**ECTE250 Deliverable 2 Detailed Design Report**

The second deliverable of ECTE250 is a Detailed Design Report. The report soft copy (MS Word document) must be submitted online on Winter-W6 by Friday 10:00pm. The report must include the provided coversheet. Marks will be distributed using peer evaluation (PE) session which will close at the same time as the submission deadline. The report is limited to 4000 words including tables and captions (exclude the table of contents, references and appendices). The report should include a summary of all team’s activities carried out during the semester so far and the final product detailed design proposal. Teams are encouraged to submit a preliminary version to the Mentor at least 10 days before submission deadline to receive preliminary feedback, which can be used to improve your report.

*What to include in the Report*

The report should include the final proposed design, describe the overall progress of the team, and include a plan for completing the project (i.e. to complete Deliverables 2 to 8). For more details, refer to the marking rubric at the end of this document. The report should include the following sections (you should appropriate subsections where required).

1. Executive Summary.

2. Introduction. This section introduces the product/system approved after Deliverable 1, providing a functional overview. Explain how this system/product will give you an edge over the competition (if any) and/or its impact. Explain how it aligns with the ECTE250 theme. Include a project charter in this section.

3. Design. This section includes the detailed design of the proposed product/system (most important part and largest part of this report). Explain how the functionalities will be implemented, include details of the design using illustrations (flowchart, state charts, block diagrams). The design of the state machine should be complete, related schematic and timing diagrams must be included (teams will demonstrate the state machine simulation in the laboratory session of S1-W10). Teams are also encouraged to include a final or preliminary design of the Arduino subsystem, including a flowchart of the functionality implemented in software and the source code in Appendix (teams can demonstrate this in the laboratory session of S1-W10). Use simple blocks for the components that will be designed (at schematic level) later during the Spring semester. All input and output of all blocks, including State machine and Arduino must be clearly defined.

4. Alignment. A section in which you explain how your design aligns with the requirements and constraints, and motivate what is the complexity factor of your design. Include also a list of modification from your original proposal (if any) presented in Deliverable 1, due to feedback from mentor/tutor, or proposed by the team and approved by the mentor.

5. Testing. Brief but accurate description on the strategy you designed to test and evaluate the overall functional requirements of your product/system and those of its sub components. The testing strategy should be developed for simulation stage as well as for breadbard/perfoboard prototyping stage.

6. Plan. This section details the project plan, what had been achieved so far, and the forecast until project completion (i.e. complete Deliverables 3 to 8). The section (second most

important part and largest part of this report) must include: Work Breakdown Structure (WBS), including work packages and their related accountable team member. A detailed Gantt chart (this can also be demonstrated in the laboratory session of S1-W6) aligned with the WBS, with the project deliverables and your internal milestones. Use the Gantt chart explain the work to be carried out until project completion, including task allocation. This section must also include the risk assessment on future activity and details on how you plan to manage those risk. For the past activities, review your performances against the original plan, indicating any delays that have occurred and their cause.

7. Budget. This section should provide the details on the budget for the prototyping parts and for labor (this includes consultation expenses). For the labor part, the report should detail how much the team has spent so far, and forecast the labor expenses until project completion (i.e. complete Deliverables 3 to 8). This section should also include a table of sale cash flow forecast detailing return of investment and profit over the next 5 years.

8. Marketing. In this brief section describe your marketing strategy for the Innovation Fair.

Identify your target customers and a strategy to boost your sales.

9. References. List of references. Use Harvard or Chicago citation style. References will not be considered part of the word count. References must be cited in the text.

10. Appendix. Include here one or more appendix including extra material. Appendices must be referenced in the text. Material included in the appendices is not considered for assessment. One appendix (not to be referenced) must include all minutes of the meetings to date (this should not be referenced in the text). Another appendix (not to be referenced) must describe the contribution of each team member with respect to the design of the system and the development of this report.

There must be no copying from any source in any report. If you take ideas, schematics, or code from elsewhere, please cite your source. The members of the team must write all the words in any deliverable. ALL members of the team MUST contribute to the content of the report.

*Format*

Reports should be limited to a maximum of 4000 words including tables and captions. Reports are not required to be this length – 4000 words is the maximum. It is preferred that page size will be A4. The report should be structured into numbered sections in a similar way to what is described above (i.e. must have headings). A cover page should be included that provides the product name, team name and team letter (not included in word count). Include a table of contents at the start of the report and a list of references on the last page of the report before the appendices (this is also not included in the word count). All figures, tables and illustrations should be properly captioned (i.e. number and description), and cited in the text.

ECTE250 Deliverable 2 Guidelines



*Marking Rubric & Grade band descriptors*

**Good**: all required contents are included in the section. All contents are relevant; argument are well described or motivated. Illustrations/table/diagrams are properly used to support the contents.

**Acceptable**: only the basic or essential contents are included in the section, other are missing or irrelevant. Most arguments are well described or motivated, other are vague or poorly supported. Most illustrations/tables/diagrams are properly used to support the description of the section content.

**Poor**: most section contents are missing, irrelevant or poorly described. Most arguments are poorly motivated/supported. There is a poor or improper use of illustrations/tables/diagrams.

**Complexity factor**: the complexity factor will award up to 10 extra marks as it follows: 2 or less = no extra marks, 3 = 3 extra marks, 4 = 5 extra marks,

5 = 7 extra marks, 6 (or above) = 10 extra marks.

**Design**: to be considered Acceptable/Good mark in Design, the team must also demonstrate a working circuit simulation of the state machine. Each state must be represented by an LED (or one LED per flip flop), simulation should be verified against the submitted state chart.

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| --- | --- | --- | --- | --- |
| **Section** | **Good (75 – 100%)** | **Acceptable (50 – 74%)** | **Poor (0 – 49%)** | **Marks** |
| Executive Summary |  |  |  | /5 |
| Introduction |  |  |  | /5 |
| Design |  |  |  | /35 |
| Alignment |  |  |  | /5 |
| Testing |  |  |  | /5 |
| Plan |  |  |  | /20 |
| Budget |  |  |  | /5 |
| Marketing |  |  |  | /5 |
| References |  |  |  | /5 |
| Language & Structure |  |  |  | /10 |
| **TOTAL** | | | | **/100** |
| **Comments:** | | | | |