# LED Tubes Hardware

## LED Specification

* The current draw when on full white is approx. 50mA

## LED Strips and Placement

* LED Strips cost approximately £25 for 300.
* Spacing of the LEDs could be calculated from: Length/300.
* Assuming the size of the boxes will come to around 10m the LEDs will have a spacing of 30mm each. Which would definitely be sufficient.

## Wiring Power and Length

* With 26AWG wire we can have a worst case of only 40 LEDs per power run. This is able to be reduced due to the current drop between devices.
* <https://uk.rs-online.com/web/p/flat-ribbon-cable/2140661/> 26 AWG 10m
* Will need about 20m of cabling. Does not all need to be 26AWG some can be thinner.
* <https://uk.rs-online.com/web/p/flat-ribbon-cable/2899896/> 28 AWG will get roughly the same length out of the 5m as its double ways.

## Power Supply

* Worst case situation is all LEDs on full brightness will require 15Amps
* Suggested Purchases are in the RS\_Compure\_PSU screenshots
* Things to consider are
  + Placement
    - Safer to run mains cable to the mirrors than ribbon
    - More expensive to buy lots of mains cable.
    - More modular when using multiple PSUs
  + Cost
    - More expensive to buy multiple supplies

## Suggested Budget

* £30 LEDs
* £25 Wiring (£8 for the 28AWG and £18 for the 26AWG)
* £35 Power Supply
* £10 Mains Cabling
* £0 RCA Cables to connect from mixer to soundcard.
* Totalling £100

## Second suggested budget

* £30 Arduino Uno + Cable
* £40 26AWG Wires
* £48 Power Supplies
* £60 LEDs
* Power Cabling is only outstanding item.

## Construction of Boxes

* Cut the plastic
* Measure plastic
* Route the dado using it as a tolerance for the plastic
* Dry fit to rear face.
* Install LEDs
* Test voltage drop and add power points
* Solder power points
* Remove one side, add plastic front and then done.
* Build frames to hold it up. Will probably go along with the rest of the jam build.

Need to have the dry fit to rear face done by Tuesday afternoon.

## Early Decisions

* Size and Shape of boxes
* Leading to number and spacing of LEDs