Volumetric LED display
Project Checklist

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• 512-LED display cube (8 x 8 x 8)
  o Can displaying arbitrary patterns via passive matrix addressing
  o If time permits: Pulse-width-modulation brightness control of the LEDs, with corresponding brightness changes on SVGA output

• Orthographic 3d display of the cube on an external monitor
  o SVGA (800 x 600) resolution
  o Red squares mark positions of LEDs, red lines show cube outline
  o User can highlight individual horizontal or vertical planes of LEDs on-screen using labkit's onboard switches

• Switches to select different applications
  o Relevant title will be displayed on the alphanumeric display

• 3D Pong
  o PS2 mouse controls paddle
  o Puck bounces off all surfaces/paddle
  o Velocity changes on collision with the paddle (depending on where it hits the paddle)

• Cellular Automata - 2D with history displayed
  o Generates a pre-programmed initial state by pressing a button
  o Evolves the 2D playing field periodically
  o Previous states progress through the layers of the cube

• Cellular Automata - 3D
  o Generates a pre-programmed initial state by pressing a button
  o Evolves the playing field periodically

• Music Visualiser
  o Detects thresholds on audio source
  o Generates patterns in the cube using this threshold