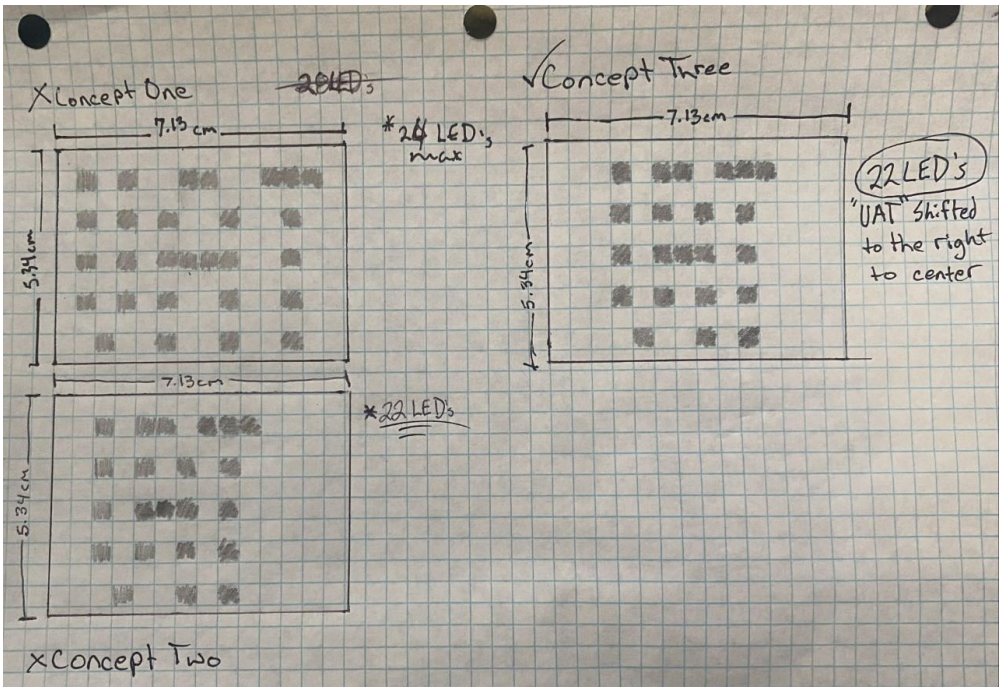
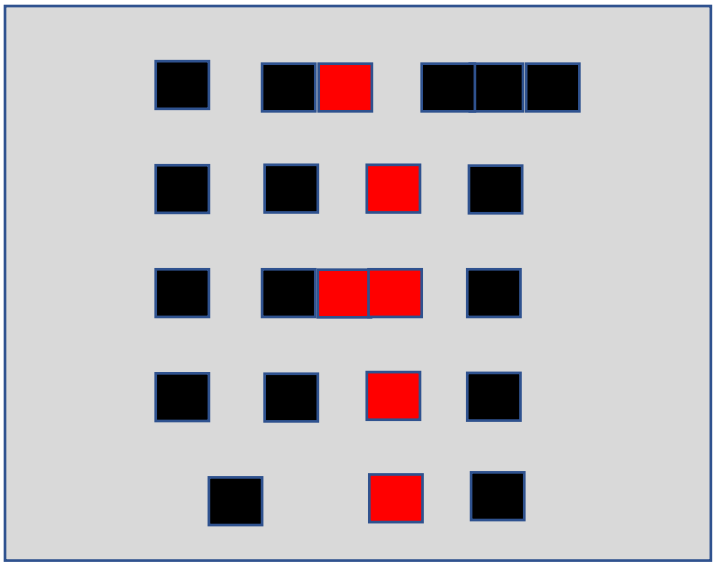
Rico Garcia
SPT323
Design the Final Project

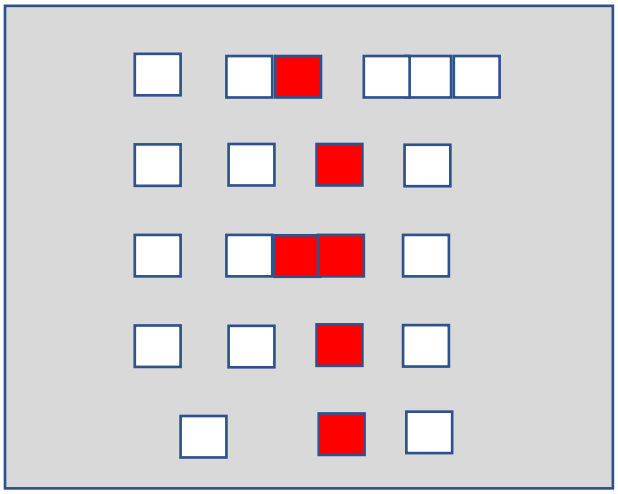
For the final project I wanted to propose a badge that has the school's name spelled out in LED's and then have it blink. As a bit of a fun little easter egg for those that are paying close attention though, it will blink a message like "congratulations" in Morse Code. The message can be anything, something shorter might be preferred but something that the eagle-eyed spectator will notice and think to themselves "that isn't just normal blinking…" it'll be a conversation starter for huge population of introverts at UAT when they graduate and attend any festivities.



I went through a few different concepts, the first ended up having 2 too many LED's and was an immediate no-go. I liked the second concept well enough because it doesn't quite so obviously read "UAT" so it will encourage any spectators to really look closely at the badge and have a higher chance of noticing a pattern to the blinking. I made a 3rd concept for the sake of centering the LED's.



It wouldn't really be possible to mimic UAT's color theme exactly but I could use white LED's in place of the black tiles. I could also do the entire badge in red LED's but that might not pop as much as I would hope.



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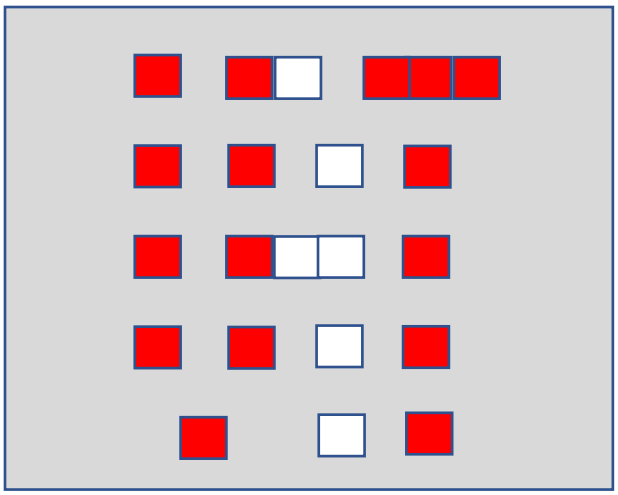
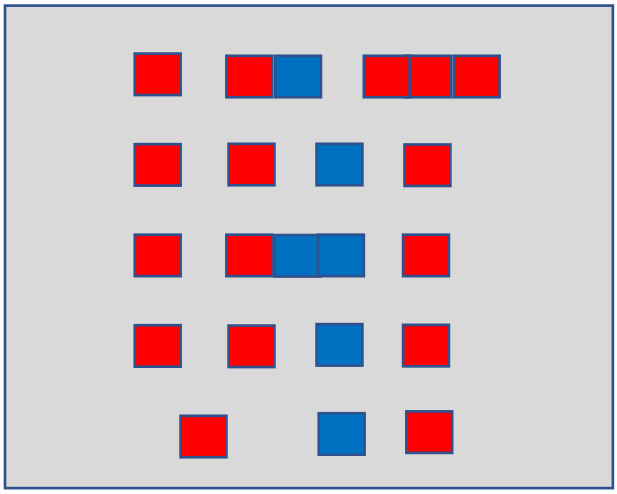
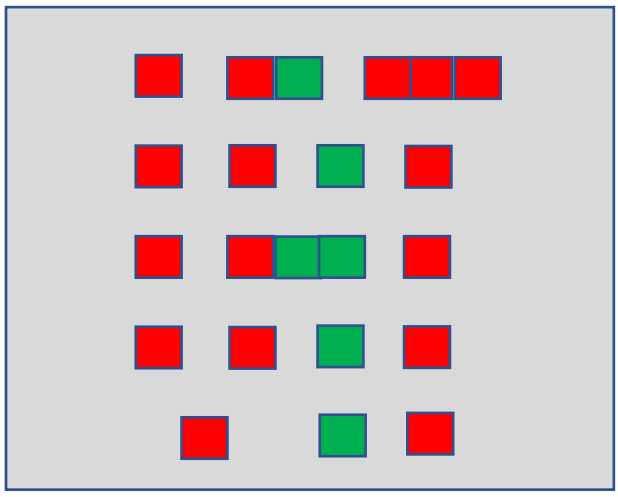


Inverting the colors might be preferred if I go with red and white.



Adding a different color all together such as blue or green could be done too though green will come off very seasonal.



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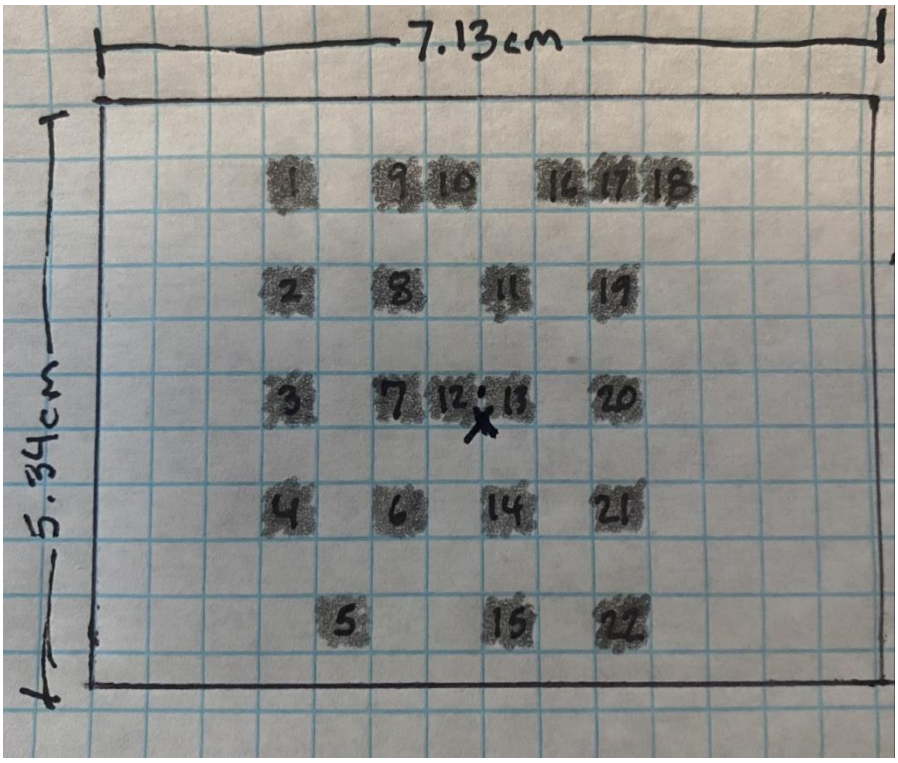

Each LED would be placed roughly as follows…

1. -3,4
2. -3,2
3. -3,0
4. -3,-1
5. -2,-3
6. -1,-1
7. -1,0
8. -1,2
9. -1,4
10. 0,4
11. 0,2
12. 0,0
13. 0,0
14. 0,-1
15. 0,-3
16. 1,4
17. 2,4
18. 3,4
19. 2,2
20. 2,0
21. 2,-1
22. 2,-3

Now as far as determining maximum current draw, I think I've got it figured out using the following reference and assuming it would be powered with a 9v battery…

20mA(22)=440

440/9=48.8889

49 = max current draw?

Larson Electronics (11/08/2018) *How to Calculate Amperage When Planning a Lighting Installation Project,* Larson Electronics. https://www.larsonelectronics.com/blog/2018/11/08/led-lighting/how-to-calculate-amperage-when-planning-a-lighting-installation-project

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