Executive Summary

Original Engineering Problem

The original engineering problem was to create a non-contact thermometer. More specifically, the product was required to be accurate, intuitive, contactless, and be able to log and notify user temperature.

Development Phase

The development phase is software implementation and testing, and hardware implementation and testing. The first 6 weeks were the software development phase, in particular, we designed and implemented the sensor module, LCD module, notification module, and logging system module. Then the next 3 weeks were the testing phase, we implemented several tests to ensure each of the software modules were working as intended.

Design Evaluation and Revision

Some of our modules went to a couple iteration and revision before they were presented in the final product. In particular, we tested several different versions of the calibration equation for the sensor module; it seems like the sensor was heavily influenced by the temperature of the environment, so it took a couple revisions for the final product to be accurate. The other thing would be the casing of our product. Throughout the project, we've changed the components we're using and interface design a couple of times; so it took some revision before we could achieve a casing that we're satisfied with.

Project Timeline

ECE 342 Non-contact Temperature Scanner

PROJECT TITLE	Non-contact Temperature Scanner	CLASS	ECE 342: Junior Design II
TEAM MEMBERS	Preston Hang, Jia Wei Cheng, Budsakol Tiangdah(Pam), Sultan Aldhaheri	DATE	1/14/22

							342 Research							342 Design							342 Testing							342 Present						
							WEEK 12							WEEK 13							WEEK 14							WEEK 15						
WBS NUMBER	TASK TITLE	TASK OWNER	START DATE	DUE DATE	DURATION	PCT OF TASK COMPLETE	M	T	W	R	F	M	T	W	R	F	M	T	W	R	F	M	T	W	R	F	M	T	W	R	F	M	T	W	R	F
1	**Project Conception and Research**						1/10 - 1/14							1/17 - 1/21							1/24 - 1/28							1/31 - 2/4						
1.1	Block Diagram Design	Sultan	1/14/22	1/14/22	0	100%																											
1.2	Hardware Research	Sultan, Pam	1/14/22	1/19/22	5	100%																											
1.3	Software Research	Preston, Jia Wei	1/14/22	1/19/22	5	100%																											
1.4	Research Evaluation	Preston	1/19/22	1/26/22	7	100%																											
2	**Project Design and Implementation**																																
2.1	Parts Purchasing	Sultan	1/19/22	1/26/22	7	100%																											
2.3	Casing Design	Pam	1/26/22	2/2/22	6	100%																											
2.4	LCD Display Sofware	Preston	1/24/22	2/2/22	8	100%																											
2.5	Temperature Sensor Software	Jia Wei	1/28/22	2/2/22	4	100%																											
2.6	Power Source Research	Sultan	1/27/22	2/4/22	7	100%																											
2.7	External Storage Software	Jia Wei	2/2/22	2/9/22	7	100%																											
2.8	LED Software	Pam	2/2/22	2/9/22	7	100%																											
3	**Project Testing**	**First day of Testing : February 9th**																															
3.1	Sensor and Storage Code Testing	Jia Wei	2/11/22	2/18/22	7	100%																											
3.2	LCD Testing	Preston	2/10/22	2/15/22	5	100%																											
3.3	Assembling	Sultan, Pam	2/16/22	2/23/22	7	100%																											
4	**Project Presentation**																																
4.1	Poster Design	Jia Wei, Preston	2/25/22	2/28/22	3	100%																											
4.2	Design Report	Everyone	2/25/22	3/4/22	9	100%																											

							342 Testing							342 Present						
							WEEK 16					WEEK 17					WEEK 18				
WBS NUMBER	TASK TITLE	TASK OWNER	START DATE	DUE DATE	DURATION	PCT OF TASK COMPLETE	M	T	W	R	F	M	T	W	R	F	M	T	W	R	F
1	**Project Conception and Research**						2/7 - 2/11					2/14 - 2/18					2/21 - 2/25				
1.1	Block Diagram Design	Sultan	1/14/22	1/14/22	0	100%															
1.2	Hardware Research	Sultan, Pam	1/14/22	1/19/22	5	100%															
1.3	Software Research	Preston, Jia Wei	1/14/22	1/19/22	5	100%															
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4.2	Design Report	Everyone	2/25/22	3/4/22	9	100%															

Key Lessons Learned

Some of the key lessons are definitely spent more time in the design phase and trying out more different ideas. In particular, some of our design choices were decided too early on, and they could've become better if we tested around with other ideas.