

DIY Controllers and Lighting

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Agenda

- Why DIY
- Basic Terminology
- DIY Controllers
- DIY Lighting
- Where to find more info

Why DIY?

- Cost
- Want to learn
- Want to build it yourself
- Pitfalls and gotcha's

Some Basics

- Light controller – switches on/off light(s)
 - AC
 - DC
 - Uses control protocol (language) to get instructions
 - Needs someone/something to send instructions
 - PC
 - Standalone show controller
 - Wired/wireless

Basics

- Control protocol
 - Language used to tell controllers what to do
 - Not the same as connection medium
- Connection method or medium
 - The physical method of communicating between controllers
 - Defined signal type to get control protocol from
 - PC → controller
 - Controller → controller

Control Protocol

- “Language” that controllers speak/hear
- 2 types
 - Open or published standards
 - DMX
 - Renard
 - Closed or proprietary
 - LOR
 - D-Light
 - AL

Translators

- Protocol converters - “translates” from one language to another
- Can create delays or latency
- Examples
 - iDMX – LOR → DMX
 - CCR controller – LOR/DMX → Pixel protocol
 - TP3212 – DMX → Pixel protocol
 - 2801
 - 6803
 - SD600

Communication Methods

- Wired
 - RS-485 – IEEE standard for serial communications
 - Used for LOR, AL, DMX, Renard
 - Goes longer distances than normal PC serial port (RS-232)
- Wireless
 - X-10
 - X-Bee
 - Custom
 - Easy Light Linker
 - Lynx Wireless

Communications Methods

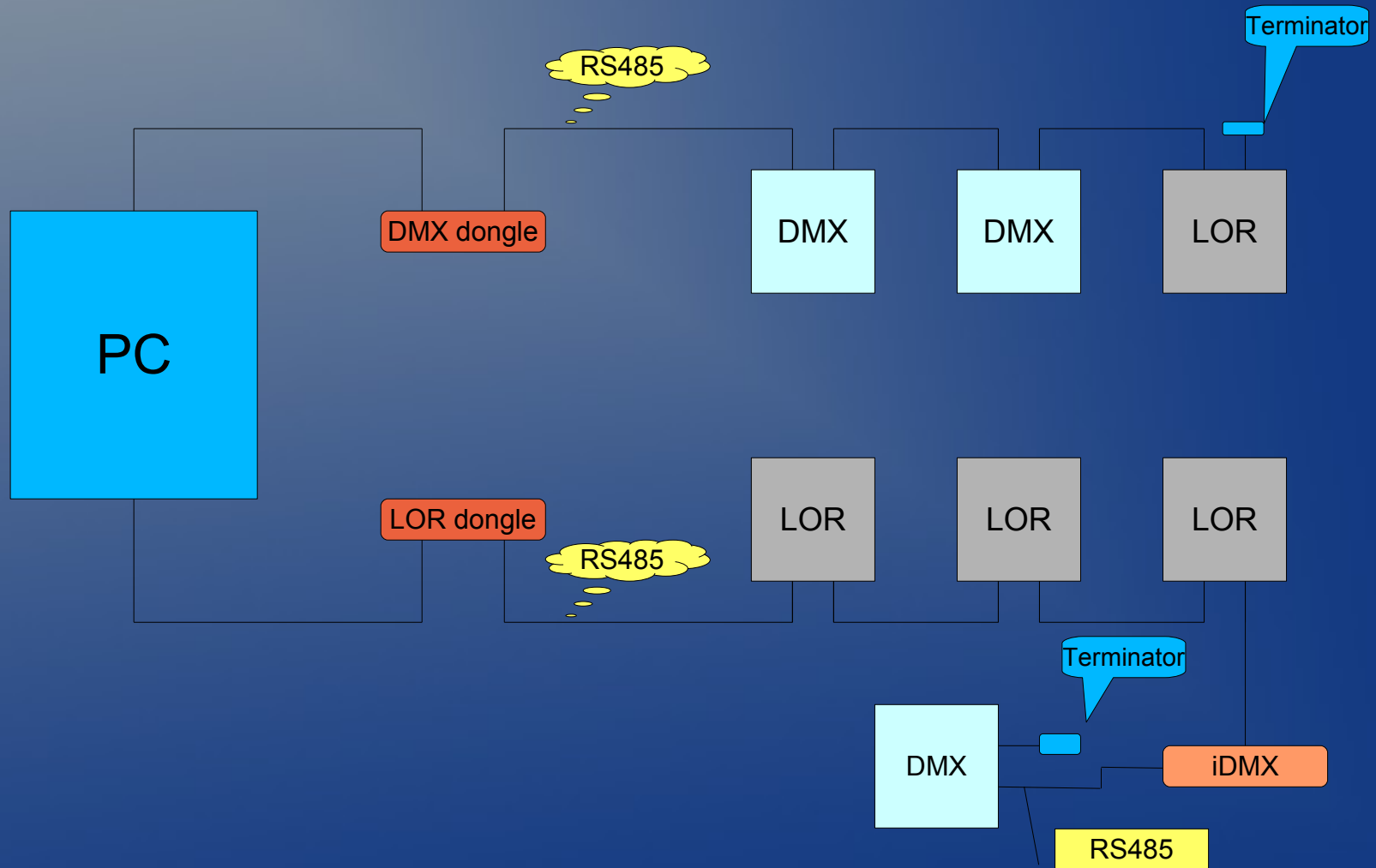
- Ethernet
 - ArtNet
 - E1.31 – multiple DMX streams over IP

Gateways

- Converts from one communication medium to another
- Wired ↔ Wireless
 - RS485 ↔ 802.11
- Ethernet → DMX
 - EtherConGateway (ECG) –
E1.31 → DMX/Renard

Communication Paths

- Different protocols require different paths



DIY Controllers

- 2 camps
 - Open
 - Shares design, schematic, PCB layout, firmware source
 - Can be modified/changed
 - Closed
 - Distributes PCB boards, firmware binary
 - Keeps control of design/layout/features

DIY Controllers

- RJ's Lynx series
 - Closed design
 - Lynx Express
 - 16 channels, DMX
 - AC, 2-3 A per channel, Dual power feed
 - MR16
 - Originally for MR16 lights, used for LED
 - DC, requires separate PS, designed for 12V
 - SSR4
 - 4 channels, DMX
 - AC, 1 A per channel

DIY Controllers

- Renard
 - Open design
 - Widely used – many variations
 - 8-64 channels
 - Internal/external SSRs
 - AC and DC

DIY Controllers

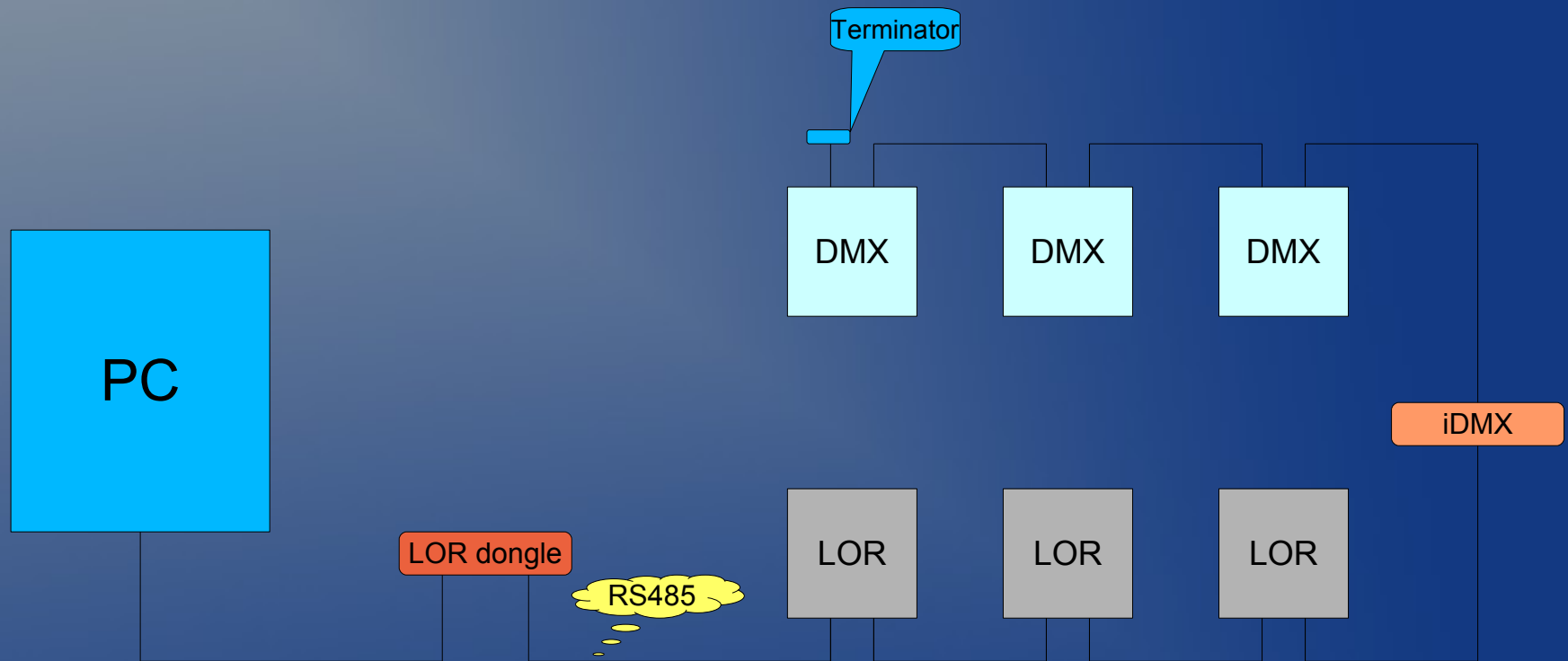
- DMX DIY
 - Open design
 - DMX – used in theater lighting
 - Many variations
 - AC/DC
 - 4-64 channels

DIY Lighting

- LED floods
 - Mighty Mini
 - Portaflood
 - Lynx Aether
 - Rainbow Flood
 - V-flood
- LED strips
 - SuperStrips
 - Falling snow/icicles
- Individually addressable LEDs (\$\$\$\$)

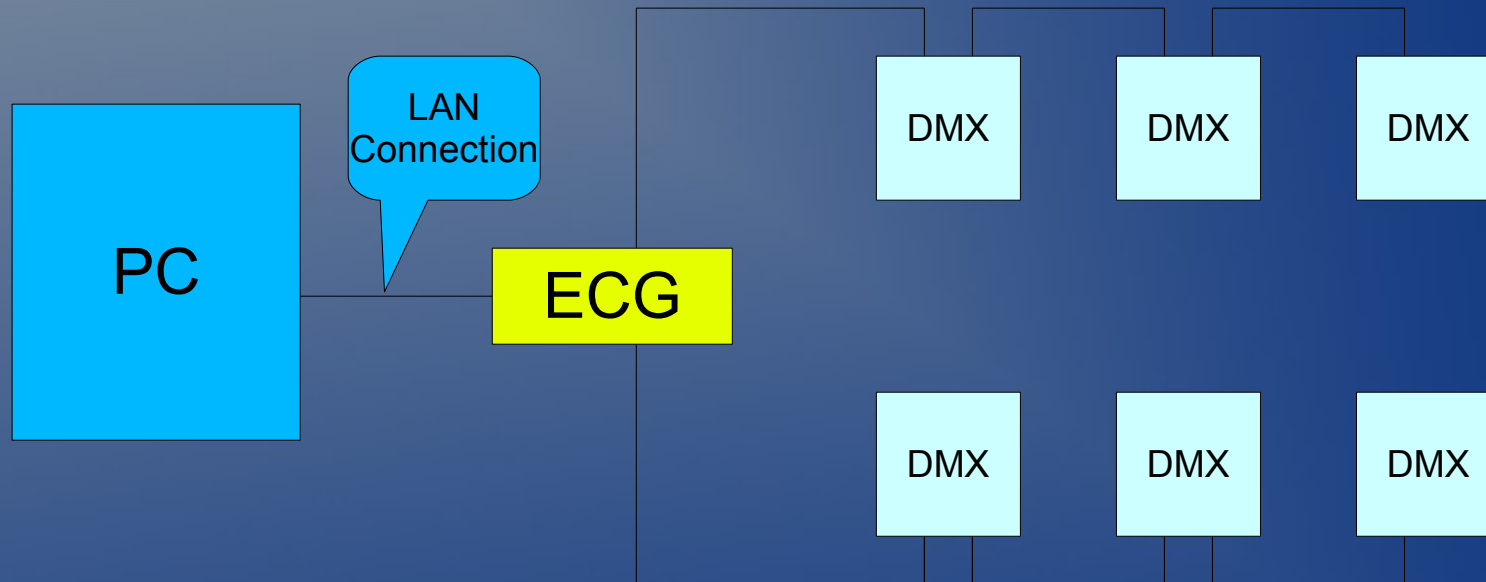
Putting it all together

- Combining technologies



Putting it all together

- Combining technologies



Where to get more information

- DIYC – doityourselfchristmas.com
- DLA – diylightanimation.com
- christmascarolina.com
- forums.auschristmaslighting.com