

Power Panel MQP
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Interactive LED Display Panel Proposal

After much brainstorming of various ideas for directions in which to take our MQP, we thought of the idea of building a very wide, rectangular interactive LED display panel. This display, upon completion, would be placed somewhere where people can touch it on the orange wall in the power panel lounge in Atwater Kent. This display will be composed of many individual small panels that can be fit together to form a screen of whatever size we want. Each segment of the screen will consist of not only an array of LEDs, but also a few motion sensors which will cause the energized LEDs to turn on to reveal some sort of image or message. The interactive message or image displayed on this screen can be either something generic such as "ECE" or "Atwater Kent". There is also the potential to add a standby mode to our display panel which could show power consumption of the display, the amount of energy produced by the solar panels or wind turbine, and/or other information such as the time, date, current weather conditions, etc...

This LED panel may seem very similar to any ordinary LCD display screen, however, this proposed panel is modular in design, will utilize motion sensors to control the LEDs and/or information displayed. One idea we have is to use the motion sensors to control an analog circuit allowing the LEDs to turn on and gradually turn off as a capacitor discharges through a resistor after an op-amp controlling a transistor. Another idea is to lean even more so towards analog by using different motion sensors to allow a specific network of LEDs to light up displaying a specific letter or image. This approach would, however, remove the modularity of our panel and limit the versatility of the display.

In conclusion, we are proposing to build an LED display panel using motion sensors to make it interactive. This screen can be implemented either with analog circuitry or in a digital fashion to display messages, information, or other images. The ultimate placement of our panel will be on the orange wall in the power panel lounge of Atwater Kent.