*Note: You need not use this format. We would prefer you use these section headings and organization, but feel free to use whatever format you prefer.*

**Team members:**

1. **Introduction and overview of project**

In this section you should provide an overview of what the goal of your project is and why this goal is worthwhile (either commercially or for the benefit of society). Be succinct and clear about what your project produced and how it was demonstrated at the COE Design Expo. Provide references to any literature/software/patents, e.g., “J. Smith established in [1] that it is possible to interface a FPGA similar to the Spartan3 to a similar combination of a video camera and EEG electrodes used in our project.” “We used an algorithm discussed in [2] to determine where our robot was given three angles.”

Summarize the degree to which you achieved all the goals and milestones in your original proposal.

1. **Description of project**
2. Go into more detail on your project describing the goal, the system concept, and the feasibility of your project.
3. List the various design constraints[[1]](#footnote-1). All projects should include a mention of the need to finish the project on time and on budget. Other constraints might include weight, size, unit cost, and functionality requirements. There may also be legal, ethical, environmental and other constraints. Where possible, quantify how well your project met those constraints.
4. Describe the system architecture, including a detailed block diagram (not drawn by hand) of the system including peripherals, processors and the like. Explain how the architecture works – what the function of each of the devices is and how you communicate to them.
5. **Milestones, schedule, and budget**

How well did you stick with your original schedule? Your original budget? List each item in your milestone deliverables. Discuss issues that put you behind or kept you on track.

1. **Lessons learned**

What went well? What went poorly? If you could send a short memo back in time to your group when you first started, what would it say? What technical material do each of you feel you’ve learned from the project?

1. **Contributions of each member of team**

Describe the contributions of each team member to the project in the form of a table as indicated in the example below. If you can’t come to an agreement, make a note of that and have each member e-mail the instructor within 24 hours after this project report is due. *The contribution section for* ***each*** *student should be a full paragraph rather than the short text shown here.*

**Team member Contribution Effort**

Rob Redford: programmed algorithm, tested prototype 35%

Tania Harding: PCB design, soldering, algorithm design 30%

John Doe: PCB design, assembly coding 15%

Julia Child: Interface and I/O programming, wrote report 20%

1. **Cost of Manufacture**

Take a look at <https://circuithub.com/> or some similar tool and see if you can generate a quote for the manufacture and population of your PCB(s). In some cases, you won’t be able to or it will take far too long to generate a reasonable quote.

**If you can get it to work**, identify a quantity that is reasonable for your application. What is the cost/board for you design? How reasonable does that feel?

**If you can’t get it to work**, what issues did you run into? How would you work around them given time?

1. **Parts and Budget**

Provide a parts list and final budget (not including shipping) for your project. A printed version of your spreadsheet(s) is fine, *but the printing needs to be readable*.

1. **References and Citations**

*Include all interface code*

We are looking to see the function declarations for your interfaces to hardware. So if you have (say) and SD card, we want to see the functions/macros/whatever that are used to interface to your hardware. Include comments as helpful/needed.

If typedefs or #define values are needed to make the interface make sense, include them, but be sparing. What we want is a solid sense of how to use your code. *Basically we want your APIs with some comments as needed to make them make sense.*

***Provide a full page, color, version of your soldered PCB****. If you have more than one side that is interesting (has non-trivial parts) include that. If you have more than one PCB designed, do this for each.*

*Clearly note any code, ideas, or hardware taken from anything else.*

This includes things taken from other people, your own previous projects, open source code, whatever. Basically, you should list (*and link to if appropriate*) anything you didn’t write or do yourself for this project. Good place to thank anyone that helped that isn’t part of the team (roommates, parents, etc.)

Final note: Sections I to V will probably be 8-10 pages or so and should almost certainly have diagrams, pictures and other things which make it clear what you actually did and how you did it. *Sections I to VI may not be more than 15 pages.*

1. Recall that “design constraints” are conditions that need to happen for a project to be successful. [↑](#footnote-ref-1)