

## ELIZA - DIY Light Hat. What you will need.

### You will need

- 1) Bucket
- 2) Small plastic lid
- 3) Small piece of rigid plastic
- 4) DC 12v power plug connector/adaptor (female) for LED strips
- 5) LED strip connector
- 6) Red LED strip – 5 metre roll
- 7) Foil “fabric”
- 8) Aluminum multiseal tape
- 9) Small cable ties
- 10) Piece of sponge, 20cm x 20cm x ~1.cm depth. In inches, 8” x 8” x ½-¾ inch
- 11) 12 volt power plug, 1.5-2 amps.

### Tools

- 1) Sharp pointed knife
- 2) Sharp scissors
- 3) Small screwdrivers
- 4) Wire cutters can be useful

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## Bucket

### **Internal diameter**

- Internal diameter at the top around 26cm or ~10.5 inches.
- Definitely no less than 24 cm or ~9.5 inches
- Preferably no more than 30cm or ~ 12 inches.



### **Height**

- 20 cm or ~8 inches would be marvelous.
- If it is higher than 20cm or ~8 inches, then we will cut it down to size.



### **Shape**

- The bucket needs pretty straight sides

*If the sides are too angled, then it is very hard to stick on the LED strip.*



The very first light hat we made was from a lampshade, bought for \$3 from an Op Shop. It didn't have straight sides, and that's where we learned that lesson.

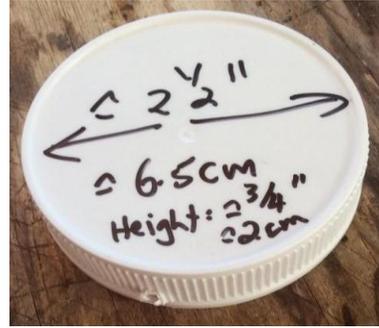
The lace frill was particularly fetching...

## Plastic Lid

### Plastic lid

- Diameter around 6.5cm or ~2.5 inches.
- Height around 2cm or ¾ inch

*This will be covered in foam and will sit on top of your head.*



## Small piece of rigid plastic

- Dimensions around 5cm x 3cm or 2 inches by 1 inch.
- It does not have to be large, but it does need to be rigid and not bend.
- The one I use is green and was left over from tiling the bathroom.
- It does not need to be beautiful.

*You will drill and cable tie the connecting plug onto this.  
The plug and its connecting wires will then stay nice and still.*

## DC 12v Power Plug connector/adaptor (female) for LED strip light

- External diameter 5.5mm
- Internal diameter 2.1mm
- Dimensions 38mm x 14mm x 10mm
- Make sure you buy the one that uses screws



*You will screw the LED strip wires into this connector*



*Note: There is a clip version available (pictured left) but it is not recommended for permanent use. We do find it extremely useful for quickly testing LED strips.*

*If you plan to make more than one Eliza, we recommend buying one.*

## Red LED strip

- 670nm wavelength if you can get it
- But any red LED will do – the darker the red, the better
- We buy LED strips in 5 metre rolls
- We use 8mm wide LED strips and find them easier to use than 10mm wide strips



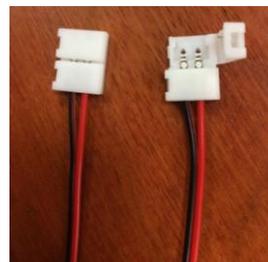
*You can use from 2.5 to 5 metres in your Eliza.*

*Some LED strips come with wires already attached.*

*For LED strips without wires, you will need to put on your own wires using the connector below.*

## LED strip light connectors

- We use 8mm LED strips, and so buy 8mm LED connectors
- Make sure that you match your LED strip width to these



*You will fasten LED strips into this connector*

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## Foil backing fabric

- We use an insulation material left over from insulating under the floor (Aircell Permifloor).
- Sisalation can work and usually someone you know will have some left over
- It needs to be bendable but not floppy

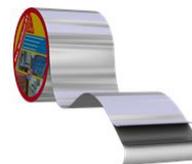


*You will line the inside of the bucket with this material.*

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## Strong foil tape

- Aluminium multiseal tape.
- It is amazingly strong and can be cut into fine lengths.



*You will use a lot of this tape.*

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## Other stuff

- Small cable ties.
- Piece of sponge 20cm x 20cm x ~1.cm depth. In inches, 8" x 8" x ½-¾ inch
- 12 volt power plug, 1.5-2 amps.