Project Planning, Proposal, Milestones

ECE532S: Digital Systems Design

Spring 2012

Timeline

Draft Proposal Due Monday, January 23, at start of lecture.

Proposal Feedback and Set Milestone 1 Wednesday, January 25. During the lab, a TA will discuss your project proposal, give some feedback and help you determine the first milestone that you will incorporate into your formal proposal and demonstrate two weeks later.

Formal Proposal Due Wednesday, February 8 in lab. This is the formal proposal as outlined below. Keep a copy for yourself as we will keep the proposal to start a file for your project.

Weekly Progress and Milestones Each week you will negotiate milestones for the following week. Each member will be responsible for at least some aspect of a milestone and you will be evaluated on your actual progress when the milestones are demonstrated.

Demonstration April 11 lab.

Draft Project Proposal

Briefly describe the project you want to implement. The basic guideline is that your project should incorporate at least one MicroBlaze processor and a hardware block of your own design.

Give a list of functional requirements and features.

Provide enough details so that you can discuss your proposal with a TA and so that the TA can give you some feedback on whether it might be too hard, too easy or does not meet the course requirements. This can be very rough and even in point form. A few sketches of block diagrams will usually help explain your ideas much more easily. You might do this work on a napkin, but it might be better to copy it onto another piece of paper so that it is easier to read!

Proposal (10%) February 8, 2012

Late submissions will be docked 2% out of the 10% for each day late.

This is a template for your project proposal. It does not have to be in perfect prose (point form is okay). However, it should clearly convey the intent and planning for the project. Please provide **all** of the information requested in this template.

Please pay attention to the requirements for each section. All information requested is required.

Project Title

Project Team

It is expected that a typical team will consist of three members.

For each team member, provide a short biography (no more than half a page) of what skills they bring to your team.

Evaluate the strengths and weaknesses of your team. Discuss what skills and knowledge you feel will need to be acquired or improved to make your project successful and how you will address these needs.

Project Description

Describe the project to be implemented. The basic guideline is that your project should incorporate at least one MicroBlaze processor and a hardware block of your own design.

Describe the **functional requirements and features** that you wish to achieve. Describe the **acceptance criteria** that will be used to determine whether the requirements and features have been satisfied.

Include a **system block diagram** that shows all of the major components in the system. See the link on the course web site:

`http://www.eecg.toronto.edu/˜pc/courses/432/2008/handouts/blockdiagram.pdf`

for a good example of what is expected in a block diagram. Indicate which components will be the reuse of existing IP, and which components will have to be implemented. Briefly describe each component.

Note that a component can be hardware or software, i.e., a block in your block diagram could be hardware or software. Depending on the project, you may need one diagram to describe the hardware system, and one to describe the structure of your software.

The diagram and its description shows the work that you have put in to figuring out how your system is supposed to work and it should help you estimate the amount of work required.

Resource Requirements

List other resources you will need such as microphones, VGA monitors, or video cameras. Microphones and VGA monitors are readily available in the lab. You will have to provide anything else you require, like cameras, but it is good to know the list.

Milestones

Give an initial estimate of the milestones you hope to accomplish each week for the project starting from now till the demo. If you know how to do a Gant chart, this would be a good addition, but you should also provide a bit of explanation of each milestone.

Feb 8 Choose this milestone well. Indicate your planned progress towards your first milestone and what you plan to show or demo.

Feb 15 By this milestone you should have significant progress in your design most likely demonstrated by a working simulation of some hardware. We will build and test blocks *widget A* and *widget B*

Feb 22 Complete and test code for software *XYZ Control*

Feb 29 Leap Year! Bonus day, show *Widget C*

March 7 etc.

April 11 Done! Final demo.

Milestone Progress Reports

Late submissions will be docked 2 marks per day. An incomplete or incomprehensible report will lose 1 mark.

For each lab, starting Feb. 8, you should prepare a one-page progress report and email it to the TA managing your group **by 8pm of the evening before the lab** or else **you will lose two marks if it is late.** The report should be in plain text format, no pdf, no Word files, just plain old text! This will make it easier for the TA to annotate comments.

Keep these reports. You will need to summarize them in your final group report.

The progress report should be based on the milestones that you set with your TA the previous week. The first milestone check will be based on what you established with your TA during the previous two weeks of project development. Going forward, each week you will set new milestones for the following week and update your future timeline of milestones if necessary.

At times, it may make sense that individuals in the group have different deliverables for the milestones. Separate reports should be sent, or the individual deliverables should be clearly identified. In this case, separate grades will be assigned to each member.

You may also find that you will have a very busy week and will not get anything done. It is acceptable to promise no milestones, but no grade will be assigned either. In this case, milestones should be set for two weeks, instead of one week, and the grade value for those milestones will be doubled. It is at the discretion of the TA to allow this depending on his/her belief that you can maintain the average pace required to finish your project.

The milestone progress report grades will account for 25% of the final grade.

The report should provide the following information:

- Progress towards that week's milestones. If a significant setback has occurred, discuss why or what the problem was, your approach to addressing the problem and how you will accommodate the delay in your schedule. If you have a bug you cannot find, explain what you did during the week. Struggling with a bug and describing how you wrestled with it is acceptable as a delay in your milestones as long as your approach was significantly better than random guessing or trial-and-error. In particular,
  - Describe the nature of the bug. What's not working, what you expected and what you observe.
  - What is your hypothesis about the cause of the bug?
  - What is your debug plan? How are you going about isolating the bug?
  - What tests have you run?
  - What test results will indicate that your design is working?
  - If you cannot find the problem, what alternative strategies do you have, if any?
- Proposed milestones for the next week. This may be amended after discussion with the TA.

After reviewing the milestones with the TA, a grade will be assigned based on the following rubric:

Grade	Criteria
10	Good report, all milestones met
9	Good report, milestones not met, but delay is clearly/strongly justified, e.g., significant work done but task became larger than expected or there was a bug Approach to finding the bug was systematic and clearly explained Bug demonstrable and well understood, i.e., bug is found and fix is known Suitable adjustments to milestones have been made
7	Good report, milestones not met, some work done or bug encountered Good debug strategy in place, but bug not yet found Suitable adjustments to milestones have been made
5	No report, some work done but milestones not met and probably could have been met with more effort or unsolved bug encountered Good debug strategy in place Adjustments to milestones presented
3	No report, some work done but milestones not met and should have been easily met with a little effort or unsolved bug encountered Poor debug strategy being used or proposed Or, no adjustments to milestones presented
0	No report or non attendance or no milestones met or no work done

Notes:

1. All reports are due prior to the weekly scheduled lab demo. Otherwise, there will be a ”Late Report (-2)” grade deduction.
2. If students cannot demo their weekly progress at the original scheduled time, then the students **must** arrange another time with their respective TA to demo their progress for full marks.
3. The weekly report is due at midnight on the day before the (non-modified) weekly scheduled lab demo.
4. Adjustments to the milestones must be approved by the TA.

Overall Project Strategy

Your overall project grade will depend on how well you meet your original milestones, or, if you encounter difficulties, how well you make adjustments by the end of the project. It is most important to be able to show something working by the final demonstration.

Choose your project in a way that you can afford to *slip* (four-letter word that managers hate to hear) a few weeks and still show something that works at the end.

This means that you should have several working stages, each with some additional functionality or features. If you have some unforeseen delay, you should be able to still show something that works in the end, even though it is not the full project you initially proposed. This is an important part of planning a project: get some basic stuff working as soon as possible. Add fancy features, optimize your circuits, and make it beautiful later. Time to market (time to marks?) is often more critical (how to make money) than being perfect (the dreaded perfectionist engineer). It is better to build something that works with basic functionality, than build something pretty that does nothing.