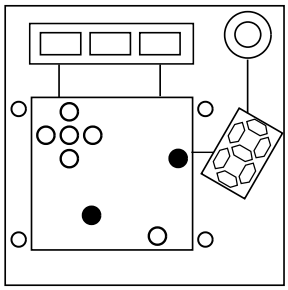
On the Subject of Faulty RGB Mazes



Now you too can experience... wait, where am I?

This module consists of an 7x7 grid of LEDs and a crooked seven segment display.

On this 7x7 grid are three mazes:
one with red walls, one with green, and one with blue.
Each of these mazes contains a key. All three of these keys are initially shown on the grid.

The keys will flicker, giving a sequence of four bits each.
For each of the four bits:

- If the key is visible, the bit is a 1.
- If the key is not visible, the bit is a 0.

The keys will be visible for a full second between repeats of the sequence.

The seven segment display shows three numbers that correspond to each of the mazes, which also overlap and mix additively.

Pressing any of the LEDs will reveal the starting location, a white LED, somewhere within the red maze. The keys are then hidden but will not be moved from their original locations.

Press an adjacent grey LED to move. Avoid hitting the walls of the mazes.

Press the white LED to switch between mazes:

- The white LEDs in each maze are offset from each other by a fixed number of spaces in each direction.
- Each maze has a set of defective LEDs that are identified by the sequence of bits obtained from its corresponding key.
  Mazes cannot be switched if the white LED is defective.

Once all three keys are collected, the seven segment display will change.
Each of the three colour components give a coordinate of the location of the exit:

- One of the components is a number. This gives the row the exit lies in.
- One of the other components is a letter. This gives the column the exit lies in.
- The remaining component is a random pattern that is neither a number or a letter.
  The exit lies in the maze that is the same colour as this component.

Note: B and D are shown in lowercase to disambiguate them from 8 and 0; the rest of the letters are uppercase.

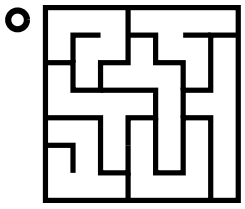
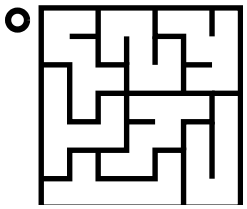
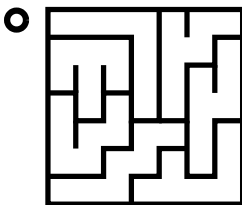
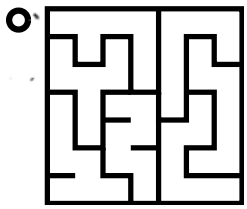
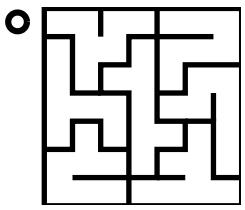
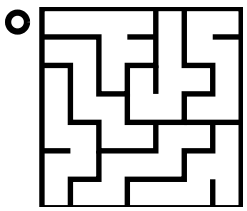
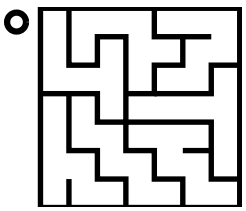
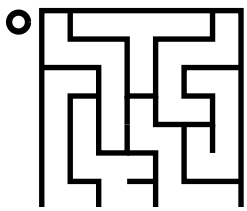
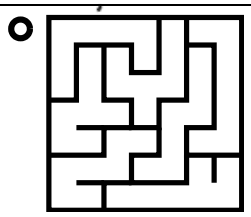
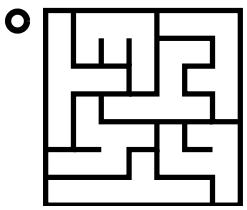
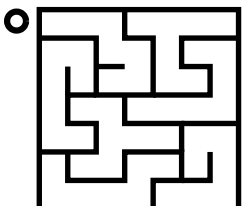
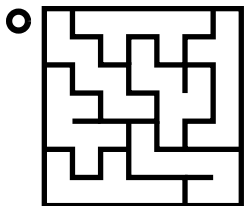
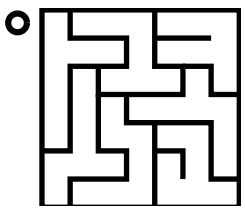
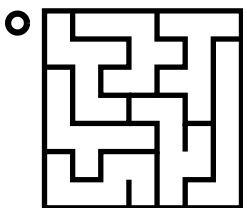
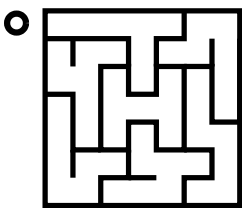
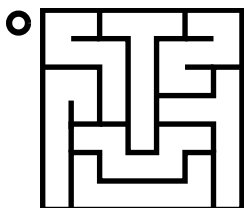
Maze Layouts

Each colour component of the seven segment display is a hexadecimal number corresponding to one of the mazes below.

Each component may be shown normally or inverted; segments that would normally be on are off and vice versa.

Each of the mazes has an LED at one of its corners that is the same colour as the maze itself, identifying the orientation of that maze.
The mazes may have been flipped horizontally and/or vertically such that the LEDs are flipped onto the appropriate corners of the grid.
The colours of the LEDs mix additively if their respective mazes have the same orientation.

Each of the mazes below have their LEDs at the top left corner of the grid.

0	1	2	3
			
4	5	6	7
			
8	9	a	b
			
c	d	e	f
			

Maze Defects

Each key flashes a sequence that correspond to the binary representation of one of the hexadecimal numbers below in order of least to most significance.
Each hexadecimal number corresponds to a set of defective LEDs for the maze the key belongs to.

Defect	The defective LEDs...
1	lie on odd columns.
2	are either 0, 3, or 6 spaces from the center of the grid.
3	have two odd or two even coordinates.
4	are either 1 or 4 spaces from the center of the grid.
5	lie on even rows.
6	are either 2 or 5 spaces from the center of the grid.
7	lie on the edge of the grid.
8	lie on odd rows.
9	lie on the same row as the location the maze was entered from.
a	have one odd and one even coordinate.
b	are more than 3 spaces from the location the maze was entered from.
c	lie on even columns.
d	lie on the same column as the location the maze was entered from.
e	lie on the center row or column.