Pixel Trees

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A picture is worth a thousand words

Topics

- Why a pixel tree?
- Tree Styles
- Pixel Technology
- Planning
- Construction
- Challenges
- Maintenance

Topics

- Why a pixel tree?
- Tree Styles
- Pixels & Controllers
- Planning
- Construction
- Challenges
- Maintenance

Why a Pixel Tree?

- Centerpiece of the show
- Easy to program effects
  - Matrix-like display perfect for animations, videos, and text
- Leads show for other props. to follow
- “Natural” addition to a yard
- Can be easy to build

How do visitors react to your tree?

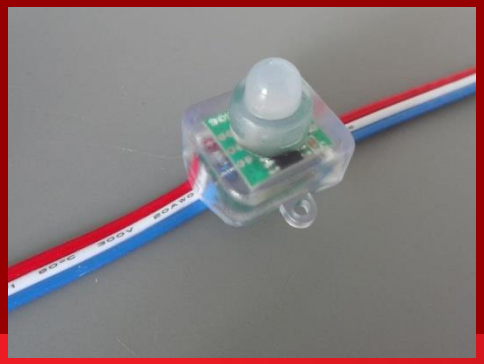
Tree Styles

- 360 degree (denser pixels, more power, more wiring, more expense, pixel interference)
- 180 degree (good viewing angle)
- Flat (high density, easier to build, good for animations)
- Spiral (easy to build)
- Coro (simple, daytime appeal)
- Existing real/artificial tree (good daytime prop., natural look)

Why do you like the style that you chose?

Pixel Packaging

- Bullet
- Pixabulb
- Strips
- Multi-pixel packages & square
- 100% brightness is not recommended



Which pixel styles have been difficult or great for you to use on trees?

Controllers

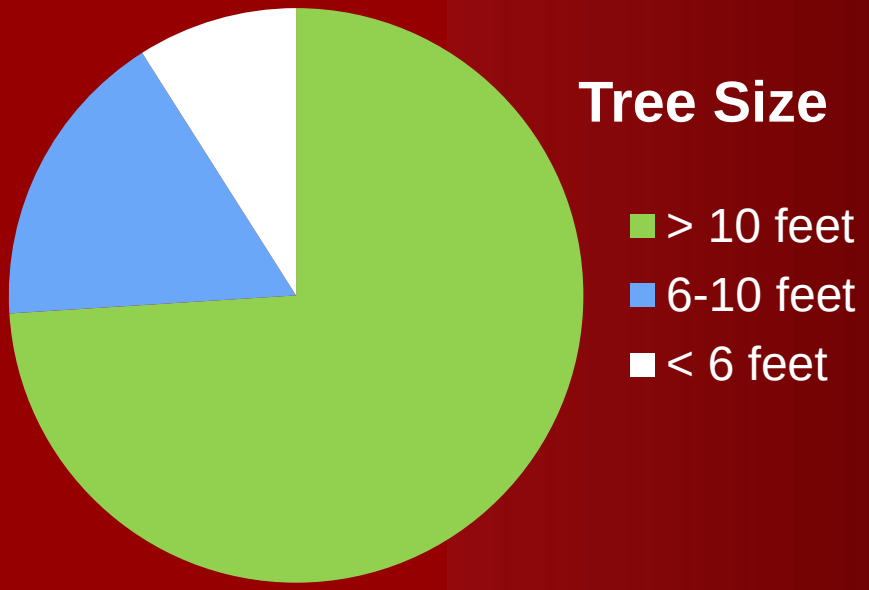
- Alphapix, QuinLED, Dragon, Falcon, Genius, Kulp, LOR, PixLite, Wasatch
- Resale value?
- Forum help?
- Local community help?
- Easily available to buy?
- Comparison webpage: www.nutcracker123.com/nutcracker/rgb_controllers
- Use wired Ethernet instead of wireless (many pixels)

Planning

- Size
- Cost
- Materials

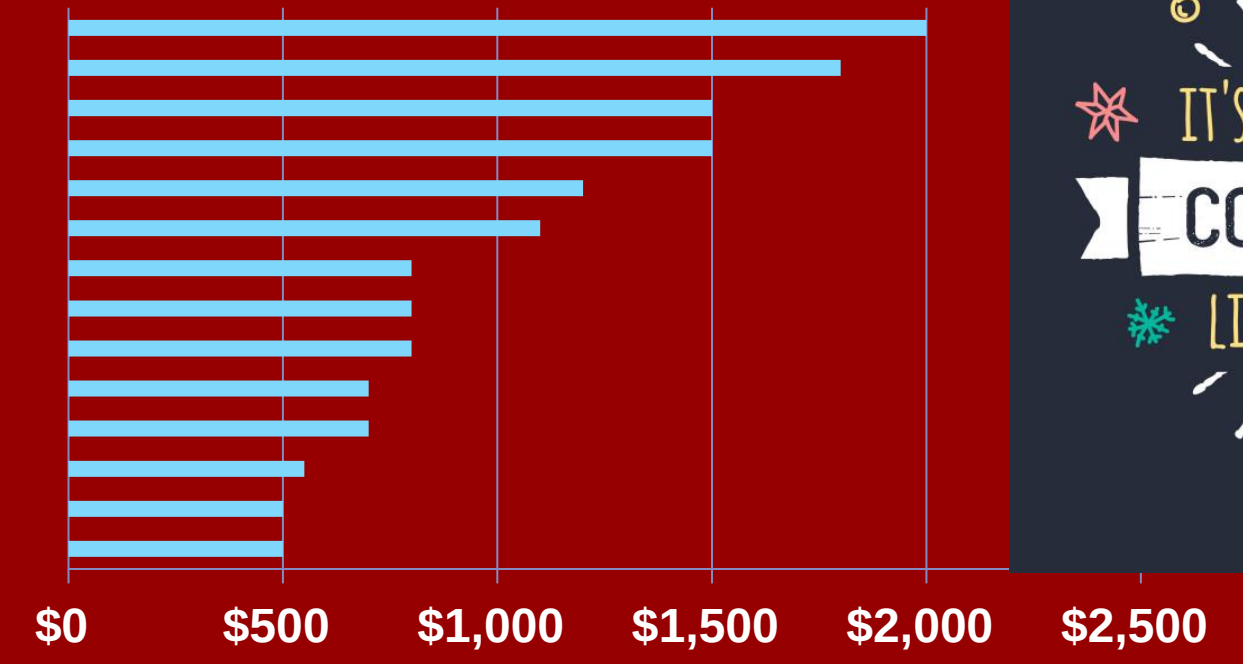
Size

- **74% are 10 feet or taller**
  - More work to build, erect, and power
- **17% are 6-10 feet**
  - Easier to build & erect (can use a ladder!)
- **9% under six feet**
  - Easiest to build
  - Multiple trees
  - Complement larger trees & props



Cost

- Average pixel tree cost: $1,032



Where To Buy Materials

- **Structural**
  - Gilbert Engineering, Mattos Designs Lowe's, Menards, Home Depot, Harbor Freight, Northern Tool, Auto Zone, local hardware stores, local plumbing stores, steel yards, local welding companies, Craig's List,

- **Pixels and Props**
  - wallysLights.com, yourPixelStore.com, aliExpress (Ray Wu), Holiday Coro, Boscoyo Studios, diyLedExpress.com, christmasLightShow.com, Amazon, eBay

Who are your favorite vendors and why?

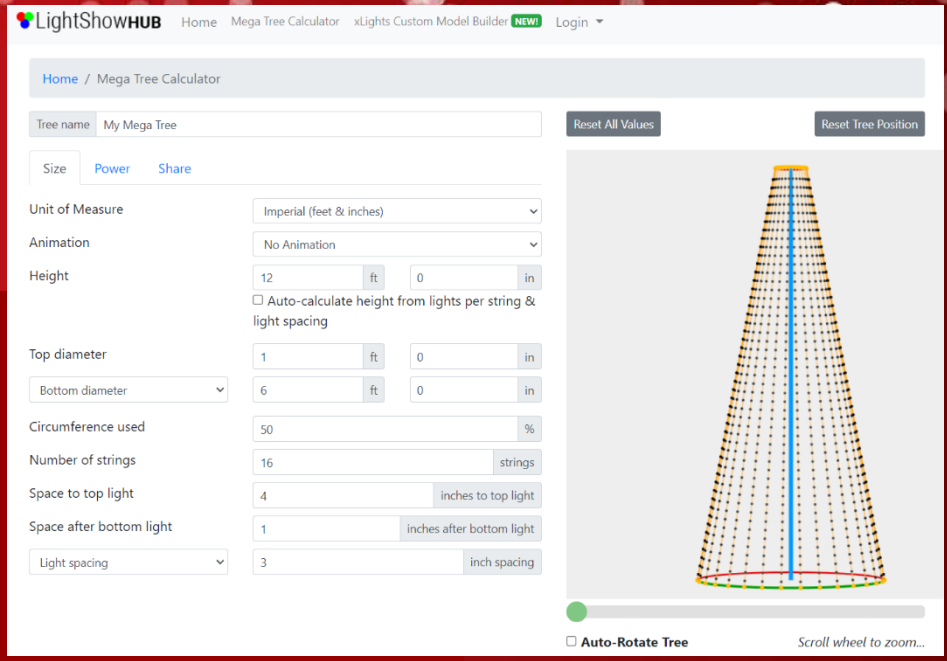
LIGHT SHOWS
SHOWSTOPPING SEQUENCES
MAKE YOUR SHOW SPECTACULAR
HOLIDAYCORO.COM
RITA LED
BOSCOYO
ILLUMINATING YOUR IMAGINATION
Fairy Pixel Dust
SanDevices
xTreme Sequences
Holiday Lighting
PIXELPRO DISPLAYS
SEQUENCE SOLUTIONS LLC
Sequencing for a Cause!
WIRED WATTS
SHOWTIME BUMPERS
SFL
MATTOS DESIGNS
BUILD A DISPLAY TO LAST A LIFETIME
experiencelights
CONNECT. CREATE. CAPTIVATE.
Demented Elf Productions
www.dementedelfproductions.com
Blinky SEQUENCES
RGB Sequences
For Holiday Light Displays
www.RGB-Sequences.com
MAGICAL
magicallightshows.com
LIGHT SHOWS
Ewltide
INNOVATIVE SEQUENCES
INDIANAPOLIS SYMPHONY ORCHESTRA
Holiday SEQUENCES
SPECTACLE OF LIGHT SEQUENCING
Music with Motion
OG Sequences
SEQUENCING | 3D PRINTING | CLIPS | WIRE
VISIONARY LIGHT SHOWS
Custom Christmas Creations CCC
Customchristmascreationsccc.com
Wasatch Lights
WL
WALLY'S LIGHTS

Construction

- Planning
- Structural Support
- Electronics
- Stars

Planning

- **Dimensions**
- **Number of strings**
  - Max pixels per string, cutting strings, strings & strands
- **Calculators**
  - Mega Tree Calculator & Simulator
    Helps plan your mega tree, calculates power usage and many more important calculations
  - www.lightshowhub.com/tools/mega-tree-calculator
  - spikerlights.com/calcpower.aspx
- **Pixel spacing vs. distance from viewer**



When is 5V better than 12V? Vice versa?

Structural Support: Base

- **Hole methods**
  - Existing flag pole hole
  - Portable hole (google “Walter Monkhouse Portable Hole)
  - Concreted hole with metal sleeve
- **Base methods**
  - Mattos Designs Hoop Lift Kit
  - Trampoline base (Craigslist)
  - Snow fence stakes attached to artificial trees or pole (for smaller trees)

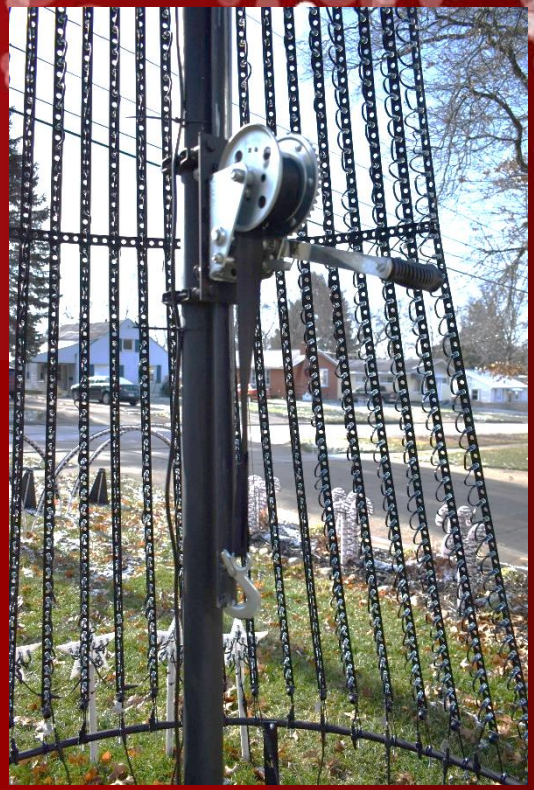
Structural Support: Pole Styles

- No pole: Tree hangs off the house
- Black iron pipe, muffler pipe, thick wall EMT (rigid EMT), structural “tubes”
- Wind is brutal! Never skimp on pole thickness & diameter
- Steel is stronger than aluminum (avoid that)
- Pole must be level, plumb, square (leaning pole likely to tip)

Do you have a “tree fail” story?

Structural Support: Pole Styles

- **ASAP (A Strap and Pole)**
  - Telescopic pole designed to lift support & maintain tension on trees
  - In-action video: tinyurl.com/asappole
  - How to build: tinyurl.com/asappole2



Structural Support: Raising the Pole

- **Regular pole**
  - Lay pole on ground, attach pole sections
  - Attach star and anchoring hardware
  - Raise pole, then attach pixel strips via ladder
- **ASAP pole**
  - Attach pixels to topper
  - Crank winch to raise topper
-

CAPACITY
LIFETIME
LUBRICATED

Structural Support: Tightening Methods

- Ratchet strips / tie-down straps
- Guy wires (most important)
- Concrete and anchor bolts
- Bungie cords
- Corkscrew anchors (do not overtighten, loosens dirt)
- AmericanEarthAnchors.com has a recommendation chart for their anchors
  - 26-46” anchors from this site are best

Structural Support: Guy wires

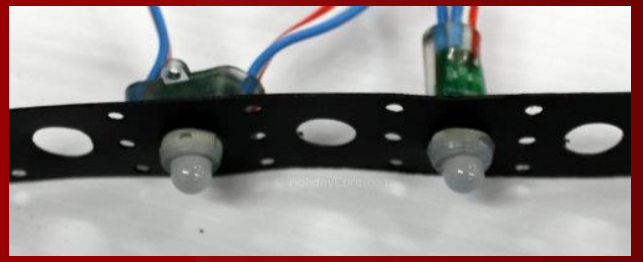
- Stabilizes everything below the wire (attach up to 2-3 feet from the top)
- Multiple rungs important for tall trees
- Install above pole joints (threaded joints are weak spots)
- 45 degree angle
- 3 wires good, 4 are better

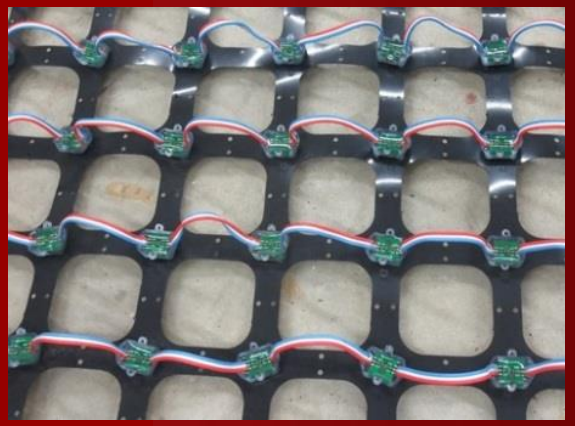
Structural Support: Guy wires

- **After high wind**
  - Check tension (adjust turnbuckles)
  - With ASAP pole, check muffler clamps for tightness/damage
- **After season**
  - Check muffler clamps for tightness/damage
  - Check/tighten guy clips

Electronics: Attaching Pixels

- **Pixel mounting methods**
  - Boscoyo strips (most popular)
    - Pixel spacing vs. power & cost & appearance
    - More pixels when strip at an angle!
    - Horizontal strips for wind protection (use multiple strips!)
  - Pixnode nets (for flat trees)
    - Cut to shape of tree

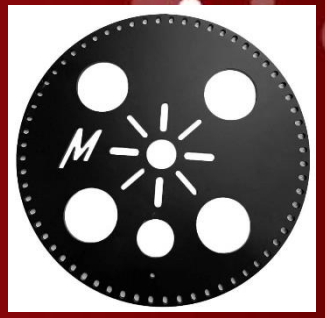




What is your favorite pixel substrate?

Electronics: Attaching Pixels

- **Strip mounting methods**
  - J-hooks attached to frame
  - Tree topper with holes
  - Heavy duty carabiners at top
  - Tarp ball bungie cords at bottom (for tension)
  - Monkhouse Internal Stress Relief (MISR) clips to protect strip ends (Boscoyo)
  - Don’t trim strip ends until test fitting on frame!



What is your favorite mounting method?

Electronics: Weatherproofing

- Heatshrink
  - Marine grade
- Hot glue
- Dielectric grease
- Silicon caulking
  - Neutral cure!
- Liquid electrical tape
- 3- or 4-conductor weatherproof pigtails
- Automotive/trailer connectors

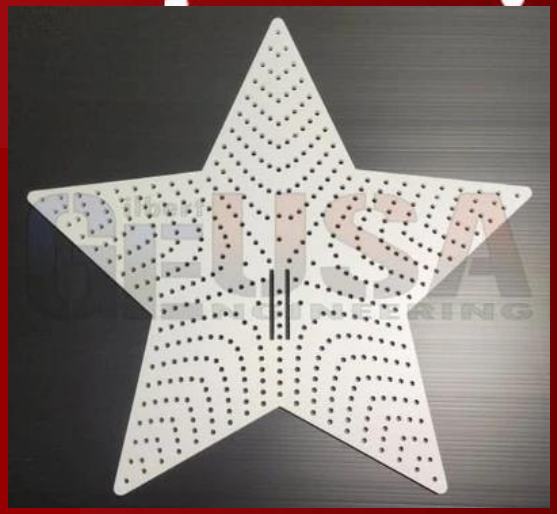
Electronics: Enclosures

- Cable Guard
  - CG 1500
- Terminal Access
  - TA 200
- Ammo boxes with wire nuts / glands
- DriBox
- Other enclosure ideas?

START HERE:
HolidayCoro.com/AlphaPix
5V
5V
Gary

Stars

- **Coro**
  - Boscoyo Studios, Holiday Coro, Gilbert Engineering
- **Wireframe**
  - Wizard of Wire
- **Homemade**



Challenges

- Erecting
- Other Challenges
- Ideas for Next Time

Erecting

- **Pole weight**
  - How to lift a non-ratcheting pole
  - Cross bar at top with pulleys to lift pixels
- **Base weight**
  - Portable bases up to 150 lb.
- **Pole height**
  - How to reach top (ladder, lift)
- **Keeping it straight**

Other Challenges

- **Power considerations**
  - Lots of pixels, lots of power
  - Power injection
- **Controller considerations**
  - Lots of pixels, lots of channels
  - Controller at base of tree to avoid long power & data runs

Ideas for Next Time

- "I Should Have..."
  - Planned better for the wind
  - Made it taller
  - Used a portable hole
  - Not bothered with pixel strips
  - Rented a lift
  - Used more pixels and/or vertical strips

How could you have improved your existing tree?

Storage

Storage

- Stand tree upright
- Hang poles from wall or ceiling
- Pixels/strips wrapped on reels, stored in tubs
- Hang strips vertically or stuffed into PVC pipe

Support: Facebook Groups

- Advanced RGB and Pixels 101
- FPP, Falcon Player
- Official xLights Support Group
- Buy/Sell Christmas Lighting
- Advanced RGB Pixels and Controllers
- Michigan Lighting Group
- LUO Café
- xLights Zoom room

Questions?

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THANK YOU!