Insert your title

Insert a Subtitle (if necessary)



**Prepared by:**

**Insert your Name**

**Student Number**

Department of Electrical Engineering

University of Cape Town

**Prepared for:**

**Insert Supervisors Name**

\*\*\*\*INSERT THEIR DEPARTMENT'S NAME HERE\*\*\*\*

University of Cape Town

**October 2011**

Submitted to the Department of Electrical Engineering at the University of Cape Town in partial fulfilment of the academic requirements for a Bachelor of Science degree in \*\*\***INSERT DEGREE NAME HERE (**Electrical Engineering; Mechatronics or Electrical and Computer Engineering**)**

**Key Words:** INSERT 4-6 KEYWORDS WHICH DESCRIBE YOUR PROJECT

Declaration

1. **I know that plagiarism is wrong. Plagiarism is to use another's work and pretend that it is one's own.**
2. **I have used the IEEE convention for citation and referencing. Each contribution to, and quotation in, this final year project report from the work(s) of other people, has been attributed and has been cited and referenced.**
3. **This final year project report is my own work.**
4. **I have not allowed, and will not allow, anyone to copy my work with the intention of passing it off as their own work or part thereof**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name:** | **\*\*\*\*TYPE YOUR NAME HERE\*\*\*\*** |  | |
| **Signature:** |  | **Date:** | 28 March 2017 |

# Terms of Reference

The terms of reference page is an agreement between yourself and your supervisor outlining what is expected of you in your final year project. Please make sure that this is discussed and written at the beginning of your thesis project.

Acknowledgements

Make relevant acknowledgements to people who have helped you complete or conduct this work, including sponsors or research funders.

Abstract

This is a summary of your project. It should not be more than a page in length giving a brief background to the study, the main methodology, results and conclusions drawn.

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Simply right click on the table of contents when you have completed your document and update the field. Please check to see that it is correct before printing and delete any unnecessary details. You may also do it manually if you want just please check that it is correct.

Try and avoid using more than three heading levels in your chapters.

# Introduction

## Background to the study

A very brief background to your area of research. Start off with a general introduction to the area and then narrow it down to your focus area. Used to set the scene.

## Objectives of this study

### Problems to be investigated

Description of the main questions to be investigated in this study.

### Purpose of the study

Give the significance of investigating these problems. It must be obvious why you are doing this study and why it is relevant.

## Scope and Limitations

Scope indicates to the reader what has and has not been included in the study. Limitations tell the reader what factors influenced the study such as sample size, time etc. It is not a section for excuses as to why your project may or may not have worked.

## Plan of development

Here you tell the reader how your final year project report has been organised and what is included in each chapter.

**I recommend that you write this section last. You can then tailor it to your report.**

# Literature Review

Write this section first as it will take you the longest. I suggest you start writing this as soon as you have done your initial research at the beginning of your project. You can then return to it once you have completed your work to edit and adjust it.

A literature review forms the theoretical basis of your project. You need to read a large number of journal papers, sections in books, technical reports etc. relevant to your work at the start of project. This will give you a good idea of the field of research.

When writing your review start of with the general concepts and move to the more specific aspects explaining the necessary theory as you go. This section is NOT a copy and paste from others work or a rewrite-but-change-one-word section. I suggest you read all your material, and then put it down and write this section, referring back to the work only when you need to check something.

See your PCS textbook for more details on how to write a literature review.

If you include a figure or a table in your text please see the example below as to how to caption it. Please make sure that all text in your figures is readable and that you reference your figures if they are from another source.

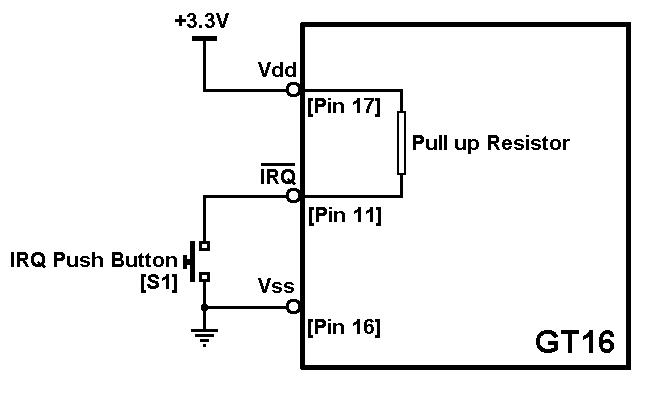


Fig. 2.1: A block diagram illustrating the connections to the IRQ pin on the MCS08GT16A microcontroller (Please note that your headings should be short descriptions of what is in the diagram not simply the figure title)

# Methodology

You may want to split this chapter into sub chapters depending on your design. I suggest you change the title to something more specific to your project.

This is where you describe your design process in detail, from component/device selection to actual design implementation, to how you tested your system. Remember detail is important in technical writing. Do not just write I used a computer give the computer specifications or the oscilloscopes part number. Describe the system in enough detail so that someone else can replicate your design as well as your testing methodology.

If you use or design code for your system, represent it as flow diagrams in text.

# Results

Present your results in a suitable format using tables and graphs where necessary. Remember to refer to them in text and caption them properly.

# Discussion

Discuss the relevance of your results and how they fit into the theoretical work you described in your literature review.

# Conclusions

Draw suitable and intelligent conclusions from your results and subsequent discussion.

# Recommendations

Make sensible recommendations for further work.

# List of References

Use the IEEE numbered reference style for referencing your work as shown in your thesis guidelines. Please remember that the majority of your referenced work should be from journal articles, technical reports and books not online sources such as Wikipedia.

When you are writing your document (if you are not using a citation editor) write the surname and date of the reference in square brackets when it is needed and highlight it as follows [Smith, 2004]. You can then return back to this later, update the numbers as they appear in text and remove the highlighting.

# Appendices

Add any information here that you would like to have in your project but is not necessary in the main text. Remember to refer to it in the main text. Separate your appendices based on what they are for example. Equation derivations in Appendix A and code in Appendix B etc.

# EBE Faculty: Assessment of Ethics in Research Projects

Any person planning to undertake research in the Faculty of Engineering and the Built Environment at the University of Cape Town is required to complete this form before collecting or analysing data. When completed it should be submitted to the supervisor (where applicable) and from there to the Head of Department. If any of the questions below have been answered YES, and the applicant is NOT a fourth year student, the Head should forward this form for approval by the Faculty EIR committee: submit to Ms Zulpha Geyer ([Zulpha.Geyer@uct.ac.za](mailto:Zulpha.Geyer@uct.ac.za); Chem Eng Building, Ph 021 650 4791).Students must include a copy of the completed form with the final year project when it is submitted for examination.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Name of Principal Researcher/Student:** | |  | | **Department:** | ELECTRICAL ENGINEERING |
| **If a Student:** | YES | **Degree:** |  | **Supervisor:** |  |
| **If a Research Contract indicate source of funding/sponsorship:** | | | |  | |
| **Research Project Title:** | |  | | | |

Overview of ethics issues in your research project:

|  |  |  |
| --- | --- | --- |
| **Question 1: Is there a possibility that your research could cause harm to a third party (i.e. a person not involved in your project)?** | YES | NO |
| **Question 2: Is your research making use of human subjects as sources of data?**  If your answer is YES, please complete Addendum 2. | YES | NO |
| **Question 3: Does your research involve the participation of or provision of services to communities?**  If your answer is YES, please complete Addendum 3. | YES | NO |
| **Question 4: If your research is sponsored, is there any potential for conflicts of interest?**  If your answer is YES, please complete Addendum 4. | YES | NO |

If you have answered YES to any of the above questions, please append a copy of your research proposal, as well as any interview schedules or questionnaires (Addendum 1) and please complete further addenda as appropriate.

I hereby undertake to carry out my research in such a way that

* there is no apparent legal objection to the nature or the method of research; and
* the research will not compromise staff or students or the other responsibilities of the University;
* the stated objective will be achieved, and the findings will have a high degree of validity;
* limitations and alternative interpretations will be considered;
* the findings could be subject to peer review and publicly available; and
* I will comply with the conventions of copyright and avoid any practice that would constitute plagiarism.

Signed by:

|  |  |  |
| --- | --- | --- |
|  | **Full name and signature** | **Date** |
| **Principal Researcher/Student:** | **\*\*\*Replace with Your Name\*\*\*** | 28 March 2017 |

This application is approved by:

|  |  |  |
| --- | --- | --- |
| **Supervisor (if applicable):** | **\*\*\*Replace with Supervisor's Name\*\*\*** | 28 March 2017 |
| **HOD (or delegated nominee):**  Final authority for all assessments with NO to all questions and for all undergraduate research. | **Janine Buxey** | 28 March 2017 |
| **Chair : Faculty EIR Committee**  For applicants other than undergraduate students who have answered YES to any of the above questions. |  |  |

**ADDENDUM 1:**

Please append a copy of the research proposal here, as well as any interview schedules or questionnaires:

**ADDENDUM 2:** To be completed if you answered YES to Question 2:

It is assumed that you have read the UCT Code for Research involving Human Subjects (available at <http://web.uct.ac.za/depts/educate/download/uctcodeforresearchinvolvinghumansubjects.pdf>) in order to be able to answer the questions in this addendum.

|  |  |  |
| --- | --- | --- |
| 2.1 Does the research discriminate against participation by individuals, or differentiate between participants, on the grounds of gender, race or ethnic group, age range, religion, income, handicap, illness or any similar classification? | YES | NO |
| 2.2 Does the research require the participation of socially or physically vulnerable people (children, aged, disabled, etc) or legally restricted groups? | YES | NO |
| 2.3 Will you not be able to secure the informed consent of all participants in the research?  (In the case of children, will you not be able to obtain the consent of their guardians or parents?) | YES | NO |
| 2.4 Will any confidential data be collected or will identifiable records of individuals be kept? | YES | NO |
| 2.5 In reporting on this research is there any possibility that you will not be able to keep the identities of the individuals involved anonymous? | YES | NO |
| 2.6 Are there any foreseeable risks of physical, psychological or social harm to participants that might occur in the course of the research? | YES | NO |
| 2.7 Does the research include making payments or giving gifts to any participants? | YES | NO |

If you have answered YES to any of these questions, please describe below how you plan to address these issues:

**ADDENDUM 3:** To be completed if you answered YES to Question 3:

|  |  |  |
| --- | --- | --- |
| 3.1 Is the community expected to make decisions for, during or based on the research? | YES | NO |
| 3.2 At the end of the research will any economic or social process be terminated or left unsupported, or equipment or facilities used in the research be recovered from the participants or community? | YES | NO |
| 3.3 Will any service be provided at a level below the generally accepted standards? | YES | NO |

If you have answered YES to any of these questions, please describe below how you plan to address these issues:

**ADDENDUM 4:** To be completed if you answered YES to Question 4

|  |  |  |
| --- | --- | --- |
| 4.1 Is there any existing or potential conflict of interest between a research sponsor, academic supervisor, other researchers or participants? | YES | NO |
| 4.2 Will information that reveals the identity of participants be supplied to a research sponsor, other than with the permission of the individuals? | YES | NO |
| 4.3 Does the proposed research potentially conflict with the research of any other individual or group within the University? | YES | NO |

If you have answered YES to any of these questions, please describe below how you plan to address these issues: