

Original Design Need

The need that this project was aiming to solve was that of a 3D LED visualizer that has 5x5x7 resolution is able to display multiple colors with at least three animations and be user programmable. Additional needs that this project was supposed to address include LED brightness levels and an automatic shutoff timer.

Project Approach

We approached this project as a team by splitting the project into six different blocks: power, lights, Arduino, GUI, button, and enclosure. Then we each split that up further and worked on two blocks each. Emma worked on the Arduino and the button, Willy focused on the enclosure and GUI, and Konstantin completed the lights and power blocks.

We started by creating a basic block diagram of our design which we later changed due to the power going into the Arduino, not the LEDs themselves. We each began our project by focusing on one of our individual blocks before moving on to our second blocks when the first was completed. We worked towards connecting all of our blocks together at the end of the project and conducted system testing. This ended up being a lot more difficult than we originally thought and resulted in quite a few problems, but luckily required no elaborate revisions to be made to the design.

Project Timeline

Mho's Law - 342 Project Timeline

Group Project	3D LED Visualizer
Team Members	William Castro Ramires, Emma Dacus, Konstantin Markov

TASK TITLE	TASK OWNER	START DATE	DUE DATE	342 Design										342 Build					342 Present				
				WEEK 1		WEEK 2		WEEK 3		WEEK 4		WEEK 5		WEEK 6		WEEK 7		WEEK 8		WEEK 9		WEEK 10	
				M	T	W	R	F	M	T	W	R	F	M	T	W	R	F	M	T	W	R	F
Block Diagram	Everyone	1/14	1/14																				
Create Schematic	Everyone	1/14	1/21																				
Create pseudo code (GUI and Arduino)	Willy & Emma	1/19	1/24																				
Determine Parts	Everyone	1/20	1/21																				
Code stuff for GUI	Willy	1/24	2/16																				
Code stuff for arduino	Emma	1/24	2/16																				
Order Parts	Everyone	1/24	1/28																				
Build	Everyone	1/31	2/18																				
Test Code for Arduino	Willy	2/16	2/18																				
Test Code for GUI	Emma	2/16	2/18																				
Test Physical LED Visualizer	Everyone	2/21	2/23																				
Debugging	Everyone	2/23	2/25																				
Project done	Everyone	2/21	2/25																				
Make presentation board	Everyone	2/28	3/4																				
Present	Everyone	3/7	3/11																				

Key Lessons

Some key lessons we learned from this project are:

- Communication between group members about their respective responsibilities is important even if one isn't directly involved in that specific responsibility.
- The testing process is something that should be planned out just like the design of the system itself to ensure that any exceptions or flaws to the system are made apparent so they can be addressed during the revision process.