

VEX IQ Challenge Equipment Setup

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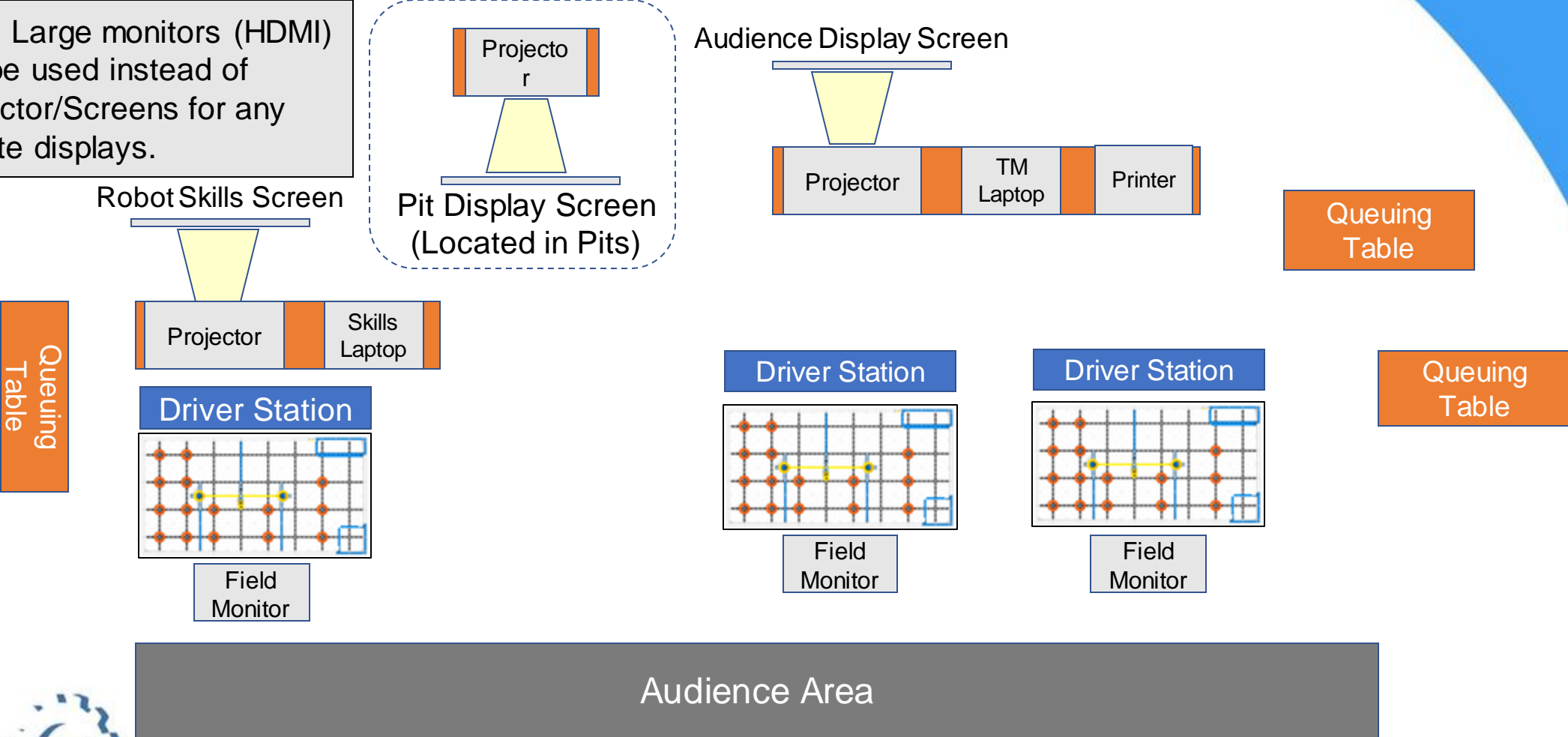
Agenda

- Review Layout Options & Resources
- Recommended Event Equipment
- Connecting Devices
- Video Overlay (Time Permitting)



Layout Fields, Displays, & Laptops

Note: Large monitors (HDMI) can be used instead of Projector/Screens for any remote displays.



Refer to the [VEX IQ Sample Event Layout Document](#) for suggested distances between elements and alternative layouts. Pits should be located nearby.

VEX IQ Event Layout Resources


Documents and Resources Library

Home > Documents and Resources Library

The REC Foundation's Documents and Resources Library contains useful materials for Event Partners, volunteers, and teams. Items are sorted alphabetically and can be sorted by program as well by clicking the arrow at the top of the left column. Enter words contained in a resource's title or description in the search box to find items.

Search:

Program(s) Documents & Resources



VEX IQ Challenge Sample Event Layouts
Description: Examples of how to best utilize available space and resources to support an exciting VEX IQ Challenge event.
File Type: PDF

Showing 1 to 1 of 1 entries (filtered from 93 total entries)

Event Partner Resources & Documents

Volunteer Resources



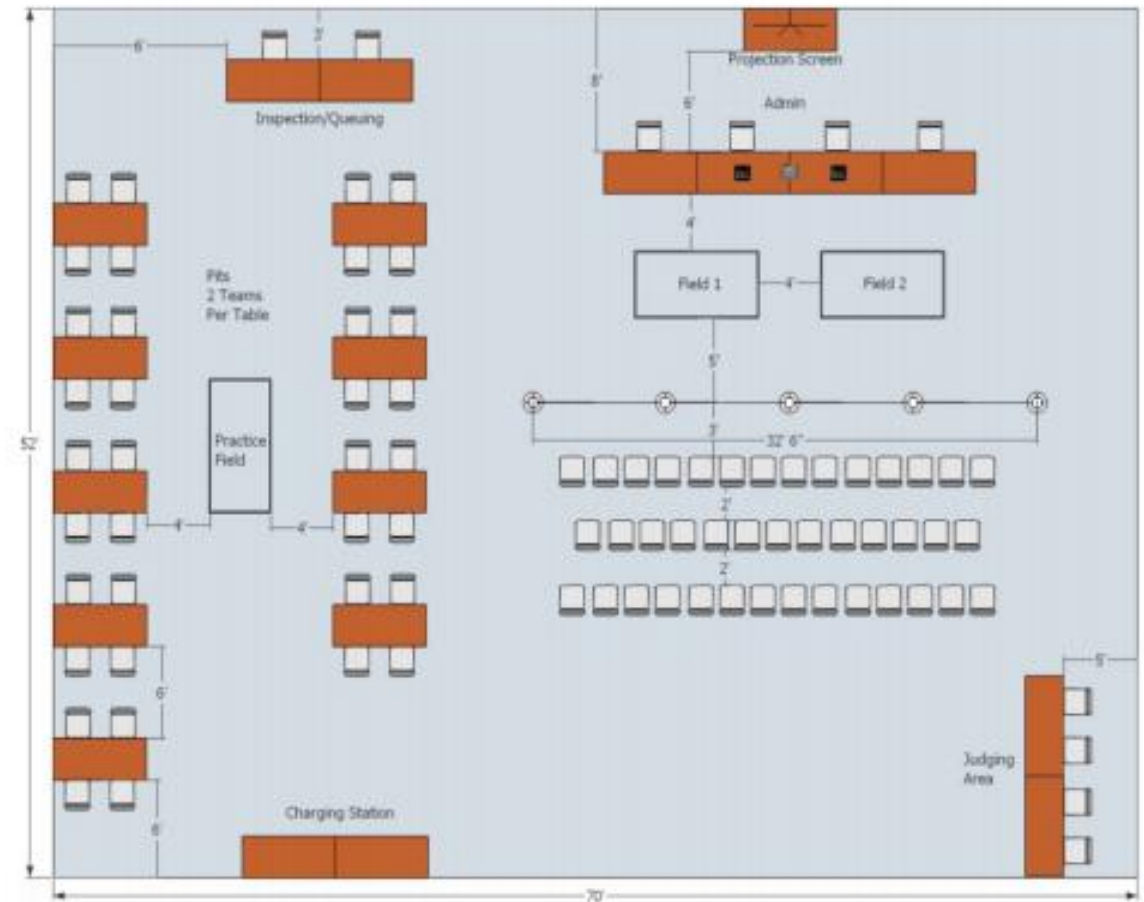
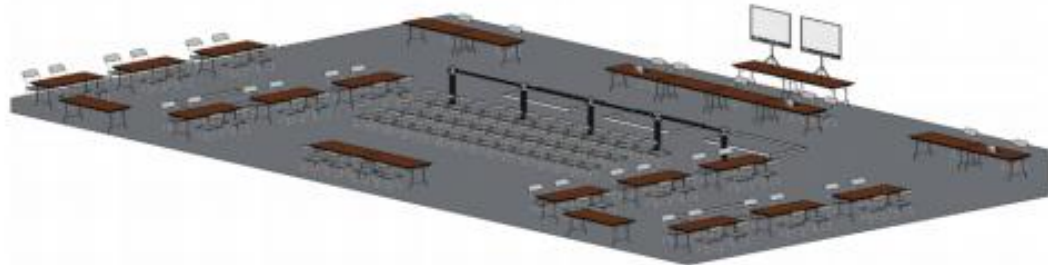
VEX IQ Challenge Sample Event Layouts

Description: Examples of how to best utilize available space and resources to support an exciting VEX IQ Challenge event.

File Type: PDF

VEX IQ Sample Event Layouts

Refer to the [VEX IQ Sample Event Layout Document](#) for suggested distances between elements and alternative layout ideas.



Recommended Equipment

A typical setup would utilize (2) VEX IQ Competition Fields, (1) Robot Skills Field, (1) Practice Field, (1) Audience Display, and (1) Pit Display.

VEX Product Description	Quantity	Cost (Shipping not included)	Part Number	Where to Purchase
VEX IQ Next Level Game Element Kit	4	\$99.99	228-5682	VEX or Reseller
VEX IQ Challenge: Field Perimeter & Tiles	4	\$199.98	228-2550	VEX or Reseller

Other Equipment	Quantity	Notes
Laptop (PC or MAC)	2	(1) Head Table, (1) Robot Skills
Projector/Screen	Up to 3	(1) Audience Display, (1) Pit Display, (1) Robot Skills Display (Can use large monitors instead of Projector/Screen)
Printer	1	Black & White
Audio: Speakers & Microphone	1 - 2	Speaker sets for the Head Table and Robot Skills



Recommended Equipment

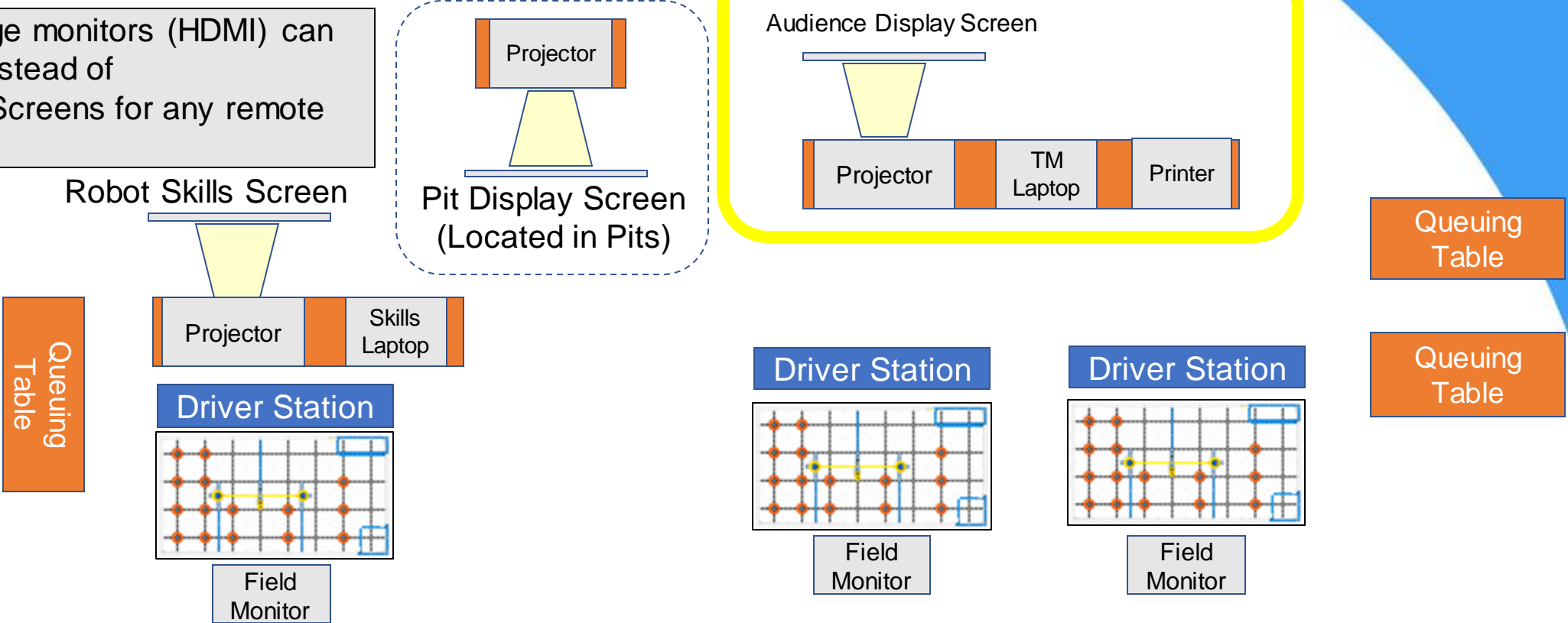
Other Equipment	Qty	Notes
Field Monitors (Example)	3	(2) Competition Fields, (1) Robot Skills
Raspberry Pi Kits (Example)	4 - 6	One for each remote display
Modem Router (Example)	1	5GHz Recommended with DHCP
Network Switch (Example)	1 - 2	Optional: Needed if Modem does not have enough ethernet ports
Ethernet Cables (Example)	8 - 10	Used to connect Laptops and Remote Displays to Modem/Network switches. Needed lengths depends upon field layout.
Tablets (Example)	2 - 3	Used for Mobile Scoring (can use mobile phones instead)
Power Strips	1 - 3	
Tables / Chairs	Varies	Pits, Queuing, Head Table, Robot Skills, and Audience



Note: Most organizations have laptops, projectors, screens, printer, audio (speakers/microphone), monitors and tables/chairs to use for the event and will not need to purchase those items.

Head Table Setup

Note: Large monitors (HDMI) can be used instead of Projector/Screens for any remote displays.

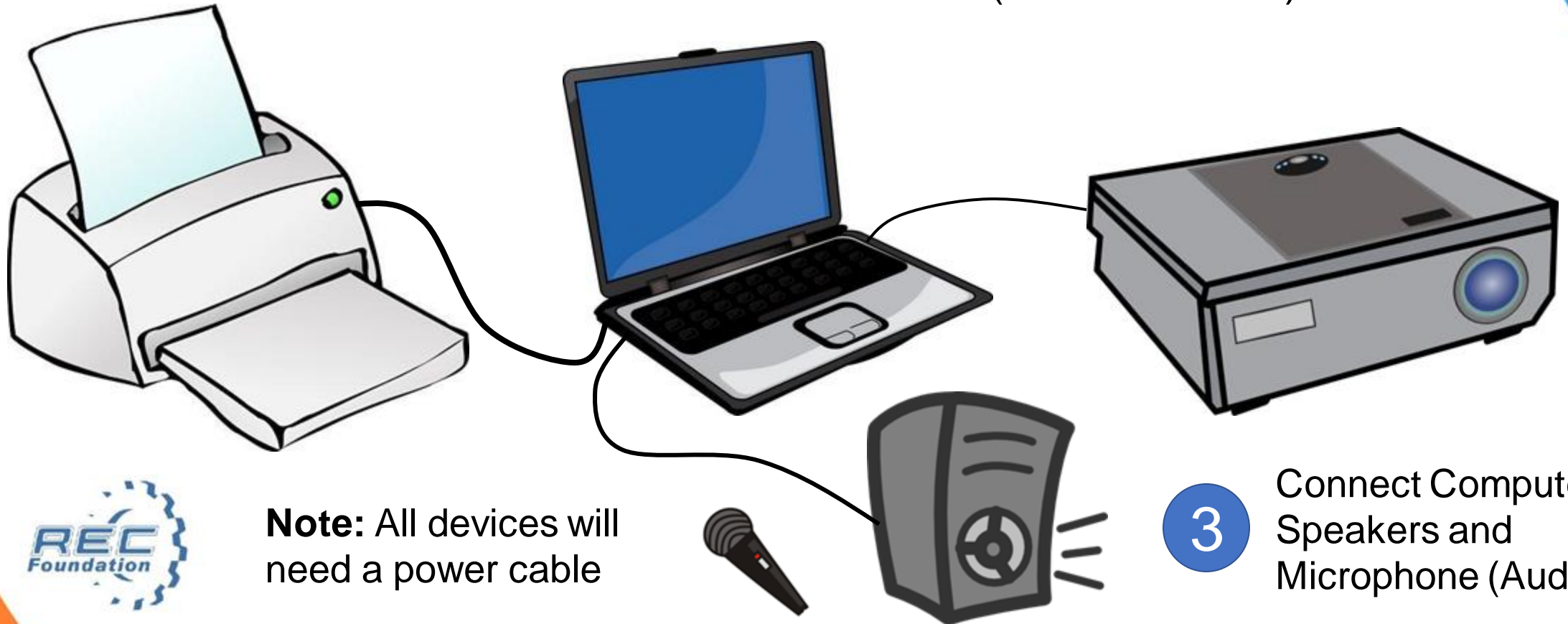


Refer to the [VEX IQ Sample Event Layout Document](#) for suggested distances between elements and alternative layouts. Pits should be located nearby.

Connect Devices to Tournament Manager Laptop

1 Connect Computer to Printer (USB)

2 Connect Computer to Projector or Monitor (VGA or HDMI)



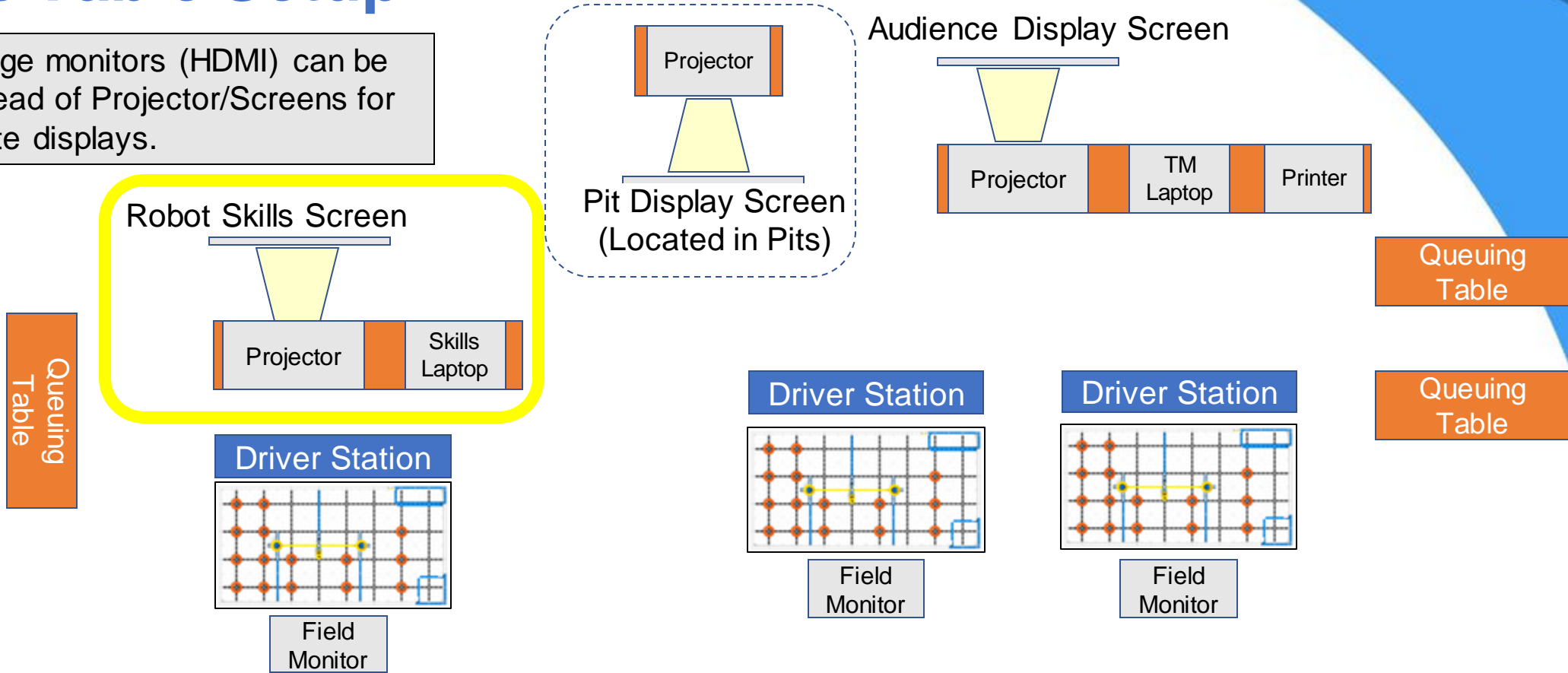
Note: All devices will need a power cable

3 Connect Computer to Speakers and Microphone (Audio)



Skills Table Setup

Note: Large monitors (HDMI) can be used instead of Projector/Screens for any remote displays.



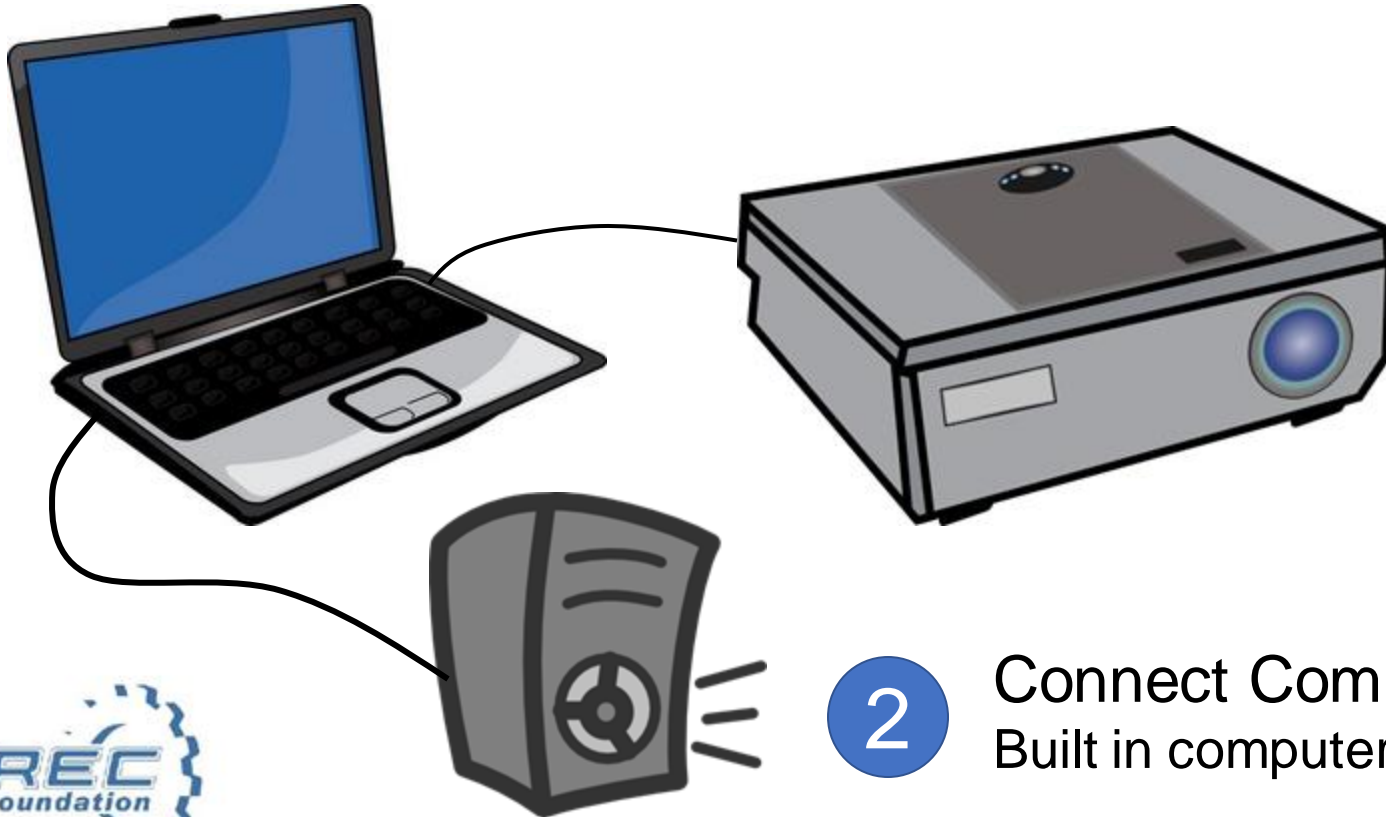
Audience Area

Refer to the [VEX IQ Sample Event Layout Document](#) for suggested distances between elements and alternative layouts. Pits should be located nearby.



Connect Devices to Robot Skills Laptop

- 1 Connect Computer to Projector or Monitor (VGA or HDMI)

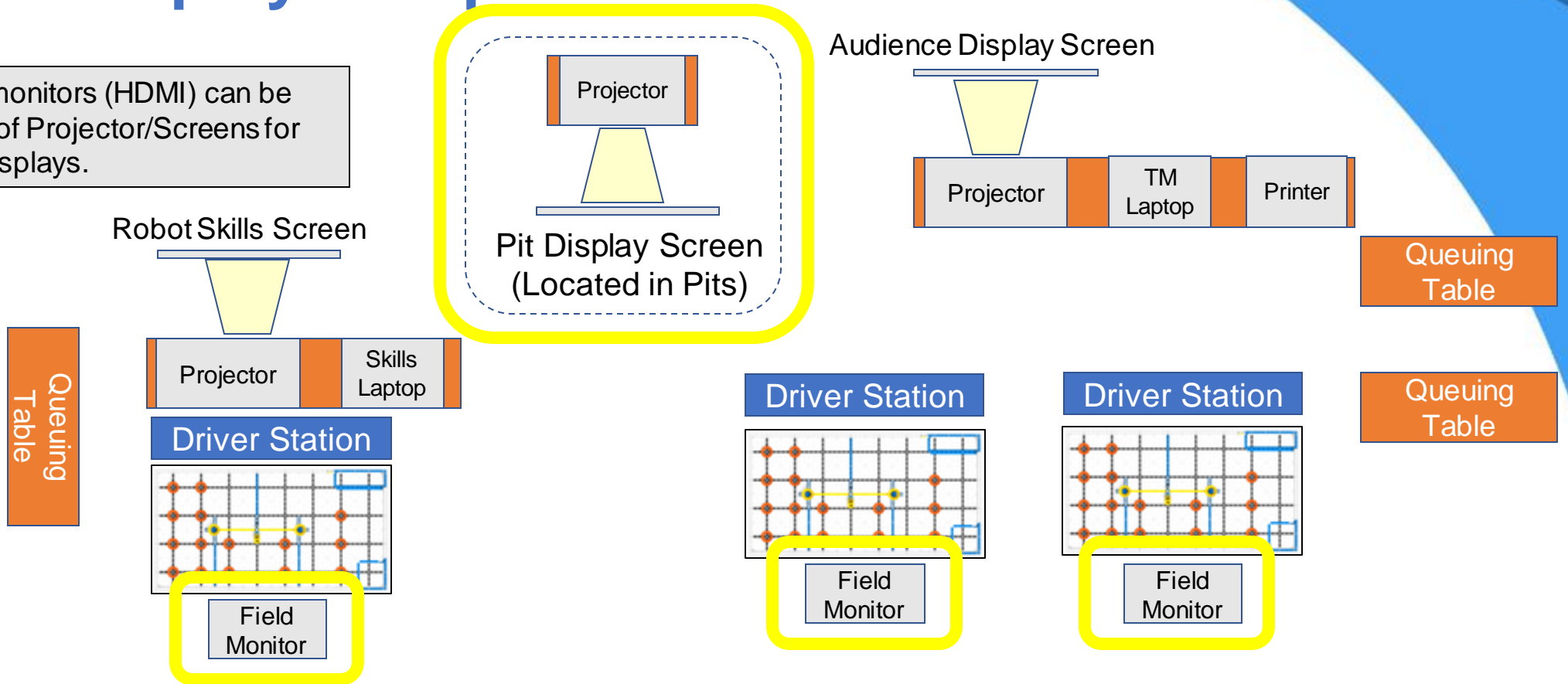


Note: All devices will need a power cable

- 2 Connect Computer to Speakers (Audio)
Built in computer speaker may be sufficient.

Remote Display Setup

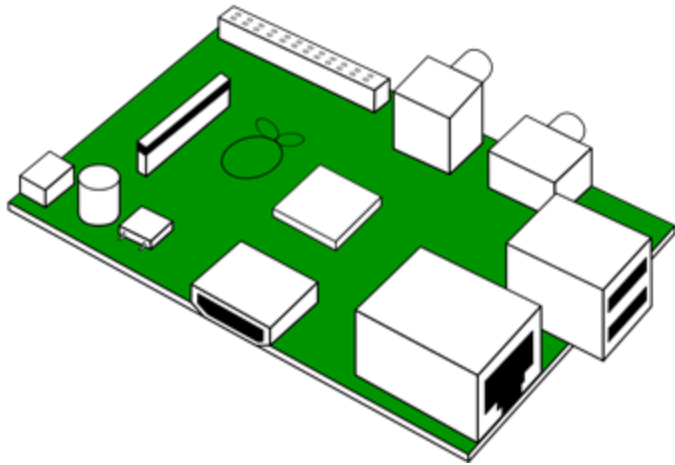
Note: Large monitors (HDMI) can be used instead of Projector/Screens for any remote displays.



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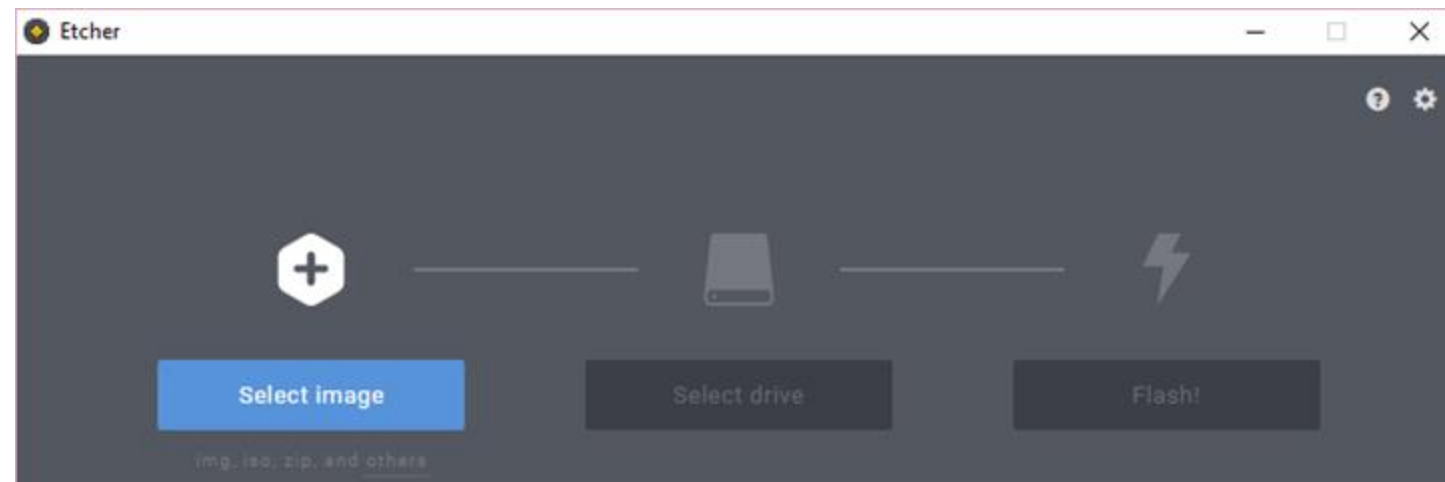
Remote Displays

Field Timers, Pit Displays, and Audience Displays can be setup using laptops or Raspberry Pi's with Tournament Manager installed.



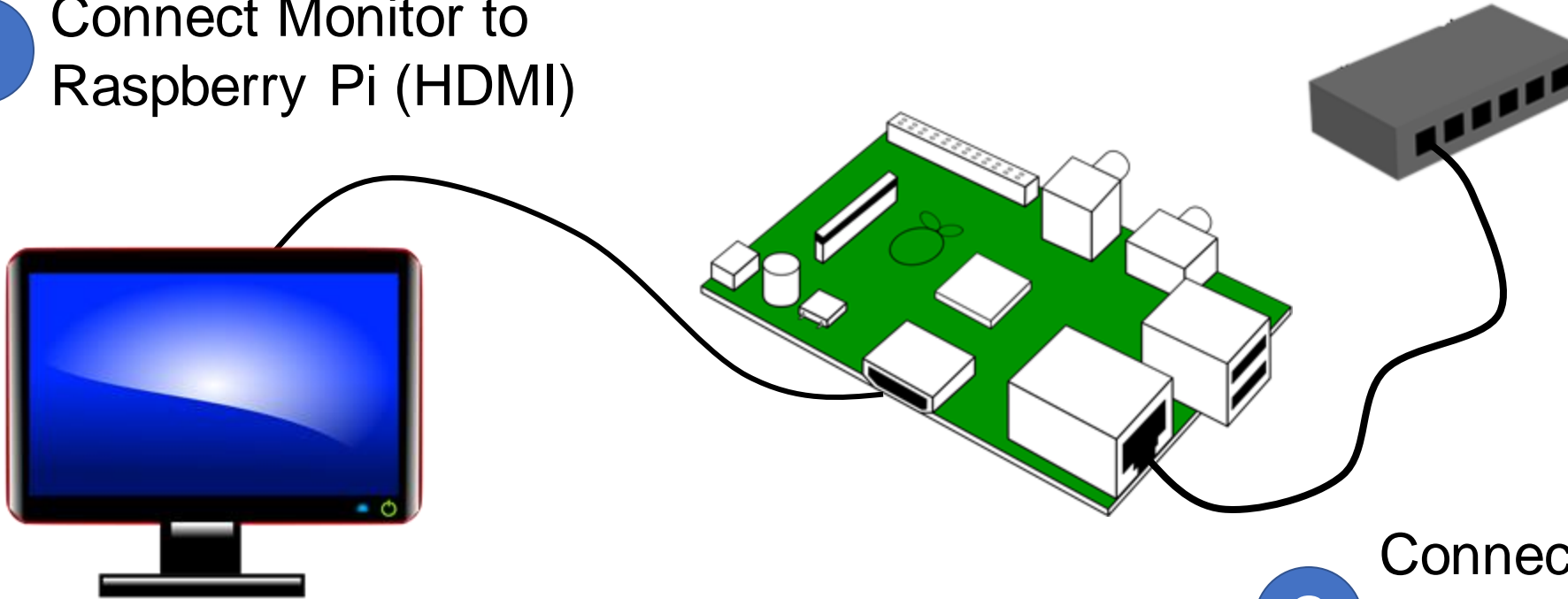
Tournament Manager on RPi's

- Install the latest version of Tournament Manager on each Raspberry Pi.
- [RPi Instructions](#) are located under Event Partner Resources (Event Planning)
- Demonstration of installing TM on RPi's using Etcher



Connect Monitor Remote Displays (Field Monitors and Pit Display)

- 1 Connect Monitor to Raspberry Pi (HDMI)



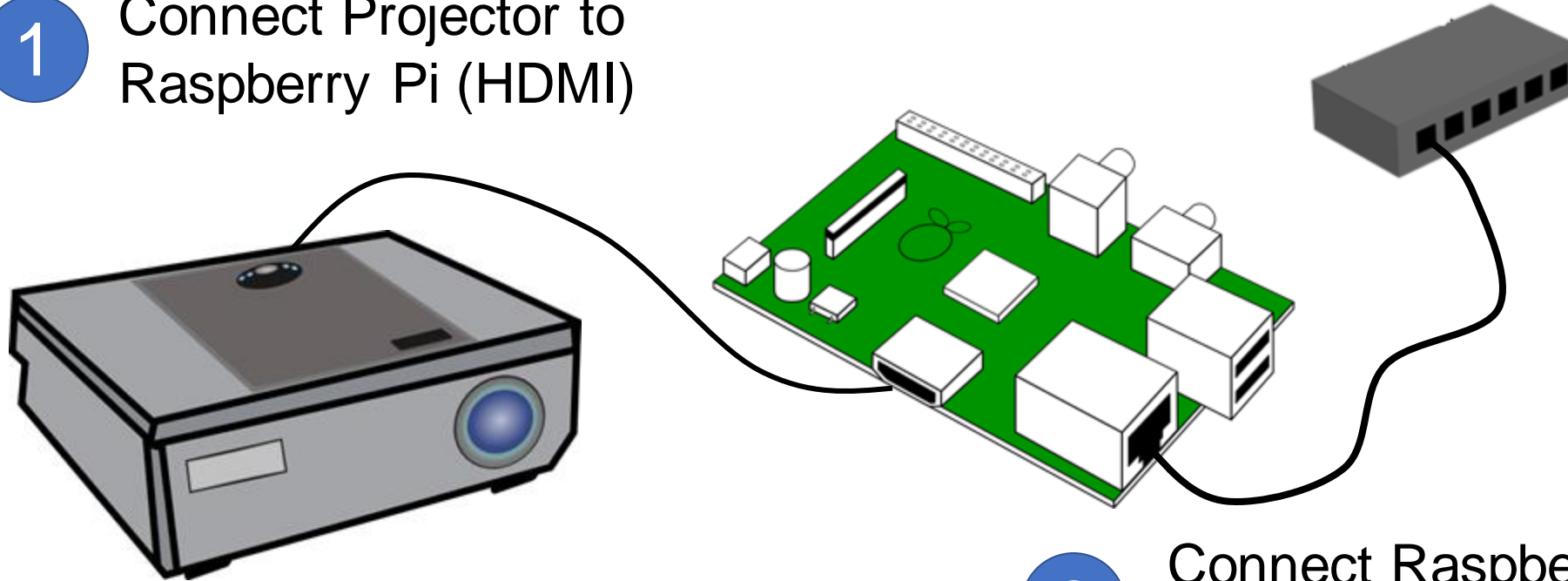
- 2 Connect Raspberry Pi to Network Switch or Modem (Ethernet)



Note: All devices will need a power cable

Connect Projector Remote Display (Optional for Pit Display)

- 1 Connect Projector to Raspberry Pi (HDMI)



- 2 Connect Raspberry Pi to Network Switch or Modem (Ethernet)



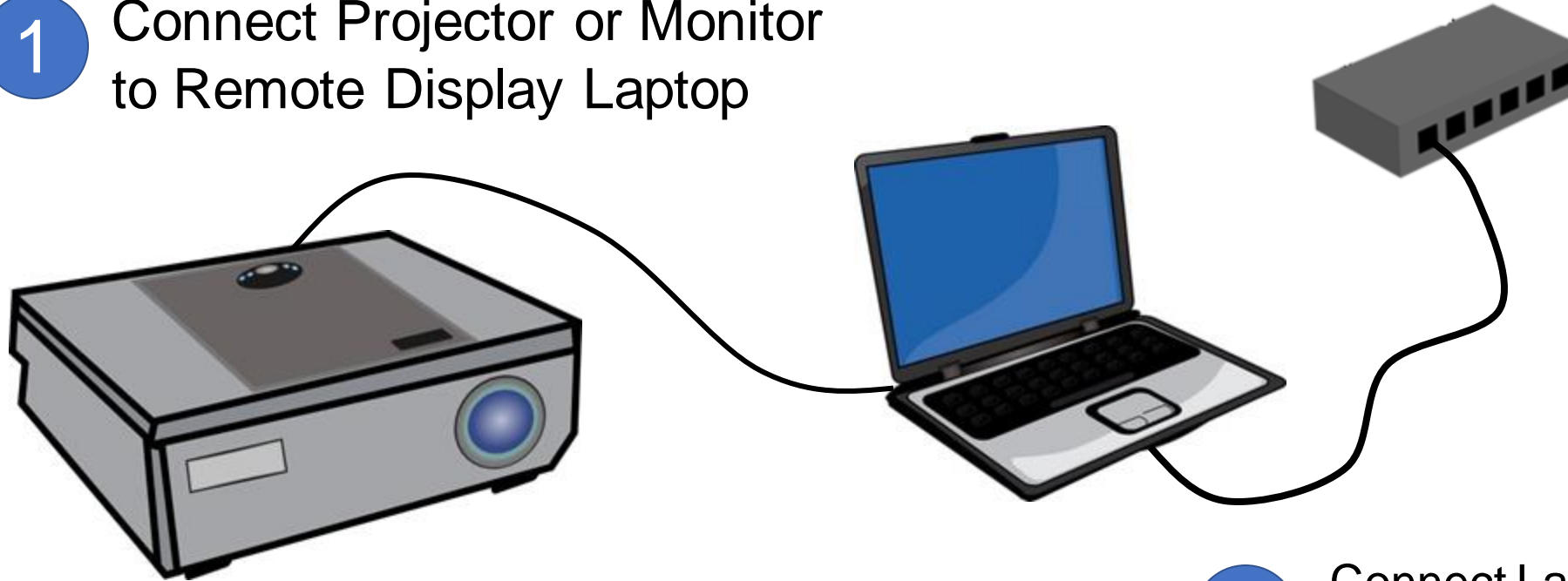
Note: All devices will need a power cable

A monitor can be used instead of a projector for additional Remote Displays.

Remote Display Option

Laptops can be used in place of Raspberry Pi's

- 1 Connect Projector or Monitor to Remote Display Laptop



- 2 Connect Laptop to Network Switch or Modem (Ethernet)

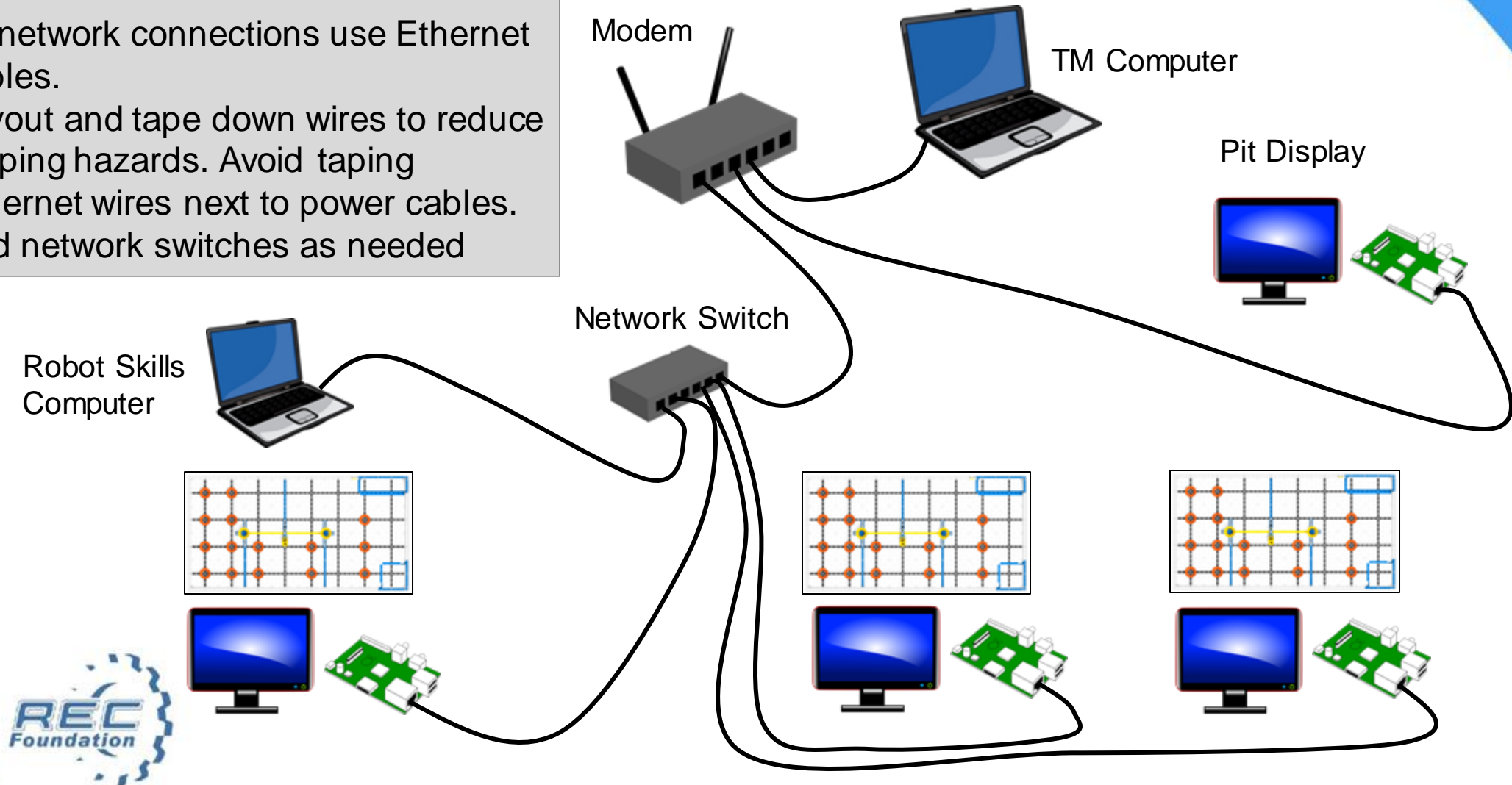


Note: All devices will need a power cable

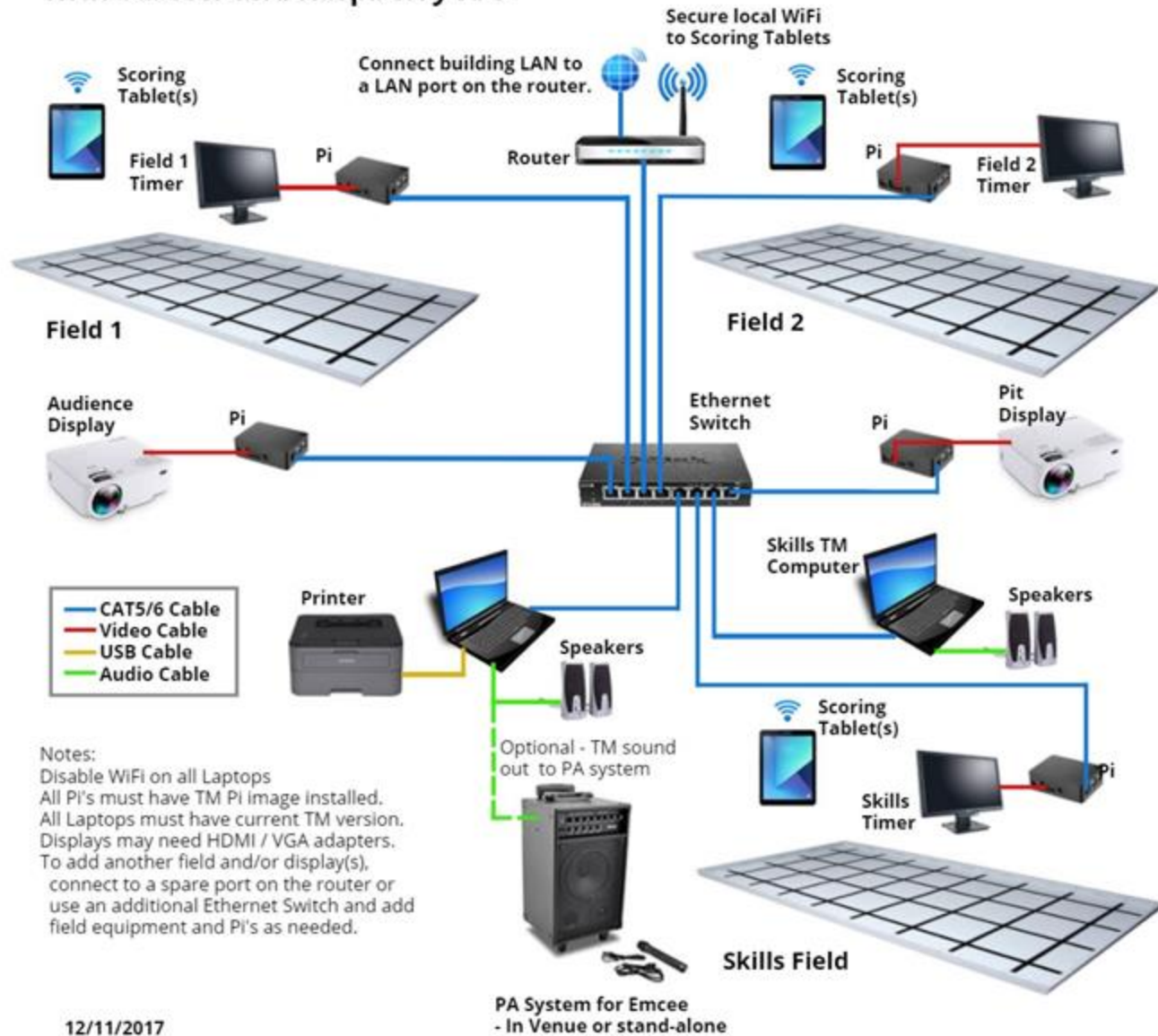
Network Laptops and Remote Displays

NOTES:

1. All network connections use Ethernet cables.
2. Layout and tape down wires to reduce tripping hazards. Avoid taping Ethernet wires next to power cables.
3. Add network switches as needed



VEX IQ Tournament Two Field Layout with Tablets and Raspberry Pi's



12/11/2017



Tablets

- Tablet must have TM Mobile app installed
 - Navigate to Google Play Store (Android) or iTunes (Apple) and download app “VEX Tournament Manager Mobile” by DWAB Technology
- Tablets connect via WiFi to local wireless router
- Web Server must be started at TM “remote server”
- Can now start/stop matches using TM Mobile
- TM Mobile resources:
 - <https://www.roboticseducation.org/documents/2016/09/getting-started-with-tm-mobile.pdf>



Test Equipment Setup & Best Practices

- After setting up the equipment, use a mock tournament to test the Displays and Audio settings.
- Microphones are helpful for communicating to the Audience and to Start/Stop matches. They usually connect through the speakers, but you may need to use facility speakers.
- Using local TM Network is recommended versus building WiFi.
- It is highly recommended to provide/borrow an additional field for practice in the Pit area.



Video Mixing for Video Overlay

Equipment:

- Video camera(s) for each field
- Video Mixer
- Video cables

Demonstration of Video Overlay



Further Resource: <https://obsproject.com/>