

Zhejiang University / University of Illinois at Urbana-Champaign Institute

Senior Design Individual Report

AN AWESOME PROJECT MADE BY AN AMAZING STUDENT

By

Haoran MENG
32xxxxxxxx

Individual Report for Senior Design, Spring 2023

Sponsor: Prof. Tom JERRY

TA: Black SHOUT

December 22, 2023

Project No. 114

Zhejiang University Undergraduate Graduation Project Report Commitment Statement

1. I solemnly promise that the graduation project report submitted was completed in strict accordance with the relevant regulations of the institute and university under the guidance of the project sponsor.
2. In my graduation project report, except where specifically and explicitly indicated, the report does not contain results that have been published or written by others.
3. Any contribution to this report made by the teammates with whom I worked has been clearly stated in the report and acknowledged.
4. I promise that I have not falsified data or committed other similar acts in the completion of the graduation project report.
5. If there is any infringement of intellectual property rights or breach of academic integrity in this graduation project report, I shall bear the corresponding legal responsibility.
6. I fully understand that Zhejiang University has the right to retain and send copies and electronic records of this report to relevant departments or institutions. I authorize Zhejiang University to compile all or part of the contents of this report into a relevant database for retrieval and dissemination, and can use photocopying, microprinting or scanning and other means of reproduction to preserve and archive the report.

Author's
signature:

Date of
signature:

Project
sponsor's
signature:

Date of
signature:

Acknowledgement

Writing an acknowledgment section is a way to express your gratitude to individuals and organizations that have contributed to your project. Below are some tips on how to write an acknowledgment section:

Begin your acknowledgment section by expressing your gratitude to the individuals or organizations that have helped you with your project. This can include your faculty advisor, project sponsor, team members, family members, and friends.

Be specific about the contributions that each person or organization has made to your project. This can include providing technical guidance, financial support, or emotional support. It's important to keep your acknowledgment section concise. Try to limit your acknowledgments to one page or less. Keep in mind that your acknowledgment section is part of a formal report, so please use a professional tone and avoid overly casual language.

Abstract

The abstract is short (150 words or less) and provides enough of a summary of the report for the reader to decide whether to read the entire document. State very concisely what your device or system does, and the main findings and results of your project. Save background information (e.g., motivation, competitors) for the introduction and design details for the body of the report. Do not give an advertising pitch. Note that the abstract does not appear in the table of contents. (This is achieved by using `\chapter*` command instead of `\chapter`.)

Note that you can ignore the TOC because it is generated automatically by `\tableofcontents` below. Work on the body of the report, then compile the project using the following commands:

```
1 xelatex sample_individual.tex
2 biber sample_individual
3 xelatex sample_individual.tex
4 xelatex sample_individual.tex
```

Keywords Keyword 1, keyword 2, keyword 3

Contents

1	Introduction	1
1.1	Sample citation using IEEE	1
1.2	Sample equations	1
1.3	Sample listings	1
2	Design	2
2.1	Typesetting SI Units	2
3	Design Verification	3
4	Discussion	4
4.1	A sample of table	4
4.2	An example of inserting code listings	4
5	Conclusion	5
5.1	Accomplishments	5
5.2	Uncertainties	5
5.3	Ethical Considerations	5
5.4	Future Work	5
	References	6
	Appendix A Requirement and Verification Table	7
A.1	Some Test Data	7

1 Introduction

Briefly describe the science or engineering problem to be addressed in the report, as well as the purpose and usefulness of the device or system you have built. Summarize the contents of the upcoming chapters as well as the main conclusions of your project, to be elaborated in the last chapter.

1.1 Sample citation using IEEE

Here comes the citation. You can cite by using `\cite` which produces [1], [2], or by `\textcite` which produces Author7 and Author8 [3]. However, putting a citation at the end of a sentence is also acceptable [4].

1.2 Sample equations

$$EQI = \sum_{i=1}^n W_j * r_{ij} \quad (1.1)$$

$$EHI = L_1 \times ESI + L_2 \times EQI \quad (1.2)$$

$$EE/EHI = \beta_0 + \beta_1 PCG + \beta_2 RGP + \dots + \beta_i X_i + \dots + \beta_9 ICWUR + \beta_{10} ECPG + \beta_{11} WCPG + \varepsilon_i \quad (1.3)$$

1.3 Sample listings

This is a sample listing.

```

1  #include<stdio.h>
2  void fuzzy(int x){
3      return x;
4  }
5  int main(){
6      int a = 0, b, c;
7      scanf("%d", &b);
8      c = b;
9      if (a == b)
10         a = fuzzy(c);
11     else
12         b = fuzzy(a);
13     printf("%d□%d\n", a, fuzzy(c));
14     return 0;
15 }
```

2 Design

Discuss general design alternatives. Give equations, simulations, and general circuits. Describe the design in detail, addressing each major component. Include schematics with components, drawings, flowcharts, etc. Some teams may wish to split this chapter in two: 2. Design Procedure, and 3. Design Details. This L^AT_EX template will automatically update numbering systems for chapters, sections, figures, tables, etc., yet you should still always keep track of them as you develop and revise the text.

2.1 Typesetting SI Units

This template allows you to typeset SI units in a standard format. The units should be typed like this: $10 \times 10^5 \mu\text{m} \cdot \Omega \cdot ^\circ$.

It also applies to equations,

$$X_t = 10 \times 10^5 \mu\text{m} \cdot \Omega \cdot ^\circ \quad (2.1)$$

Visit <https://www.ctan.org/pkg/siunitx> for more details about package siunitx.

3 Design Verification

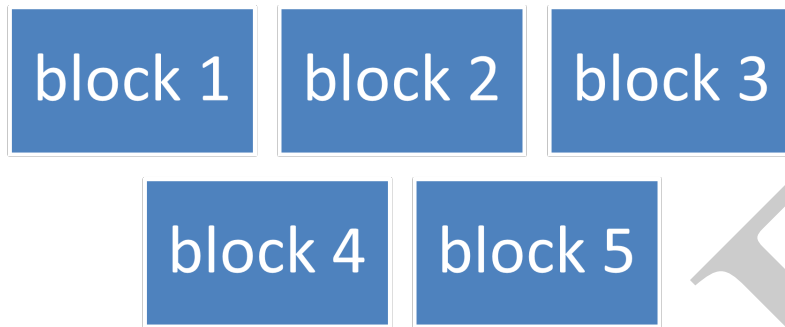


Figure 3.1 An example figure.

4 Discussion

4.1 A sample of table

Table 4.1 Example of a Table and Its Title

Part	Electricity	Magnetism
Field intensity	E	H
Flux density	D	B
Constitutive factor	ϵ^b	μ

4.2 An example of inserting code listings

An example piece of inserting code from an existing file:

```
1 from numpy import *
2 from scipy import *
3
4 # plot some random plots of a random variable
5 def plot_random():
6     import matplotlib.pyplot as plt
7     plt.plot(random.randn(100))
8     plt.show()
9
10 # call the plotting function
11 plot_random()
```

5 Conclusion

$$F(x) = \begin{cases} 0, & x < a \\ \frac{x-a}{b-a}, & a \leq x < b \\ 1, & x \geq b \end{cases} \quad (5.1)$$

5.1 Accomplishments

5.2 Uncertainties

5.3 Ethical Considerations

5.4 Future Work

References

- [1] F. Author1 and S. Author2, *Random Book*. Publisher, 2022.
- [2] F. Author3 and S. Author4, “Random journal paper,” *Journal of Randomness*, vol. 10, no. 2, pp. 100–120, 2021.
- [3] F. Author7 and S. Author8, *New Book*. Publisher, 2023.
- [4] F. Author5 and S. Author6. “Random webpage.” (2020), [Online]. Available: <https://www.example.com> (visited on 01/01/2022).

A Requirement and Verification Table

An appendix is a good place for the Requirement and Verification Table from your design review. Below is a starter table. Including these details here will help to avoid lengthy and tedious narrative descriptions in the main text, which may not be of immediate interest to your imagined audience of company managers and professionals. Any requirement that is not verified should be explained either in the main text or the appendix. Note that both the pagination and the numbering of figures, tables, and equations continue from the main text to the appendices.

Tab. A.1 is generated by Excel2LaTeX. See <https://www.ctan.org/tex-archive/support/excel2latex/> for more details.

Table A.1 System Requirements and Verifications

Requirement	Verification	Verification status (Y or N)
1. Requirement	1. Verification	
a. Subrequirement	a. Subverification	
b. Subrequirement	b. Subverification	
c. Subrequirement	c. Subverification	
2. Requirement	2. Verification	
a. Subrequirement	a. Subverification	
b. Subrequirement	b. Subverification	
c. Subrequirement	c. Subverification	
3.	3.	
4.	4.	

A.1 Some Test Data