Interactive LED Cube Array

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Electronics Design Lab Project Proposal

This project involves the construction of an array of LEDs into a cube. The cube can be as large as 8x8x8 as demonstrated above and below, but the cube might be as small as 4x4x4 depending on the complexity of the project and programming. As seen in the pictures, the cube will be interactive, changing color displays based off of human touch. A touch on the middle of one face may send a horizontal wave throughout the cube, whereas a touch on the corner may send a diagonal wave.

Primary Goal: The first part of the project will be designing and building the LED cube to display pre-programmed patterns. This will require a microcontroller, prototyping board, LEDs, and standard circuit parts.

Secondary Goal: The second part of the project will be adding force sensors or accelerometers to detect human touch for an interactive light display. The patterns will still be pre-programmed, but the ones displaying will be determined by a user.

Bonus Goal: If time permits, the programming can be done to allow multi-touch capabilities so waves of light can interact from different sides. Intersecting waves may cancel each other out until they pass through.