Basic Functional Description
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Features:

Three Interactive Modes: Color Send, Automatic Color Cycle, Color Picker Game

Color Send:

In color send (in order from right to left), turning the first switch on activates a reset feature to clear the LEDs. The next 3 switches specify the number of LEDs to be changed. After this, the next four switches specify the amount of blue to send, followed by the next four switches for red, and the final four switches for green. Pressing the center button will send the user-specified information to the LEDs.

Automatic Color Cycle:

In order to place the board into “Automatic Mode”, switches 2 and 3 must be switched on while switch 1 is turned off. In this mode, the LEDs colors will be automatically cycled through, and no additional user inputs are needed. If the board is set back to “Color Send” mode by switching off switch 2 or 3, the LEDs will hold whichever value they were at in “Automatic Mode” before the mode was changed.

Color Picker Game:

In order to play the color picker game the board must be put in “Game Mode” by switching switches 1, 2 and 3 into the on position. Once the board is placed into “Game Mode” the LED strip will begin slowly cycling between blue, green, yellow, and red at random. The user must wait for the LEDs to light up green and then press the “Go” button. This button is located in the center of the five on board buttons featured on the FPGA board. If the user is successful in selecting the color green the score will increase and the cycling will speed up. However, if the user misses green at any point the score will be reset to zero and the game will restart. Once the user has achieved a score of seven, the game is won and the LEDs will flash rapidly. After the game is won, the user must simply press the “Go” button one more time and the game will restart.