

# Executive Project Summary

3D LED Visualizer Group 6

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The 3D LED Visualizer had five main problems that we were meant to overcome over the course of the term.

1. The system should be able to display at least 10 unique colors.
2. The system display should have a resolution of at least 5x5x7.
3. The system should have at least 3 pre-programmed animations.
4. The system should have a GUI that allows users to design at least 3 new messages and animations.
5. The system display should not appear to flicker to at least 2 people other than the project designers.

The first major problem that we were faced with when looking at this project was the number of LEDs that needed to be controlled. Consisting of 175 LEDs and each LED having four leads, there appeared to be an incredible number of inputs needed. Much more than any single microcontroller board would be able to support. Though with a bit of research we realized that the number of I/O ports required could be significantly reduced down to 35 I/O ports. 25 for the columns, 7 for the layers, and 3 each of the colored LEDs (R, G, and B).

In the end we both learned a number of valuable lessons when it comes to contributing to technical projects such as this one. The first lesson is that communication is key to success. Making sure all other group members are aware of what each other is working on and what progress is being made is essential for keeping up with the timeline. The second lesson we learned was that you should not assume that a block is going to function. Whenever we connected two blocks together there was almost always an unexpected problem that we encountered. The last and most important lesson that we learned is to always overestimate how much time a project will take. Give yourself a buffer of a few days to compensate for unexpected problems, oversights, and general technical difficulties. Finishing early is better than running out of time.

W 2	W 3	W 4	W 5	W 6	W 7	W 8	W 9	W 10
<ul style="list-style-type: none"> <li>Brainstorm</li> <li>Project overview</li> </ul>	<ul style="list-style-type: none"> <li>Commit to design</li> <li>Specify I/O and interface to team</li> </ul>	<ul style="list-style-type: none"> <li>Design blocks</li> </ul>	<ul style="list-style-type: none"> <li>Enclosure and PCB Design</li> <li>Part Sourcing and ordering</li> <li>Interface design</li> </ul>	<ul style="list-style-type: none"> <li>Individual I/O testing</li> </ul>	<ul style="list-style-type: none"> <li>Whole System functionality testing</li> </ul>	<ul style="list-style-type: none"> <li>Animation programming</li> </ul>	<ul style="list-style-type: none"> <li>Troubleshoot</li> <li>Work on presentation and documentation</li> </ul>	<ul style="list-style-type: none"> <li>Presentation</li> </ul>
Design				Testing			Presentation	

• Each task should be completed by Monday on following week.

Meetup times specified:

- Monday Afternoons
- Tuesday Evenings (if possible)
- Thursday 12-2 pm
- Friday Recitation

## Project Timeline