Update 2

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Chromaworks

Fourth of July, all on your phone!

Summary

Chromaworks allows you to enjoy creating your own sky full of fireworks, without any pyrotechnics involved. You have eight fireworks launchers at the bottom of your screen to choose from, simply click or touch on the launcher you want to use. Then, click in the sky where you want to launch to firework to! Once the firework is in the air, just give it another tap, and it will explode into beautiful colors! Every fireworks launcher shoots different colors, so you can fire them back to back to fill the sky with your own custom collage of colors.

Features List

- player can select one of eight colors at bottom of screen with click
- player can shoot a firework at desired location in sky
- background changes color when firework reaches destination
- fireworks play an explosion animation when detonated, so that the player can paint the sky with many fireworks to make a colorful image

Play Description

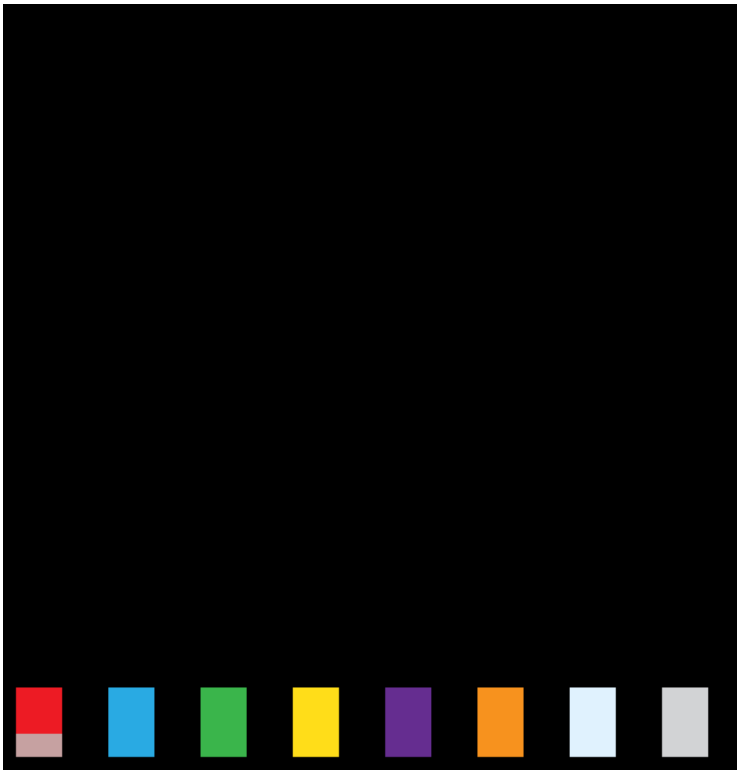

Fig 1. Before shooting fireworks

Figure 1 shows what the toy looks like when it is first presented to the player. There is an empty sky, and a pallet of colors at the bottom of the screen. From here the player must learn how to use the toy with no instructions, so we designed the game to provide heavy amounts of feedback to make this as painless as possible.

First of all, if the player clicks anywhere on this screen, a sound effect will play and something visual will happen. If the player clicks a color at the bottom, that color becomes selected. This is communicated to the player with a sound effect, and a pink stripe moving to the color they clicked on. If the player clicks on any part of the black screen, then a firework shoots out of the selected color at the bottom of the screen towards the location that was clicked, with an accompanying sound effect.

Fig 2. The color choices for fireworks. Blue is selected

The colors at the bottom of the screen are fireworks cannons that each launch a firework of roughly the same base color. Only one cannon can be selected at once, so when one is clicked on, the pink bar (seen at the bottom of the blue cannon in figure two) moves to that cannon.

The selection of colors for each firework is inspired by colors used for real fireworks, as seen in Figure 3.

Fig 3. Real world fireworks colors

source: http://gizmodo.com/5923281/where-the-different-colors-of-fireworks-actually-come-from

Colors for real world fireworks are made possible by chemistry. Figure 3 shows the most common colors for fireworks, and what ingredients produce those colors. Chromaworks starts with these same colors, to produce fireworks that are analogous to real world fireworks.

Each firework will create an explosion of a variety of colors made of several differently colored beads on every launch. Utilizing the RGB color model, different color values will be picked from the range of values shown in the table below.

	Bright Red	Turqoise	Green	Yellow	Purple	Orange	Electric White	Silver Sparkle
Red value range	122–255	55–142	0–128	232–55	86–164	230–255	215–255	190–225
Green value range	18–26	104–255	145–255	208–255	0–94	114–175	231–255	196–227
Blue value range	42–72	178–255	82–132	0–101	92–192	0–90	215–255	173–255

Fig 4. Table of color ranges for each firework by RGB values

The code will make use of RGB triplet format and functions for randomness to find such values.

For example, if the red firework is selected and fired, random values between 122–255 of red, 18–26 of green, and 42–72 of blue will be picked and the colors corresponding to those values will be used for the numerous colored beads of an explosion.

These appropriate RGB values were found manually by trial and error using Adobe Photoshop.

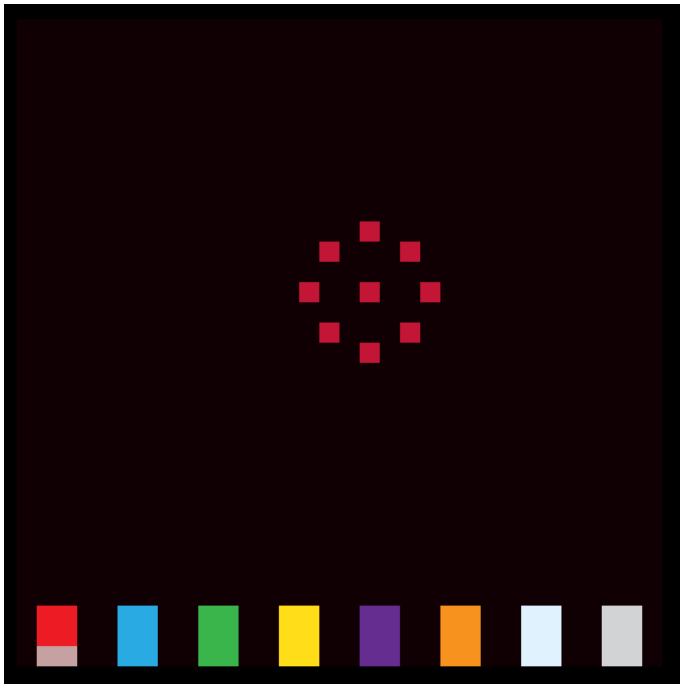

Fig 5. A firework has been shot and exploded

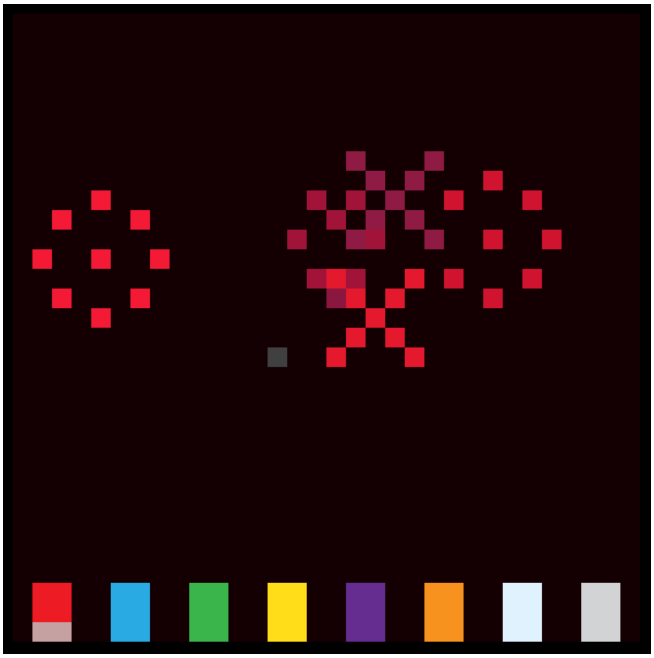

Fig 6. The multiple fireworks have detonated

When the player clicks the black sky to launch a firework, a firework will launch at that location, as shown in figure five. The firework is of the color of the selected launcher, and

when it reaches the location clicks, it explodes, creating shades of its color as described in figure four. Note the difference in background color between figures five and six. The sky is lit up a little bit by each firework, and it dims as the firework slowly fades away.

Critique

- Cover
    - spectrum of lines at bottom look strange
        -
- Toy
    - clickable grid is difficult to see
        - suggestion: add shadow or glow to grid to make space more obvious or visible
    - prioritize explosions
        - suggestion: focus less on making the backgrounds work as originally intended and make the explosions and rocket launches work

Final Project Changes

For our final build, we had to make some changes to our original toy's design due to limitations and difficulties we encountered. All in all, we still accomplished most of what we planned for initially.

Additionally, due to the single fade allowed by Perlenspiel's current build, the backgrounds do not fade from a darker version of their chosen firework color and instead keep the sky lit to that color until a differently colored firework is used. Instead, the sky briefly flashes white on an explosion, along with the grid shadow flashing white as well.

Due to the changing nature of the backgrounds, we also determined it would unfortunately be best for the beads to not have a rounded border, as keeping the border the same color as the sky would be difficult to accomplish.

We also decided to only have one kind of pattern for a firework explosion as just one explosion's animation is time-consuming to plan out.