# Other important documents

Electronics overview document:

<https://docs.google.com/drawings/d/1ZOfGhNgIXy0KijykILqr1S0N605TGK6ybBYaeW_P0es/edit>

These requirements are based on the Story Portal Technology document here:

<https://docs.google.com/document/d/1MxCQgnJdlICL4hOxEx1rwgTcHIvaqqgQ9wQydZHm5TY/edit>

# Purchases

**we need one of these from radio shack:**

1 - Arduino DMX shield ($25 ea) -<http://www.radioshack.com/product/index.jsp?productId=18455726> (if we get this working, it might be good to have an extra)

**here's the new adafruit purchase becomes:**

1 - ($16.00 ea) - Proto shield with screws -<http://www.adafruit.com/products/196> (for the wheel event manager)

2 - ($29.95 ea) Arduino UNO -<http://www.adafruit.com/products/50>

(dmx controller and wheel event manager)

1 - ($4.95 ea) - Wireless switch receiver -<http://www.adafruit.com/products/1096>

several (as many as you think you’d like to have - maybe 4? ($6.95 ea) - Wireless 4 button keyfobs<http://www.adafruit.com/products/1095>

2 - ($24.95 ea) 12V power supply for LED strips<http://www.adafruit.com/products/352> (you need one for every 4 meters of white LED lights and one for the DMX bus)

1-5? ($19.95 ea) - Cool White LED strip 60/meter (this stuff is fragile and some will break)<http://www.adafruit.com/products/887>

1- Header pins ($7.50) -<http://www.adafruit.com/products/392>

3 - arduino IC ($5.95) -<http://www.adafruit.com/products/123>

(for led controller for white lights and rgb strips)

10 - (the number we need depends on how many times we cut the strip so this is a guess) ($1.50) - connectors for led strips - <http://www.adafruit.com/products/578>

6 - Terminal Block ($2.95 ea) - <http://www.adafruit.com/products/724>

1 - Diode 10 pak ($1.50 ea) - <http://www.adafruit.com/products/755>

1 - shift register 3 pak ($2.75) - <http://www.adafruit.com/products/450>

1 - NPN transistor 10 pak - ($1.95) - <http://www.adafruit.com/products/756>

1 - 0.1uF Capacitor 10 pak - ($1.95) - <http://www.adafruit.com/products/753>

1+ - Powerswitch tail ($25.95 ea) - <http://www.adafruit.com/products/268>

(need one for each 110VAC circuit we want to switch on and off)

**Other needs:**

4 conductor 22/24ga stranded wire for the LED strips (this can wait until we get the exact placement of the lights

splice connectors

# Immediate needs

### Motors for wheels

Purchase motors, driver boards, and power supply

### Fog machines

Get fog machines with remotes to James or Gerry for rigging

### DMX shield

Buy 1 - ($16.00 ea) - Proto shield with screws - <http://www.adafruit.com/products/196>

Buy 1 - ($29.95 ea) Arduino UNO - <http://www.adafruit.com/products/50>

Still need misc ICs

It might be a good idea to have two of these if we have money, especially if we are incorporating more DMX controlled lighting.

### Wheel event manager

Buy 1 - ($29.95 ea) Arduino UNO - <http://www.adafruit.com/products/50>

Connects to relay board

### Relay board

Buy 1 - ($16.00 ea) - Proto shield with screws - <http://www.adafruit.com/products/196>

Buy 1 - ($29.95 ea) Arduino UNO - <http://www.adafruit.com/products/50>

Buy 1 ($17.50 ea) - 16 channel I1C Servo Controller - <http://www.adafruit.com/products/1411>

Get fIre equipment from Nate

Buy 1 ($4.95 ea) - Wireless switch receiver - <http://www.adafruit.com/products/1096>

Buy several ($6.95 ea) - Wireless 4 button keyfobs <http://www.adafruit.com/products/1095>

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# Less than immediate needs

Power supply for motors

Spare batteries for the keyfobs

# Equipment list

These requirements are based on the Story Portal Technology document here:

<https://docs.google.com/document/d/1MxCQgnJdlICL4hOxEx1rwgTcHIvaqqgQ9wQydZHm5TY/edit>

## Arduino Microcontrollers

**Need:**

dmx relay board

dmx motor controller

## Adafruit 16-Channel 12-bit PWM/Servo Driver - I2C interface - PCA9685

<http://www.adafruit.com/products/815>

**Need:**

1 x $14.95

This can control 16 pwm channels. We can use that to control motors and single color RGB strips or similar RGB lighting. Gives room for expansion.

**Used for:**

* Motorize the 4 gears attached to the backdrop (possibly depending on the motors)
* Motorize the spring attached to the backdrop (potentially create new spring -- motor may not spin it but rather shake or push it)
* Flame effects (still need info from nate)

## DMX Shield for Arduino

**Need:**

1 x Master

2 x Slave

This shield will read the wheel state from the wheel state arduino. It will then send DMX commands to implement the stage effects.

I’m having a hard time finding a vendor in the US that can ship in a reasonable amount of time.

It is a simple circuit. Maybe we could make our own board? <http://playground.arduino.cc/DMX/DMXShield>

Tutorial that doesn’t say what board he used: <http://www.open-electronics.org/arduino-dmx-shield-for-christmas-projects/>

People selling them:

<http://stores.ebay.com/Conceptinetics>

<http://www.ebay.com/itm/DMX-Shield-Arduino-/330927225562?pt=US_Stage_Lighting_Controllers_Dimmers&hash=item4d0cccbada>

<http://shop.trinculosattic.com/products/the-guildenstern-arduino-dmx-shield> (non-standard RJ-45 connector instead of XLR)

Project with downloadble Eagle file that we could use to make our own board:

<http://www.mathertel.de/Arduino/DMXShield.aspx>

**Used for:**

Trigger 2 RGB DMX bar lights

Trigger DMX strobe light

Controlling relay shield

Controlling servo motors