### **Overview**

The LED art car's panels are formed from triangular grids with LEDs arranged in a zig-zag pattern. Each panel is defined by a unique two or three-letter designation and outlined by linear edges marked with vertex numbers (e.g., "9-12"). The panels are controlled by specific IP addresses and channels. The edges.txt and panels.txt files contain details like the number of LEDs, surrounding edges, and controller information. Notably, not every set of three connected edges (forming a triangle) has a panel between them. This setup allows for a complex, customizable LED display across the car's surface.

The striping-instructions.txt file is a critical component of the LED configuration, outlining how LEDs are to be arranged within each panel. This file uses a unique coding system to specify the number of LEDs, their arrangement, and special conditions for each panel.

* Row Length Variance: Rows generally decrease in length by one pixel, with length variations specified by +/- symbols.
* Row Offset: Rows are offset from each other, with nudges indicating location offsets.
* Gap Pixels: Gaps are typically between rows, not within them.
* Channel Lengths: Channels can vary in length, sometimes due to manufacturing defects.
* Controller Channels: New controller channels can begin anywhere; they don't have to start at the beginning of a row.
* Panel Orientation: The configuration is optimized for panel construction, with the perspective from the back of the panel.
* Special Cases: The file accounts for special cases, like strands with an abnormal number of pixels or adjustments for specific controller channels.

### **File Structure**

Each line in the file corresponds to a single panel and contains several key elements:

* Panel Designator: A unique identifier for each panel (e.g., SDB).
* LED Count: Specifies the total number of LEDs in the panel.
* Wiring Direction and Pattern: Details the wiring direction (e.g., L for left, R for right) and the pattern of LEDs.

### **Detailed Examples**

#### Example 1: Basic Row Configuration

* Line: SDB 65 L . g -.-- g --.-
* Interpretation:
  + SDB: Panel Designator
  + 65: Number of LEDs in the first row
  + L: Wiring starts from the left
  + .: A normal row with no alterations
  + g: A gap pixel after the row
  + -.--: Indicates a reduction in the number of pixels from left (-) and right (--)

#### Example 2: Complex Row Configuration

* Line: SDA 63 R . ggggg --. -----. ggg --. ---. gg ---.
* Interpretation:
  + SDA: Panel Designator
  + 63: Number of LEDs in the first row
  + R: Wiring starts from the right
  + ggggg: A sequence of 5 gap pixels
  + --.: Reduction of two pixels from the left and normal on the right
  + -----: A significant reduction in the number of pixels

#### Special Symbols and Their Meanings

* .: Normal row with expected number of LEDs
* +: Increase in the number of LEDs (addition)
* -: Decrease in the number of LEDs (subtraction)
* g: Gap pixel (space between rows)

### **Special Cases**

* Variable Channel Lengths: Some panels might have channels with different lengths due to manufacturing variances. These are specified using the C syntax (e.g., C250,251,250).
* Controller Channels: Can start at any point, not necessarily at the start of a row.
* Comments: Can be added in parentheses for clarity (e.g., (400-451 strand has 51 pixels)).