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ECE 342

Executive Summary

The design problem I was tasked with solving was to create an egg timer that could be used for both soft and hard boiled eggs. The timer needed to be adjustable between four and ten minutes (for soft and hard boiled eggs respectively) It had to display the remaining time on a seven-segment display that had three brightness settings, and sound an alarm when time was up. In addition to these requirements, the system had to be safe, waterproof and accurate.

My approach to this project was to break it into three major areas: the seven segment display, the audio output, and the user interface. I decided to tackle what I viewed as the most difficult problem for the first phase of development: the seven segment display. I knew that if I could prove that was working, the rest of the project would be relatively easy to get working. The second phase of development, I worked on the audio output, this was simple from a firmware perspective, however I had to revise this towards the end of the project as I caught a mistake that I hadn't noticed previously. The third and final phase of the project was the user interface, this was the easiest because it just involved using a button and potentiometers to make decisions or alter values in the firmware state machine. The final phase of the project was taking the electronics and prototyping the enclosure, and waterproofing it.

Project Timeline

WBS NUMBER	TASK TITLE	START DATE	DUE DATE	DURATION	PCT OF TASK COMPLETE
1	**Project Conception and Initiation**				
1.1	Project Decision			4	100%
1.1.1	Project Requirements			2	100%
1.2	Initial Stakeholder Meeting			1	100%
1.2.1	Stakeholder meeting summary			3	100%
2	**Block Definition**				
2.1	Block Diagram			2	100%
2.2	Interface Definition			1	100%
3	**System Integration**				
3.1	Schematic Design Block 1			3	100%
3.1.1	Prototype block 1			9	100%
3.2	Schematic Design Block 2			3	100%
3.2.1	Prototype Block 2			12	100%
3.3	Enclosure Design			2	100%
3.3.1	Enclosure Prototype			4	100%
3.4	PCB Design			8	100%
3.4.1	PCB Manufacture			10	100%
4	Final Integration			9	100%
4	**Project Presentation**				
4.1	Project Objectives			2	100%
4.2	Organize Documentation			2	100%
4.3	Effort and Cost Tracking			3	100%
4.4	Project Performance			2	100%
4.5	Video			4	100%

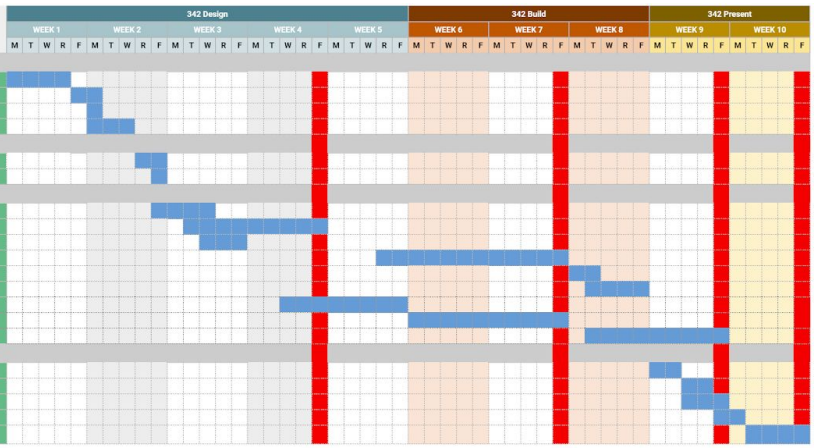

Figure 1: Project timeline: red indicates critical dates.

Key Lessons

My key takeaways from this project are more in regards to project management than technical skill. The first takeaway is that I should ask more questions than I think I need to about project requirements, less confusion about requirements would have made this project less stressful. My second key takeaway is to start on documentation early. I found that easily more than half of my time spent on this project was on documentation. Starting on documentation earlier would have greatly reduced the level of stress in completing the project.