EE297FZ Signals and Systems Integration Project

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Project Guidelines

BY

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Outline

1. Introduction to EE297FZ
2. Introduction to group project
3. Report Contents
4. Report Format
5. Submission
6. Important dates

1.Introduction to EE297FZ

The aims of this module are:

- To promote project based learning in the field of embedded and intelligent devices.
- To instil the creative spirit in students.
- To develop oral and written communication skills.
- To develop students experience of working in a group.
- To engender an awareness of ethical issues in engineering.

1.Introduction to EE297FZ

Learning Outcomes

On successful completion of the module, students should be able to:

1. Apply problem-based learning to solve unforeseen problems in the areas of embedded and intelligent devices.
2. Apply structured design to a range of problems in the domain of signals and control.
3. Apply theoretical knowledge in solving problems encountered.

1.Introduction to EE297FZ

Learning Outcomes

4. Discuss any ethical issues, environmental impacts and health and safety issues associated with their project.
5. Prepare and deliver an oral presentation.
6. Defend their work through interview.
7. Demonstrate appropriate project management techniques (including time management and project planning).

presentation on the interim report (in group)

Final report (individual)

2.Introduction to group project

- This is a group project (5 students in a group).
- The final group project report and individual interview is worth a combined 100% of the total EE297FZ mark.
- Project's marks are awarded as:
  - Execution 10%
  - Report 40%
  - Video demonstration/presentation 30%
  - Individual interview 20%
- Students can choose the project title from the list below in page 5 and submit your response to Moodle.

3.Report Contents

- Cover page → Moodle
- Abstract
- Introduction
- Technical Background / Literature review
- Design methodology
- Results and discussion
- Conclusion
- References
- Appendices (optional)

40 %

3.Report Contents

Cover page

- You must include your names, your ID, project title and supervisor name on here.

3.Report Contents

Abstract

- The abstract must be an accurate reflection of what is in your report (not the project itself), it should tell the essence of that report.
- Your abstract must be self-contained, without abbreviations, footnotes, or references.
- Your abstract should be 150 - 250 words written as one paragraph and should not contain displayed mathematical equations or tabular material.
- The abstract must cover motivation, the problem statement, the approach, your results, and your conclusions.

3.Report Contents

Introduction

- An introduction is 'the big picture' of your project.
- The introduction will help the rest of the report flow better.

story telling about your project.

3.Report Contents

Introduction (cond')

- The introduction should consist of :-
  - Topic: Introduction to the topic addressed in the project
  - Problem statement: Describe the technical problem needed to be solved in your project.
  - Approach: summarise how you addressed solving the problem. Provide an overview of how you analysed the problem, how you designed a solution, and how you evaluated your solution.
  - Metrics: describe how you are going to evaluate your work.
  - Project: list, and briefly describe your significant achievements in the project (probably 3-5 of these in a typical project).

problem A

why are you doing this?

how do you solve problem A

Summary.

what you have done.

3.Report Contents

Technical background / Literature review

- The purpose of this chapter is to show your depth and breadth of reading and understanding of the problem domain.
- Include two sections: Material relating to the topic (Technical Background) and Material relating to the technical solution (Literature review).
- The background summaries key material that should help the reader understand information in later sections of the report and the literature review outlines what work has been done in your problem.
- This section should contain plenty of references.
- Exclude your work in this section.

3.Report Contents

include propose all your work / solution.

flow chart.

Design methodology

- The purpose of this chapter is to show your design process flow (your proposed solution).
- The content should include discussion of the process flow, the block diagram and flow chart of the project.
- The design method should describe the testing procedure that has been carried out.

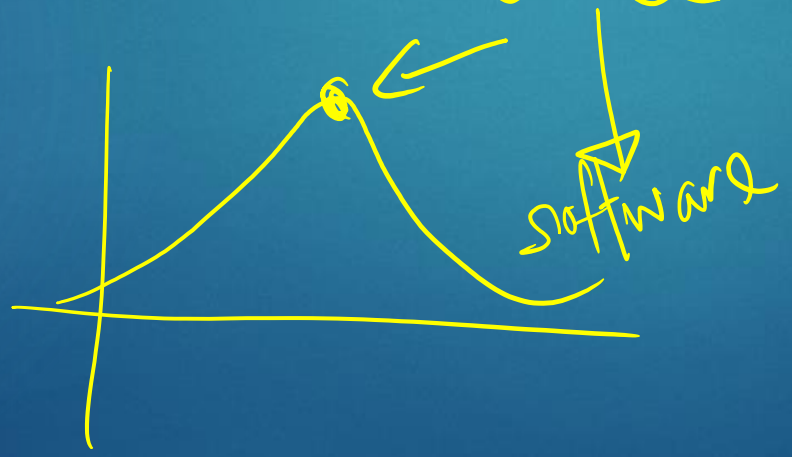
3.Report Contents

all your results.
→ graph, table, chart,

Results and discussion

- The purpose of this chapter is to clearly identify, discuss, and justify the decisions you make.
- Implementation: discuss anything interesting here, put full source code, where relevant, in an appendix or attachment.
- The content should discuss the simulation or experimental results obtained.

programming code → appendices.



3.Report Contents

Conclusion

- Summarise the key findings, conclusions, results, etc. of your overall report.
- Discuss your project results and approach
- Discuss future work, based on what you have done (and not done). (optional)

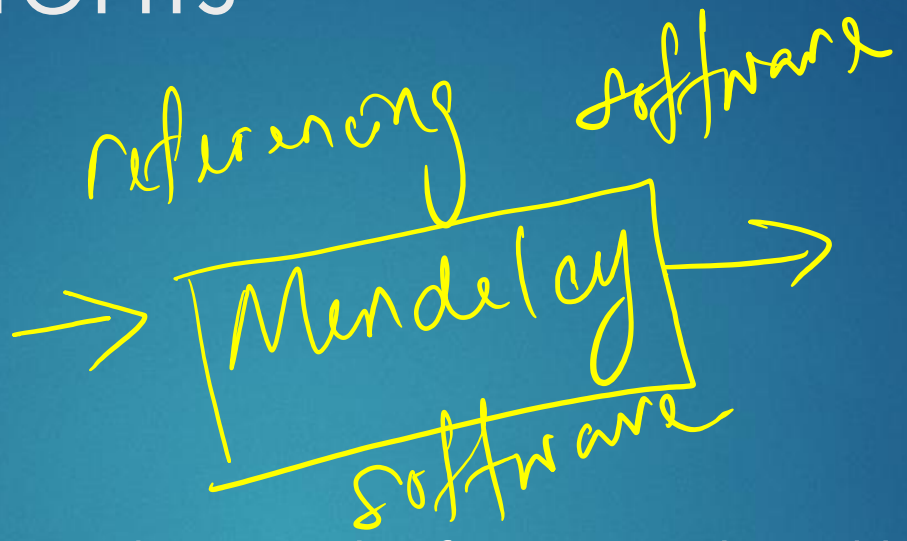
3.Report Contents

IEEE template

References

- This contains a list of citations used throughout the report
- The reference format should follow IEEE style.
- Use conference papers, journal papers, books (book chapters & subsections), and avoid websites

3.Report Contents



References

IEEE referencing

- In text:

  Fuzzy logic has seen widespread use ranging from controlling vehicles [1] to evaluating journal grades [2].

- In References:

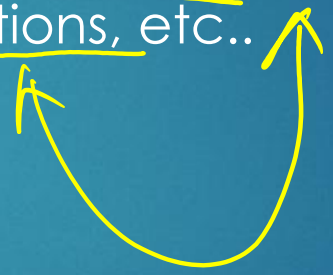
  [1] Kong S. G. and Kosko, B., "Adaptive fuzzy systems for backing up a truck-and-trailer", IEEE Paper on Neural Networks, vol. 3, no. 2, pp. 211-233, 1992.

  [2] Zhou, D., Ma, J., Turban, E. and Bolloju, N., "A fuzzy set approach to the evaluation of journal grades," Fuzzy Sets and Systems, 131, pp. 63-74, 2002.

3.Report Contents

Appendices

- Include here all addition material that is related to the work in the report but not necessary in the report itself or would take up too much space in the report, e.g., your source code, manual, data sheets, overflow of images, setup instructions, etc..



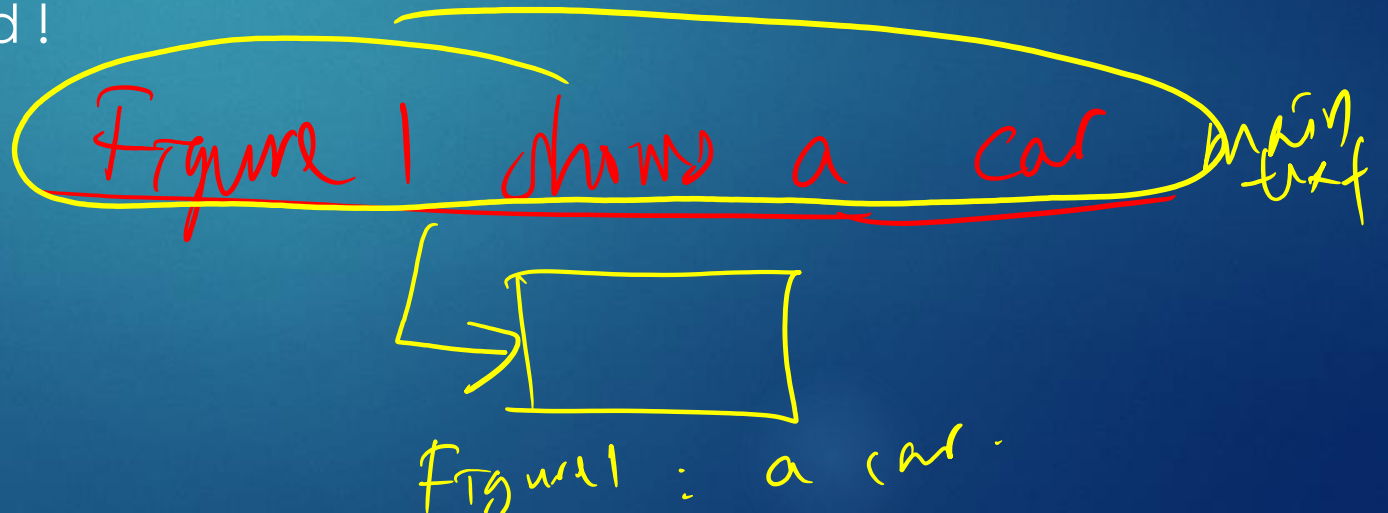
4.Report Format

- Follow IEEE style (IEE report format can be found on Moodle)
- The report should be WORD processed on A4 size paper.
- Font: Times New Roman
- Font size: 10
- Spacing: 0.95
- Justification: FULL
- Maximum 8 pages (excluding Appendices)

4.Report Format

Figures and Tables

- All figures and tables should be numbered and have a caption
- All figures and tables should be referred to from within the main text, i.e. a reader may not view an image or a table unless directed to it by the author.
- In other words, don't leave it to the reader to determine when a given figure should be viewed !



4.Report Format

Figures and Tables

- Example:

Here, we will use a car, similar to the one shown in ~~figure 3.1~~, for test purposes.

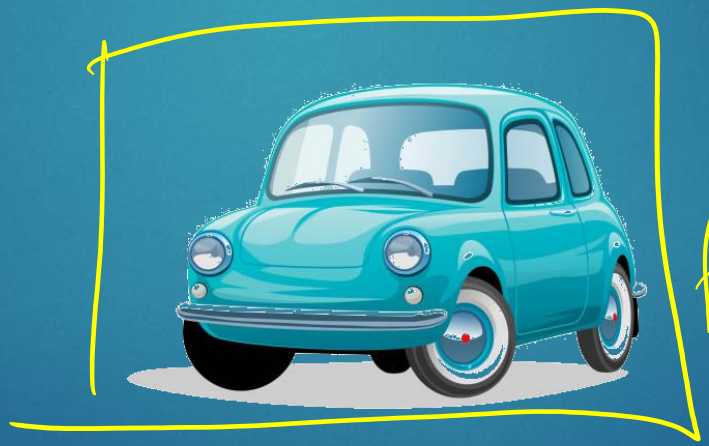


Figure 1: A model car

4.Report Format

Writing Style

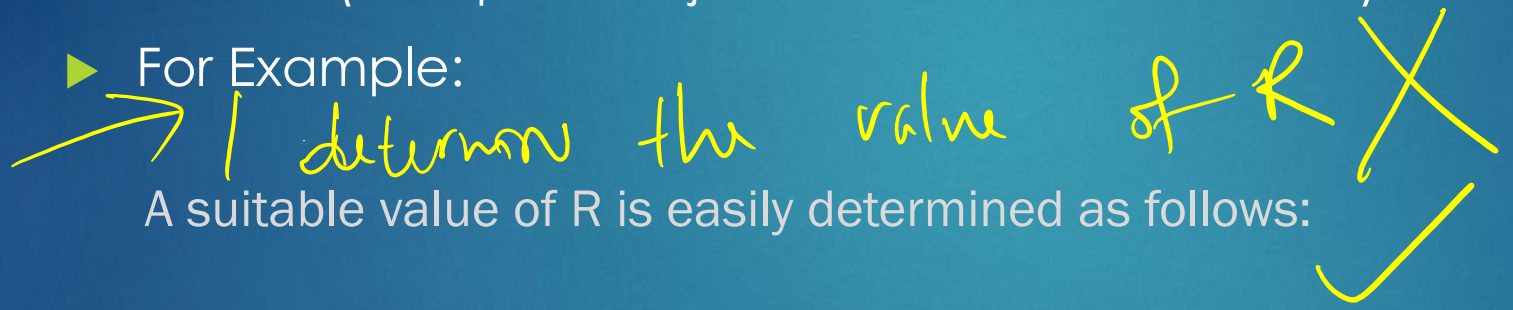
- Avoid writing in the style of a diary !
- In other words, don't do the following:

I decided to determine a suitable value for R. I did this by plotting the V I relationship. However, I then realised that this would not sufficiently solve my initial problem and so I then decided to calculate the value of R instead, as follows ... etc.

4.Report Format

Writing Style

- Instead, get straight to the point. Keep your arguments short and factual (and provide justification when needed).
- For Example:



A suitable value of R is easily determined as follows:

4.Report Format

Writing Style

- First person v third person narration?
- For example:

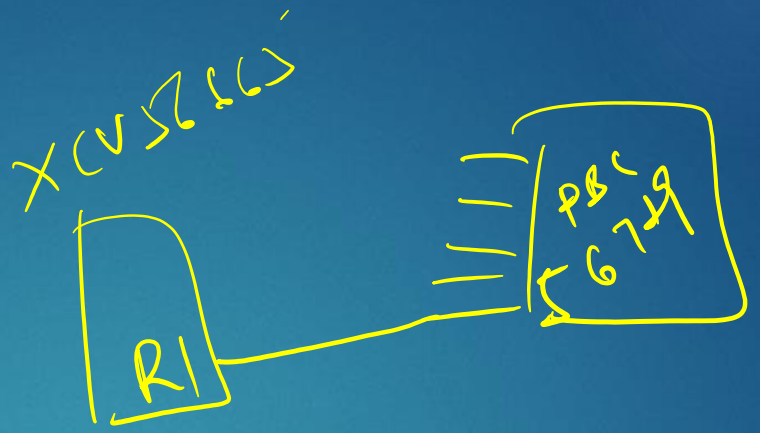
I carried out an experiment to …

vs

An experiment was carried out to …

- Advice - Go with ~~first~~ person narration, as this allows easy identification of your work!
- Warning - Don't get carried away and have ever sentence starting with **I**.

4.Report Format



Writing Style

- Don't provide unnecessary technical detail... It's generally not relevant to the reader.
- For Example, don't do:

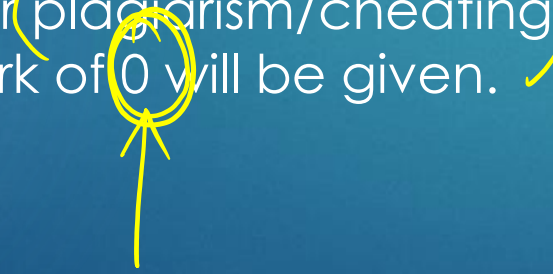
  Pin 5 on chip PBC6789 is connected to pin R1 on the microprocessor XCV56665

- Instead, all we need to know is:

  The transmitter is connected to the microprocessor ...

5.Submission – important

- The report and demo video/presentation MUST be submitted on **Week 15 (3-Jun-2022, 23:59 China time)**.
- Only submit **ONE** report and **ONE** demo video/presentation per group (use ppt, maximum 5 minutes).
- Penalties: Late submission of reports will be subject to a penalty of 10% of the assessment grade for each day (or part thereof) overdue.
- No tolerate for plagiarism/cheating. If any report found to be copied, a mark of 0 will be given.



10 days × 10 = 100%

0%

6.Important dates

- Project selection (week 1 & 2)
- Group meeting with supervisor 26-Mar-2022 (week 5)
- Interim Report Submission: 22-Apr-2022 (week 9)
  - (Abstract, Introduction, Literature Review, Methodology)
- Group Presentation: 30-Apr-2022 (week 10)
  - (Abstract, Introduction, Literature Review, Methodology)
- Final Report Submission: 3-Jun-2022 (week 15)
- Demo Video Submission: 3-Jun-2022 (week 15)
  - (Maximum 5 minutes)
- Final Individual Interview: 11-Jun-2022 (week 16)

Project Titles

$\frac{61}{12} = 11$ group-5
1 group-6

- Rain Detector
- Car Battery Monitoring and Low Voltage Alert System
- IOT Garbage Monitoring System
- Automatic Room Light Intensity Based Window Blind Control System
- Real Time Water Quality Measurement System based on GSM
- IoT Air & Sound Pollution Monitoring System

Project Titles

- Walking Stick with Heart Attack Detection
- Development of a Digital Controller for Motor Control
- Hardware and Software Study of Active Noise Cancellation
- Tracking Device for Elderly Care System by using GPS and RF Tags
- Electric Smart Load Meter
- Tracking Robot Using Ultrasonic Technology

Thank You!

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