eleifend, sagittis quis, diam. Duis eget orci sit amet orci dignissim rutrum.

Nam dui ligula, fringilla a, euismod sodales, sollicitudin vel, wisi. Morbi auctor lorem non justo. Nam lacus libero, pretium at, lobortis vitae, ultricies et, tellus. Donec aliquet, tortor sed accumsan bibendum, erat ligula aliquet magna, vitae ornare odio metus a mi. Morbi ac orci et nisl hendrerit mollis. Suspendisse ut massa. Cras nec ante. Pellentesque a nulla. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Aliquam tincidunt urna. Nulla ullamcorper vestibulum turpis. Pellentesque cursus luctus mauris.

Nulla malesuada porttitor diam. Donec felis erat, congue non, volutpat at, tincidunt tristique, libero. Vivamus viverra fermentum felis. Donec nonummy pellentesque ante. Phasellus adipiscing semper elit. Proin fermentum massa ac quam. Sed diam turpis, molestie vitae, placerat a, molestie nec, leo. Maecenas lacinia. Nam ipsum ligula, eleifend at, accumsan nec, suscipit a, ipsum. Morbi blandit ligula feugiat magna. Nunc eleifend consequat lorem. Sed lacinia nulla vitae enim. Pellentesque tincidunt purus vel magna. Integer non enim. Praesent euismod nunc eu purus. Donec bibendum quam in tellus. Nullam cursus pulvinar lectus. Donec et mi. Nam vulputate metus eu enim. Vestibulum pellentesque felis eu massa.

Quisque ullamcorper placerat ipsum. Cras nibh. Morbi vel justo vitae lacus tincidunt ultrices. Lorem ipsum dolor sit amet, consectetur adipiscing elit. In hac habitasse platea dictumst. Integer tempus convallis augue. Etiam facilisis. Nunc elementum fermentum wisi. Aenean placerat. Ut imperdiet, enim sed gravida sollicitudin, felis odio placerat quam, ac pulvinar elit purus eget enim. Nunc vitae tortor. Proin tempus nibh sit amet nisl. Vivamus quis tortor vitae risus porta vehicula.

Fusce mauris. Vestibulum luctus nibh at lectus. Sed bibendum, nulla a faucibus semper, leo velit ultricies tellus, ac venenatis arcu wisi vel nisl. Vestibulum diam. Aliquam pellentesque, augue quis sagittis posuere, turpis lacus congue quam, in hendrerit risus eros eget felis. Maecenas eget erat in sapien mattis porttitor. Vestibulum porttitor. Nulla facilisi. Sed a turpis eu lacus commodo facilisis. Morbi fringilla, wisi in dignissim interdum, justo lectus sagittis dui, et vehicula libero dui cursus dui. Mauris tempor ligula sed lacus. Duis cursus enim ut augue. Cras ac magna. Cras nulla. Nulla egestas. Curabitur a leo. Quisque egestas wisi eget nunc. Nam feugiat lacus vel est. Curabitur consectetur.

Suspendisse vel felis. Ut lorem lorem, interdum eu, tincidunt sit amet, laoreet vitae, arcu. Aenean faucibus pede eu ante. Praesent enim elit, rutrum at, molestie non, nonummy vel, nisl. Ut lectus eros, malesuada sit amet, fermentum eu, sodales cursus, magna. Donec eu purus. Quisque vehicula, urna sed ultricies auctor, pede lorem egestas dui, et convallis elit erat sed nulla. Donec luctus. Curabitur et nunc. Aliquam dolor odio, commodo pretium, ultricies non, pharetra in, velit. Integer arcu est, nonummy in, fermentum faucibus, egestas vel, odio.

Sed commodo posuere pede. Mauris ut est. Ut quis purus. Sed ac odio. Sed vehicula hendrerit sem. Duis non odio. Morbi ut dui. Sed accumsan risus eget odio. In hac habitasse platea dictumst. Pellentesque non elit. Fusce sed justo eu urna porta tincidunt. Mauris felis odio, sollicitudin sed, volutpat a, ornare ac, erat. Morbi quis dolor. Donec pellentesque, erat ac sagittis semper, nunc dui lobortis purus, quis congue purus metus ultricies tellus. Proin et quam. Class aptent taciti sociosqu ad litora torquent per conubia nostra, per inceptos hymenaeos. Praesent sapien turpis, fermentum vel, eleifend faucibus, vehicula eu, lacus.

Capítulo 6

Resultados e análise

Capítulo 7

Conclusões

Quisque ullamcorper placerat ipsum. Cras nibh. Morbi vel justo vitae lacus tincidunt ultrices. Lorem ipsum dolor sit amet, consectetur adipiscing elit. In hac habitasse platea dictumst. Integer tempus convallis augue. Etiam facilisis. Nunc elementum fermentum wisi. Aenean placerat. Ut imperdiet, enim sed gravida sollicitudin, felis odio placerat quam, ac pulvinar elit purus eget enim. Nunc vitae tortor. Proin tempus nibh sit amet nisl. Vivamus quis tortor vitae risus porta vehicula.

Fusce mauris. Vestibulum luctus nibh at lectus. Sed bibendum, nulla a faucibus semper, leo velit ultricies tellus, ac venenatis arcu wisi vel nisl. Vestibulum diam. Aliquam pellentesque, augue quis sagittis posuere, turpis lacus congue quam, in hendrerit risus eros eget felis. Maecenas eget erat in sapien mattis porttitor. Vestibulum porttitor. Nulla facilisi. Sed a turpis eu lacus commodo facilisis. Morbi fringilla, wisi in dignissim interdum, justo lectus sagittis dui, et vehicula libero dui cursus dui. Mauris tempor ligula sed lacus. Duis cursus enim ut augue. Cras ac magna. Cras nulla. Nulla egestas. Curabitur a leo. Quisque egestas wisi eget nunc. Nam feugiat lacus vel est. Curabitur consectetur.

Suspendisse vel felis. Ut lorem lorem, interdum eu, tincidunt sit amet, laoreet vitae, arcu. Aenean faucibus pede eu ante. Praesent enim elit, rutrum at, molestie non, nonummy vel, nisl. Ut lectus eros, malesuada sit amet, fermentum eu, sodales cursus, magna. Donec eu purus. Quisque vehicula, urna sed ultricies auctor, pede lorem egestas dui, et convallis elit erat sed nulla. Donec luctus. Curabitur et nunc. Aliquam dolor odio, commodo pretium, ultricies non, pharetra in, velit. Integer arcu est, nonummy in, fermentum faucibus, egestas vel, odio.

7.1 Trabalho Futuro

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nonummy eget, consectetur id, vulputate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Mauris ut leo. Cras

viverra metus rhoncus sem. Nulla et lectus vestibulum urna fringilla ultrices. Phasellus eu tellus sit amet tortor gravida placerat. Integer sapien est, iaculis in, pretium quis, viverra ac, nunc. Praesent eget sem vel leo ultrices bibendum. Aenean faucibus. Morbi dolor nulla, malesuada eu, pulvinar at, mollis ac, nulla. Curabitur auctor semper nulla. Donec varius orci eget risus. Duis nibh mi, congue eu, accumsan eleifend, sagittis quis, diam. Duis eget orci sit amet orci dignissim rutrum.

Nam dui ligula, fringilla a, euismod sodales, sollicitudin vel, wisi. Morbi auctor lorem non justo. Nam lacus libero, pretium at, lobortis vitae, ultricies et, tellus. Donec aliquet, tortor sed accumsan bibendum, erat ligula aliquet magna, vitae ornare odio metus a mi. Morbi ac orci et nisl hendrerit mollis. Suspendisse ut massa. Cras nec ante. Pellentesque a nulla. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Aliquam tincidunt urna. Nulla ullamcorper vestibulum turpis. Pellentesque cursus luctus mauris.

Nulla malesuada porttitor diam. Donec felis erat, congue non, volutpat at, tincidunt tristique, libero. Vivamus viverra fermentum felis. Donec nonummy pellentesque ante. Phasellus adipiscing semper elit. Proin fermentum massa ac quam. Sed diam turpis, molestie vitae, placerat a, molestie nec, leo. Maecenas lacinia. Nam ipsum ligula, eleifend at, accumsan nec, suscipit a, ipsum. Morbi blandit ligula feugiat magna. Nunc eleifend consequat lorem. Sed lacinia nulla vitae enim. Pellentesque tincidunt purus vel magna. Integer non enim. Praesent euismod nunc eu purus. Donec bibendum quam in tellus. Nullam cursus pulvinar lectus. Donec et mi. Nam vulputate metus eu enim. Vestibulum pellentesque felis eu massa.

Bibliografia

- [1] Actigraph. [GT3X+ Activity Monitor](#). Product specification, Actigraph, 2011 [visited June 2011].
- [2] T. Clausen and P. Jacquet. [Optimized Link State Routing Protocol \(OLSR\)](#). RFC 3626, IETF, October 2003.
- [3] ETSI. ETSI TR 102 732 V1.1.1 (2013-09) Machine-to-Machine Communications (M2M); Use Cases of M2M applications for eHealth, 2013.
- [4] NetMarketShare. [Mobile/tablet operating system market share](#). Online, December 2016. Dezembro de 2016.
- [5] Nonin Medical Inc. [Onyx II® Model 9560 Bluetooth® Fingertip Oximeter](#). OEM Specification and Technical Information 6470-000-01, Nonin Medical Inc, 2008 [visited June 2011].
- [6] William Strunk. [The elements of style](#). Bartleby, July 1999. ISBN: 1-58734-060-7.
- [7] Elias Yaacoub and Adnan Abu-Dayya. Enhancing the QoS of real-time video streaming over LTE MBMS using D2D communications. In *Proceedings of the 8h ACM symposium on QoS and security for wireless and mobile networks*, pages 41–46. ACM, December 2012.