Project Summary

Based on the project requirements, my team was tasked with creating a system to visualize 3D images and animations. Given the parameters, the best option we came up with was to mount RGB LEDs to a wire matrix in which individual LEDs can be turned on and off to create animations.

I approached the project as if each team member was collaborating but ultimately be in charge of their own part of the project. We tried to schedule weekly meetings, however there weren't many available times that we were able to meet. In the meetings we had, we worked on converting the product into hardware and software requirements that would be attainable in the duration of the project. The requirements that we extrapolated included being colorful, continuous lighting, multiple animations, and being able to run off of battery power. The project was split into 6 blocks with interaction of each block being assigned to a group member in which the amount of work was generally evenly distributed.

I envisioned being able to communicate with what each block needed as inputs and outputs and working somewhat individually to adapt our blocks to fit with the needs. The development was broken into 3 phases, Research, Testing, and Assembly, and we were supposed to meet before the start of each phase to confer exactly what we needed for the upcoming phase. The evaluations of the blocks changed what we needed for the system overall, as we ended up needing a fairly small matrix and PCB to fit with the size of the enclosure which changed the component count and set up as it was attached. We revised the PCB to be 157mm by 146mm which ended up being almost the size of the bottom of the matrix. Our original design for the enclosure was to be homemade, however we changed it to an ABS box from TekBots to make the system easier for others to recreate our project.

Going through the project, we ended up with some fairly major roadblocks in physical size of components, lack of communication between teammates with integrating blocks, and cost effectiveness. We overcame some of this by discussing feedback after each block check off, and using some premade modules to increase ease of assembly.

I learned that in order to go above and beyond the requirements, I would have to invest a large amount of time and resources into helping and monitoring my teammates progress with their blocks in order to successfully incorporate my own blocks especially due to having to work remotely. I learned that I have a large amount of trust in my teammates abilities at the start of projects, in somewhat of an embarrassing fashion as our project was not fully assembled before the deadline. The group devolved in the last few weeks of the term as the team communicated less and less, eventually ending up with team members placing priority on other events rather than meeting up to assemble the project. I also learned that I need to make sure that everything is scheduled weeks in advance so there would not be any overlapping scheduling conflicts, as well as needing to determine a group lead at the beginning of the project.

	A	B	C	D	E	F	G	H
9		WBS NUMBER	TASK TITLE	TASK OWNER	START DATE	DUE DATE	DURATION	PCT OF TASK COMPLETE
10								
11		**1**	**Project Design**					
12		1.1	Goals	**Team**	3/31/21	4/5/21	5	100%
13		1.2	Research	**Team**	4/8/21	4/21/21	13	50%
14		1.3	LED matrix diagram	Austin	4/11/21	4/15/21	4	100%
15		1.4	Enclosure Design	Jarod	4/11/21	4/15/21	4	100%
16		1.5	Projected Budget	Christian	4/14/21	4/21/21	7	100%
17		1.6	GUI pseudocode	Jarod	4/12/21	4/21/21	9	100%
18		1.7	Microcontroller Code	Christian	4/17/21	4/26/21	9	85%
19		1.8	PCB draft	Christian	4/21/21	4/26/21	5	100%
20		1.9	Project Initiation	**Team**	4/21/21	4/26/21	5	100%
21		**2**	**Project Build**					
22		2.1	PCB Creation	Christian	4/26/21	4/28/21	2	100%
23		2.2	PCB Order	Jarod	4/26/21	4/30/21	4	100%
24		2.3	Drafted GUI	Jarod	4/26/21	5/8/21	12	100%
25		2.4	LED Schematic	Austin	4/26/21	4/30/21	4	100%
26		2.5	LED matrix assembly	Austin	4/30/21	5/7/21	7	100%
27		2.6	Enclosure construction	Austin	4/26/21	5/8/21	12	0%
28		**3**	**Project Testing**					
29		3.1	PCB Installation	Christian	5/10/21	5/14/21	4	0%
30		3.2	PCB mounting	Christian	5/17/21	5/19/21	2	0%
31		3.3	GUI completion	Jarod	5/10/21	5/14/21	4	100%
32		3.4	LED correspondance tests	Austin	5/10/21	5/13/21	3	0%
33		3.5	LED matrix mounting	Austin	5/13/21	5/20/21	7	0%
34		3.6	Project Updates	**Team**			0	0%

By Austin Pearson