PRIMER: Final Report

Format

EE Senior Design

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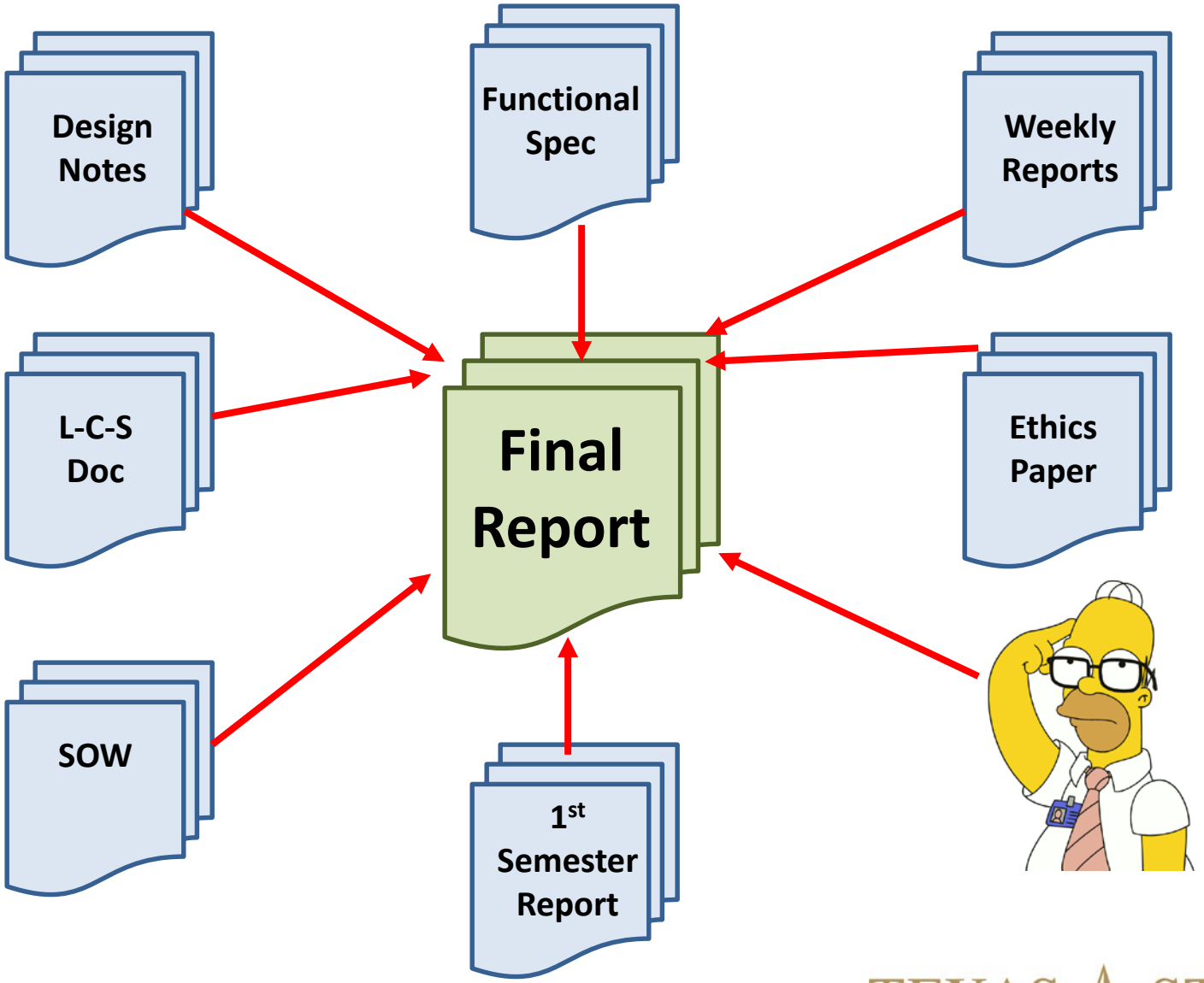
Overview

- **Your Final Report is one of the major deliverables for your Project**
  - It should be something you want to show off!
  - It should answer most questions anyone may have during the poster session
  - **ABET will want to see it**
  - **HIRING MANAGERS will want to see it**

- ***Neatness, Organization, Clarity are paramount***

Construction



Final Report Sections

- **A template is posted on TRACS (as always)**
- ***Let's go through the sections and the expectations.***

Executive Summary

Executive Summary - *3/4 page limit*

This section should present a clear, concise summary of your project.

- Who sponsored/mentored it,
- Size of team & mix of major/track,
- What your project was intended to do,
- How closely you achieved your goals,

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Executive Summary

In general (concise!) what worked well and what didn't, and briefly summarize which features met design specifications and which did not.

Write this section so that if a VP is only going to read one section about whether or not your project worked - this would be the one.

Describe the purpose & value of your project. Why did you do it? Who benefitted? How is it of value to your Sponsor/TXST/society/you, etc?

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Abstract

Abstract

- *Write a concise abstract for your project.*
- ***1/4 page limit***

- ***THE EXECUTIVE SUMMARY AND ABSTRACT MUST FIT ON ONE PAGE!!***

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Problem Description

The problem description section should tell the reader the topic your project is addressing and your specific deliverable(s).

Include a system-level diagram that will orient a reader to your design approach. The system level diagram should be very general and at a glance make clear what your project does, how it fits together, etc. Make it Figure 1. Your work shall be highlighted in yellow as shown.

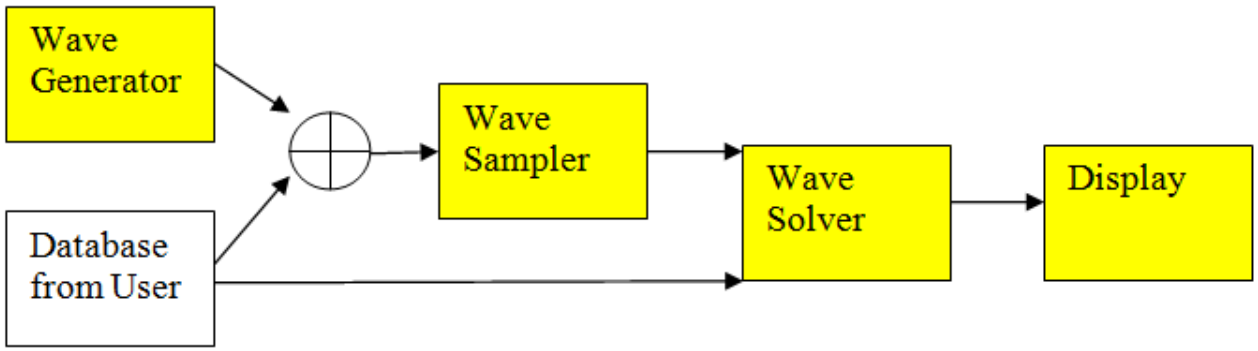

Fig. 1. System level diagram of Ionospheric Wave Project. Blocks highlighted in yellow were designed and coded for this project.

Progress Toward A Solution

This section has 8 sub-sections.

Design Decisions

Discuss your design decisions for each block at the most general level: What alternative approaches to the design are possible, which was chosen, and why is it desirable? Include at least one figure to illustrate this.

Design Approach

How did you approach & do the design? What software tools did you use? Include at least one figure to illustrate this. What EE courses (give number and course name) helped you to complete your design?

Progress Toward A Solution (cont'd)

Project Approach

How did you approach & organize the project?

What steps did you take to complete it?

Progress Toward A Solution (cont'd)

Engineering Standards

- Each project incorporated relevant engineering standards from organizations such as **ANSI, UL, IEEE, ASTM** and so on. List each set of standards used in your design. For each standard state HOW and WHY it was relevant and how incorporated.
- Feel free to do this in tabular form if you desire such as:

Standard	Title	Application	Relevance
UL44	Standard for rubber-insulated cables & wires	Two, 2m RG59 cables from power supply to amplifier unit	Safety
GR-499-CORE	Transport Systems Generic Requirements	Optical fibers transmitting data from sensor unit to processor	Data Integrity

Progress Toward A Solution (cont'd)

Progress Towards Goals

Clearly indicate your progress toward achieving your proposed deliverables. If there was any change in your deliverables from those originally proposed, explain the reasons and provide justifications.

Verification

How exactly did you verify/confirm you met your technical goals? Describe the test bed you constructed or used, and how many samples you tested (if applicable).

Progress Toward A Solution (cont'd)

Iterations and Redefinitions

Describe each relevant/major iteration or redefinition. How or why did they occur? What were the circumstances? Roughly when did it occur? What was the impact? What did you learn from it?

Progress Toward A Solution (cont'd)

Characterization Results

- *Show a **concise** table listing*
  - *each Test Case,*
  - *its corresponding specification(s),*
  - *the results of the test,*
  - *and whether or not it was compliant with the specification.*
- **A reader should be able to tell at a glance what worked and what didn't.**

Progress Toward A Solution (cont'd)

Deficiencies

- *For each deficiency, address the effect on system performance and design. Include any estimates of time and effort required for correction of each deficiency and any recommendations regarding the urgency of each correction, and the recommended solution or approach to correcting deficiencies.*
- *Summarize as a table.*

Constraints

This section has 7 sub-sections:

Budgetary (how did limited funds/supplies constrain your design?),

Design Feasibility (you're not Intel so how did this constrain your design?),

Manufacturability (what constrains the ability of your design to be manufactured / what constraints did you consider?),

Maintainability (mostly for software projects, but hardware can fail),

Environmental (what environmental considerations did you have? Think about this in broad terms!),

Health and Safety concerns, and

Social (intended users/audience, etc).

You'll need to spend some time thinking about these!

It's too easy to say, "none," which is not true most of the time.

Your grade will suffer if you don't put thought into these.

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Budgets

BUDGETS

The budget section should include a comparison of your proposed budget and the actual dollars spent to date.

Create a table with side-by-side columns to convey this information.

Include a brief statement or paragraph summarizing your budgetary performance.

Work Schedule

WORK SCHEDULE

The schedule section must make clear to the readers which tasks were completed and which were not.

Wherever possible make it clear which team member(s) were responsible for each **major** task.

Discuss any timeline changes since the proposal was submitted.

Use Gantt charting techniques (or side by side table if it's preferable) to show the current status of the tasks in relation to the proposed schedule. **However you do this it has to be readable!!! It will be a Figure or Table.**

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Teamwork

PERSONNEL INTERACTIONS

Teamwork

The teamwork section must clearly and concisely state the responsibilities of each team member and his/her contribution to the senior design project.

You can convey this information in a method of your choice, i.e. text, table, etc.

Mentorship

PERSONNEL INTERACTIONS

Mentorship

What roles did your Sponsor and Faculty Advisor play?

How much time did you spend with them and how frequently? How much did they assist you? What did they do? (point you towards resources, chalkboard lectures, help solve problems when stuck, etc)

You're tiptoeing on political turf here so be very careful how you word this. If you got very little mentorship from your Sponsor/Tech Mentor then perhaps they did a great job defining the project, pointing you in the right direction, asking pointed questions, etc.

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Ethics

- You must discuss the ethics associated with your project.
- Write an analytical (NOT persuasive or opinion) essay using what you learned from the Ethics unit.
- Use moral & ethical theories & principles as described in the powerpoint lectures.
- Include elements of IEEE & NSPE codes of ethics as you did in your Ethics Paper.

Summary & Conclusions

Describe the overall capabilities and deficiencies of the system. *(You will summarize this section for the Executive Summary.)*

Provide a statement, based on the results of the system or module test, concerning the adequacy of the system or module to meet project requirements.

How close did you come to your objectives?

Discussion

This section has 6 sub-sections.

Academic Preparation

Were your TXST EE courses useful preparation for your project? How much, and if yes, how? If not, why not? If not, what resources were used?

Lessons Learned

What did you learn about the engineering process? Teamwork? Management?

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Discussion

Soft Skills

What soft skills did you develop, improve or learn that you did not have before taking Senior Design?

What elements of the course, or activities or assignments facilitated this learning?

Discussion

Schedule Deviations

What caused any deviation? What could you have done to better stay on track?

What elements were under your control? Out of your control?

Staffing

Was your project adequately/correctly staffed? Why or why not? Enough members? Right major/tracks?

Discussion

Final Observations

If you had this project to do over again, what would you have done differently?

Acknowledgments

ACKNOWLEDGMENTS

Briefly acknowledge the individuals who helped you technically, organizationally, etc.

At a minimum you must acknowledge your Sponsor and your Faculty Advisor. Be generous!

References

REFERENCES

List relevant references. **NO WIKIPEDIA!!!**

This section provides a bibliography of key project references and deliverables. This should not be a long section, but should show that you referenced and followed applicable guidelines.

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