Rubik's Cube Solver

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For our 6.111 final project, we propose to create a system that can guide a user to solve a Rubik's cube from any starting condition. The input to the system is the starting configuration of the Rubik's cube, which can be entered using a keyboard to fill in the colors on a blank onscreen cube. If time allows we would like to implement a camera that can automatically identify the cube's configuration. We will implement a finite state machine modelled after one of the many Rubik's cube algorithms that can be found online, and each step of the solution will be displayed in a visualization on a computer monitor so that the user can mimic the rotations and solve their cube. We hope to incorporate features allowing the user to adjust the speed of the visualization, pause, and replay steps. Also, if time allows, we would like to provide a recovery mode where a user that realizes they have made a mistake within the last few rotations can share the current configuration of the cube with the system and then see steps to fix the incorrect moves in the visualization.