Handtools Induction - Practical Exercise

SLQ Wiki Fabrication Lab 2024/03/29 10:36

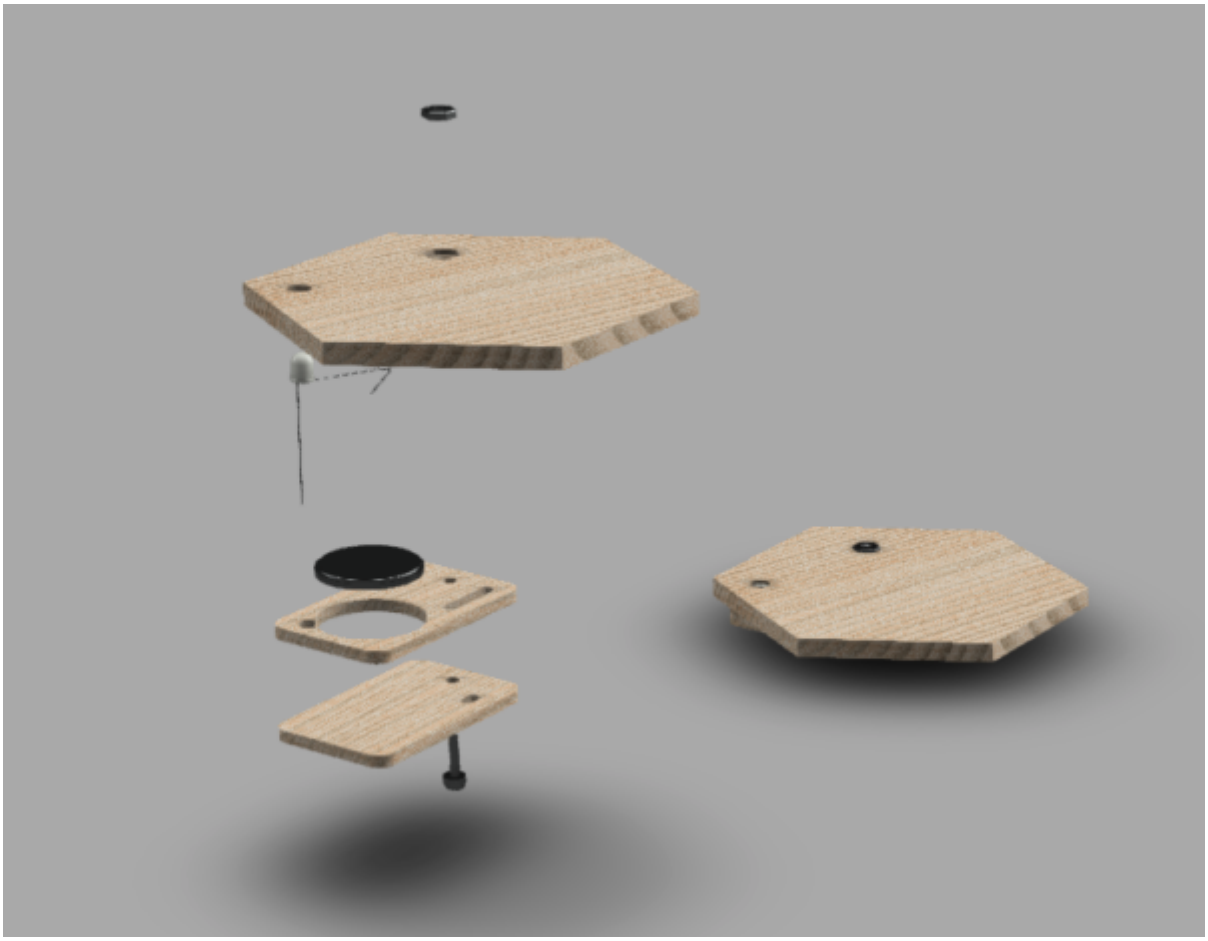
~~REVEAL~~

Handtools Induction - Practical Exercise

:facilities:fablab:inductions:handtools:screen_shot_2020-11-09_at_10.59.27_am.png

Summary

Participants will assemble a laser cut LED badge and familarises themselves with the variety and safe use of hand tools in The Edge Fabrication Fab. This is the practical exercise for the Edges Hand tools induction.



The aim of the activity is to provide inductees with an opportunity to :

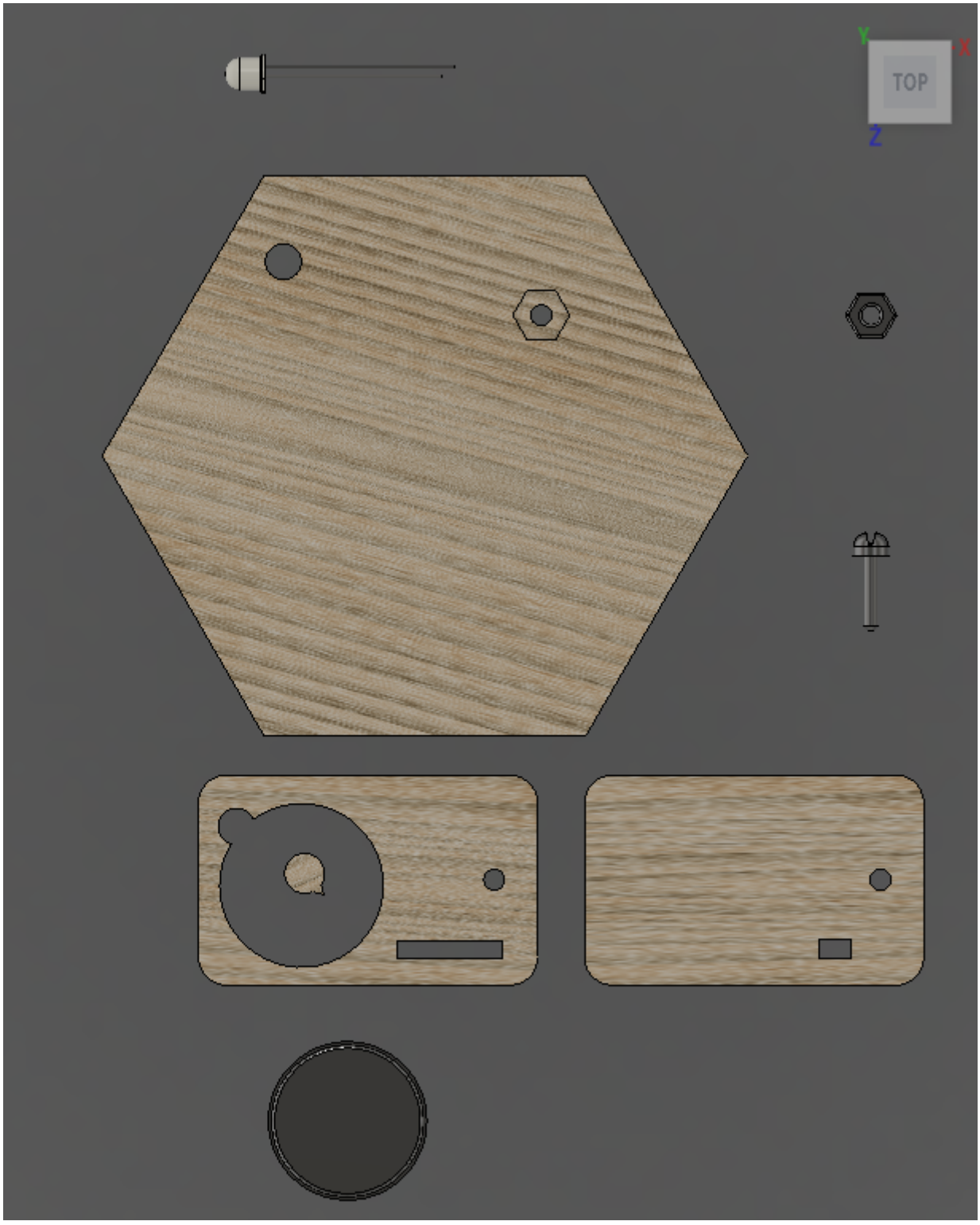
- Gain a hands-on, practical understanding of the basic categories of hand tools found in in the Fabrication Lab
- Identify the risks associated with these categories of tools and learn safety and handy tips for using these tools.
- Put together an inexpensive, cool and quick little take-home project thats been made with the

equipment in the Fabrication Lab.

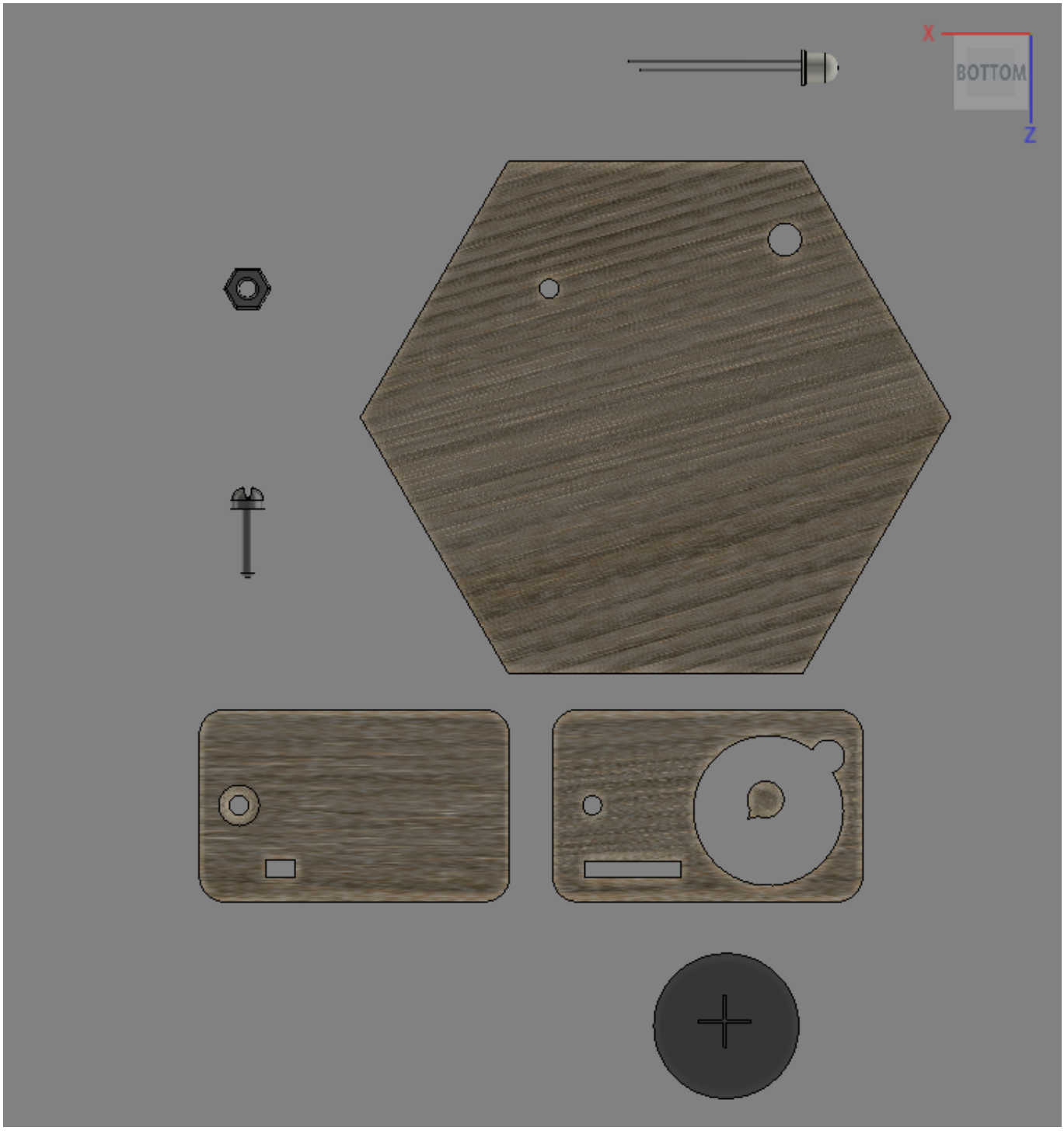
Materials

Part #	Part Name	Image
Laser Cut Parts		
1	badge front	
2	logo	
3	Battery retainer	
4	Battery back	
Other Parts		
5	Cr2032 Calculator Cell (Battery)	
6	Flashing 5mm LED (various colours)	
7	M3 Nut	
8	M3 12mm screw	
9	Metal Badge Back	

Parts Back



Parts Front



Tools

1. Hot glue gun & glue
2. Pointy nose pliers
3. Philips head screwdriver
4. Awl
5. Adjusting spanner
6. Countersinking bit
7. Cordless Drill
8. Hand saw

9. Clamp or mini vice
10. Sand paper

Assembly Instructions

Step Zero:

When ever you are in the Fabrication Lab

- make sure you're keeping your space tidy



- You are use correct manual handling technique



- Check you have all you parts and that these are cut through cleanly.
- Check you have all the tools you require... and the right tool for the job

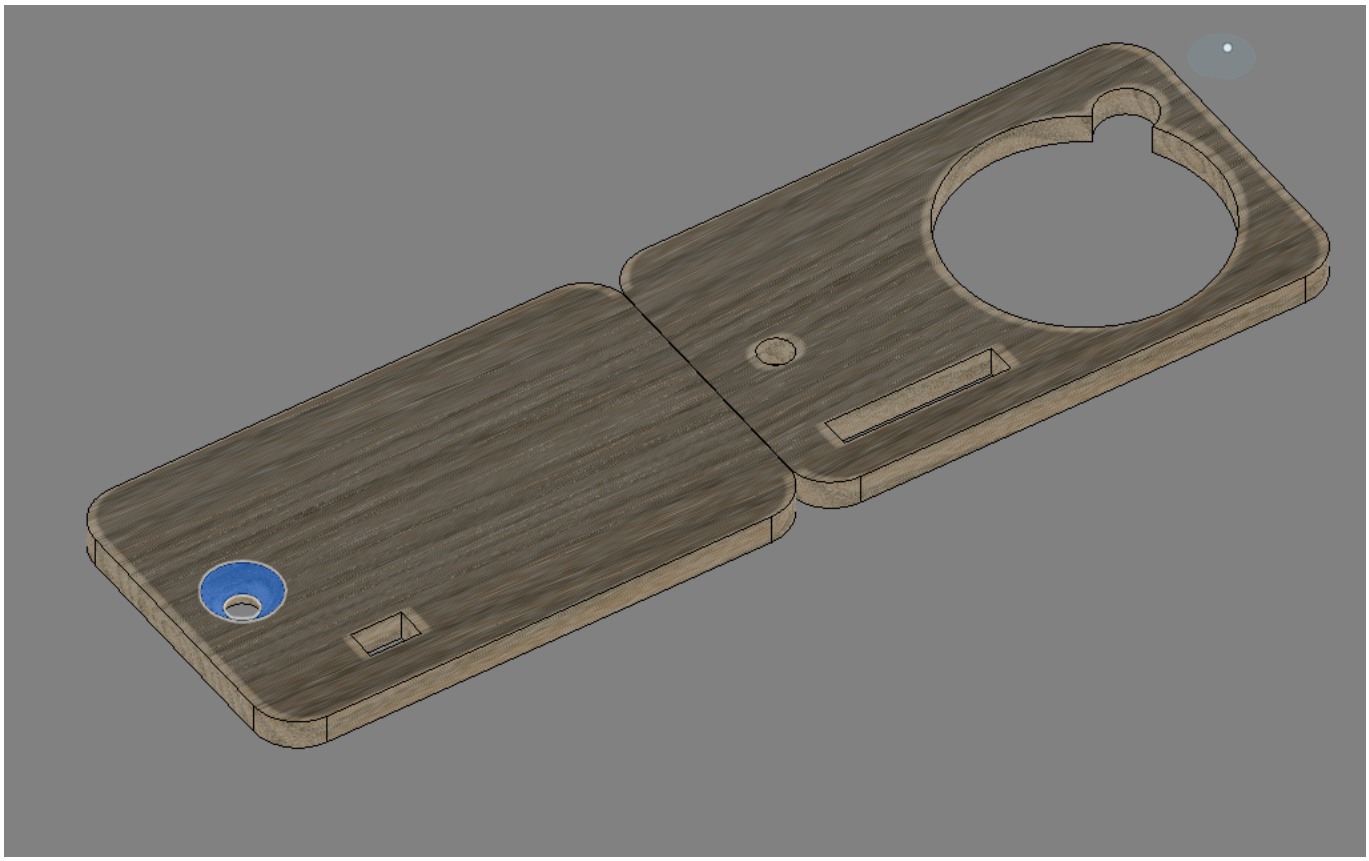
For instance if you need to clean up laser cut parts, use an awl (not a screwdriver). An awl is designed for poking... screwdrivers are for *driving screws*.



Step One:

First, with the Cordless Drill and a counter sink bit, countersink the hole in the **Battery back (Part 4)**

make the counter sink about a match head deep



Any time you are using a spinning blade or tool you also need to be care careful not to get hair or clothes caught in the equipment... **Take it off, tie it back or tuck it in**



Any time you are using a spinning blade or tool you also need to be care careful not to get hair or

clothes caught in the equipment... **Take it off, tie it back or**



Also any time you are using a spinning blade or tool you could be creating friction... **Be careful of hot tools and keep track of where your hot swarf ends up**



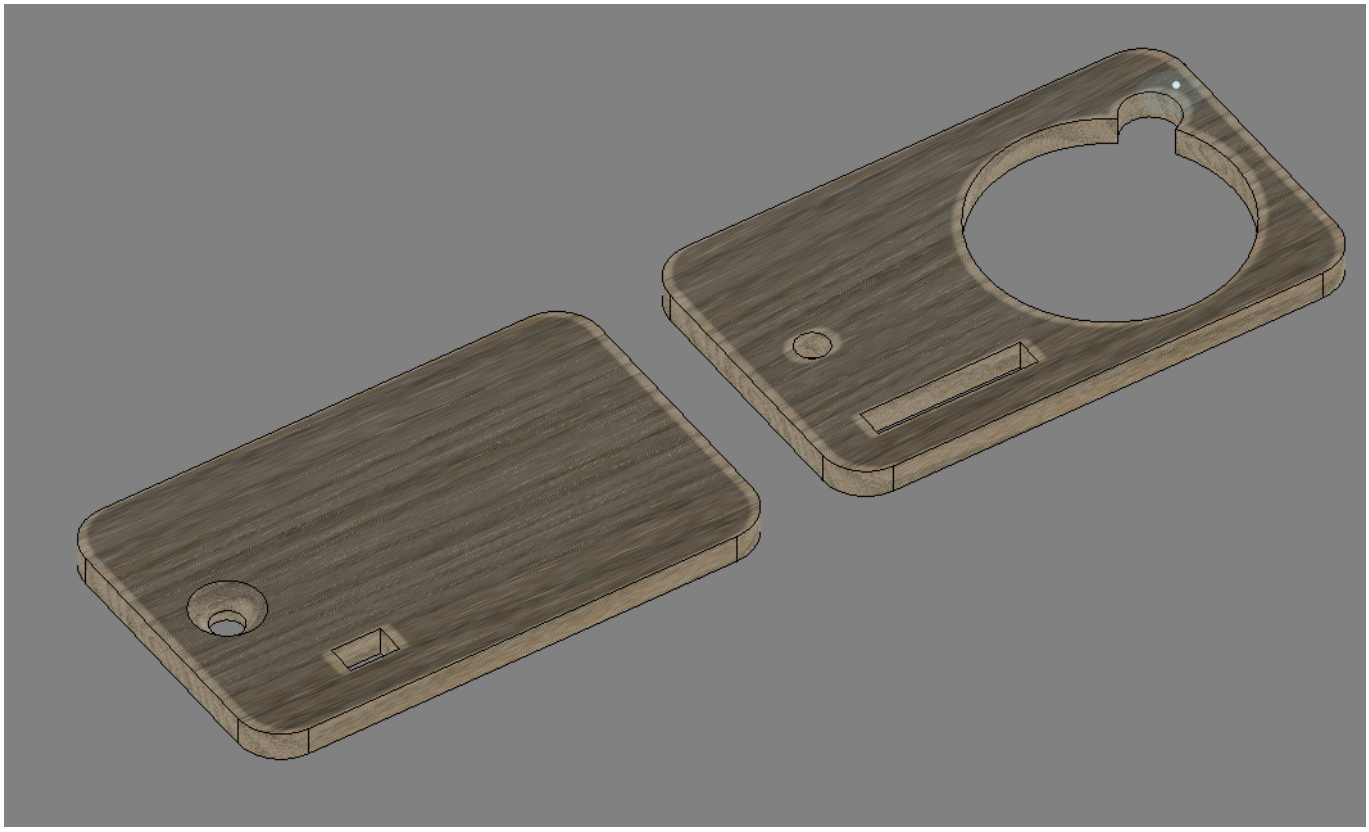


Also any time you are using a spinning blade or tool you could be creating friction... **Be careful of hot tools and keep track of where your hot swarf ends up**





Next, separate the **Battery Retainer (Part 3)** from the **Battery Back** by sawing the part in half.



Are you applying force? Make sure you secure your work... clamp the material down or put it in a vice when using a drill or saw

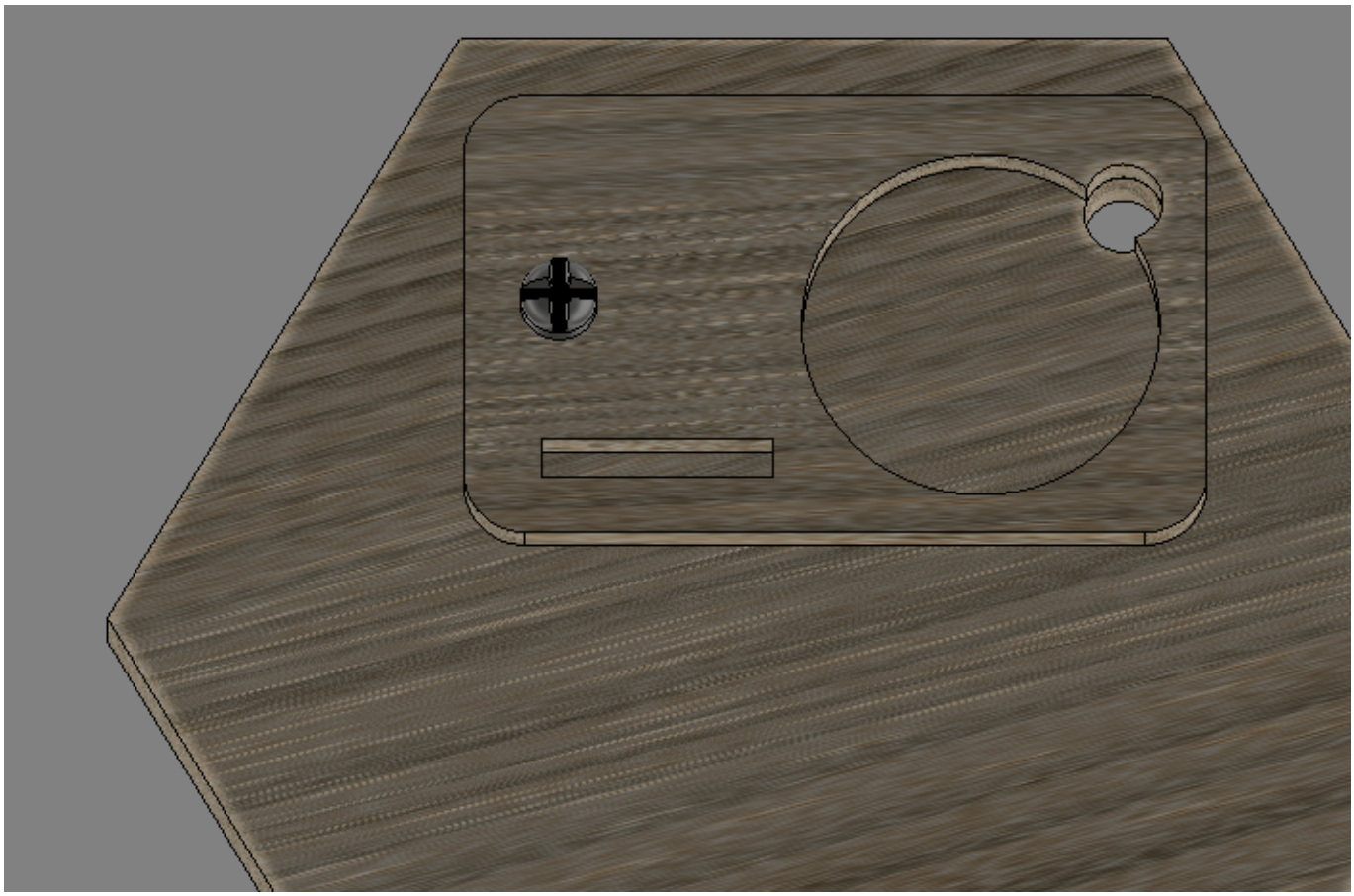


Are you applying force? Make sure you secure your work... clamp the material down or put it in a vice when using a drill or saw

Step Two:

With hot glue, stick the **Battery Retainer (part3)** to the back of the **Badge Front (Part1)** make sure you have aligned the screw holes and LED holes on both parts.

your blob of glue should be about the size of a pea



Hot Glue Burns - if you manage to get hot glue on you skin cool it under cold running water immediately. **trying to wipe it off will spread the burniness around.**



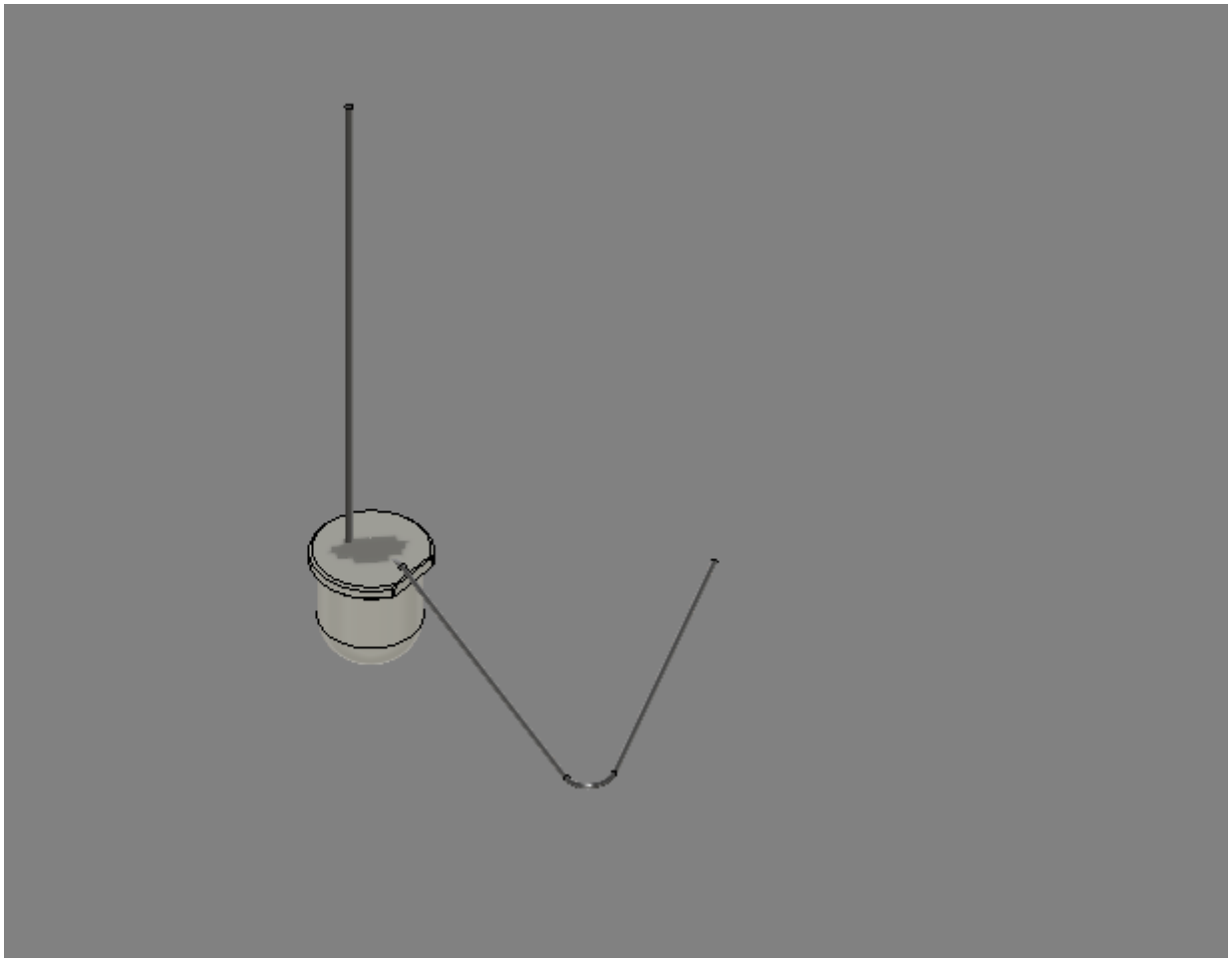
Hot Glue Burns - if you manage to get hot glue on you skin cool it under cold running water immediately. **trying to wipe it off will spread the burniness around.**



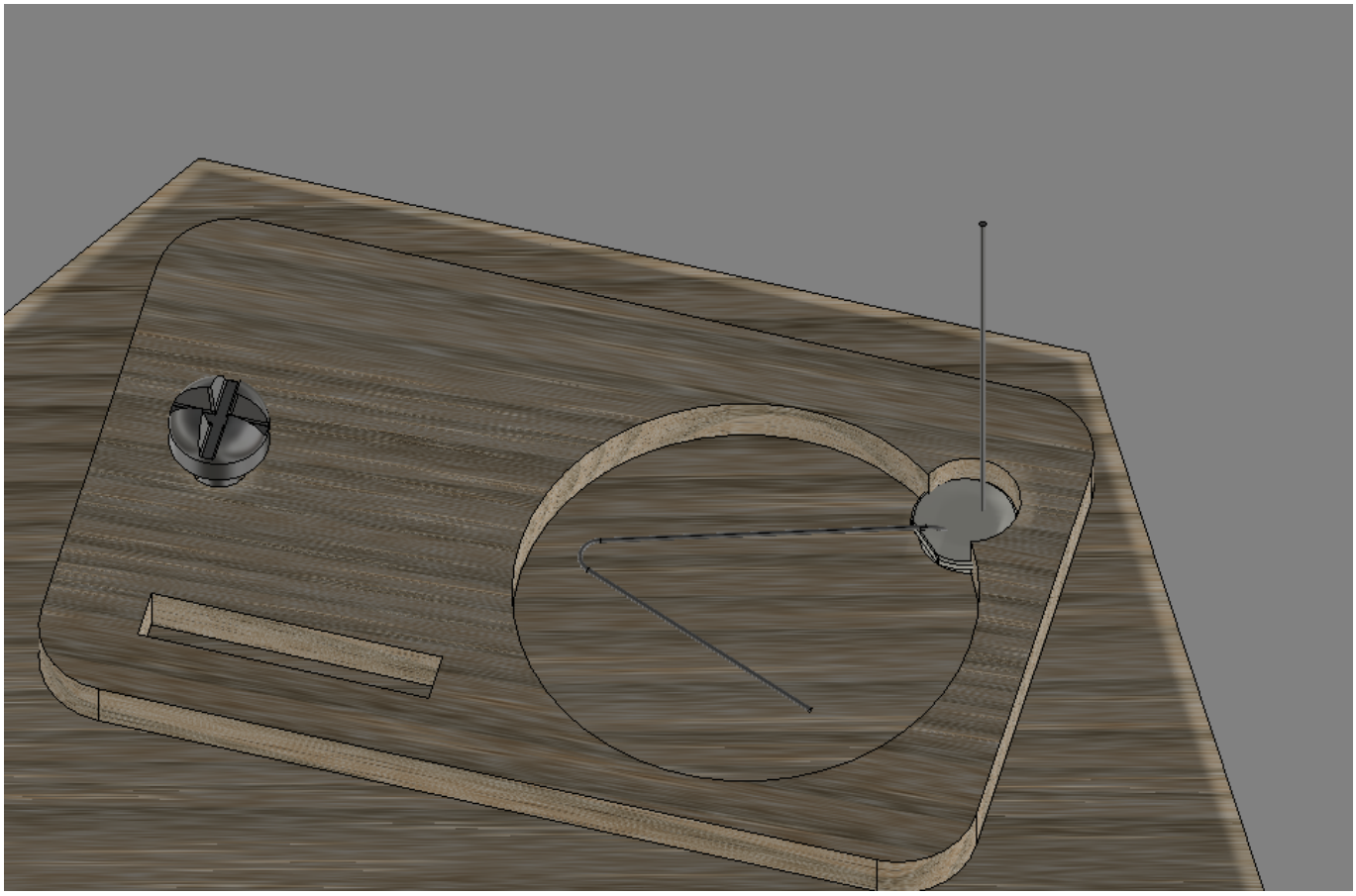
Step Three:

Test your **LED (part 6)** by placing the long leg over the positive (+) of the **Cell(battery)(part 5)** and and the short leg over the negative (-) side.

with pliers bend the short leg over at 90 deg and back on itself

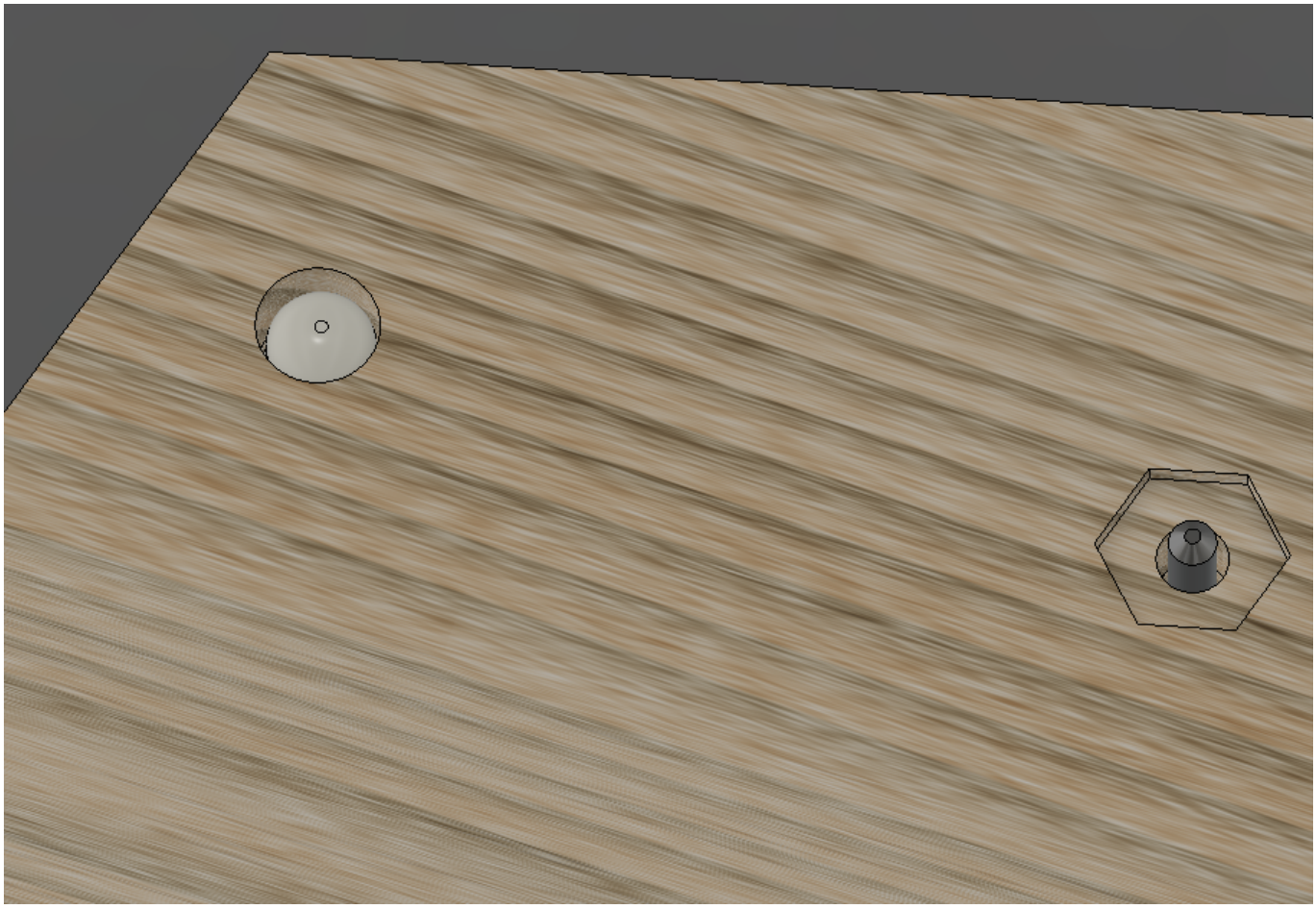


orient the LED so the short bent leg is *inboard*- towards the cell (battery) and the positive (+) long leg is outboard.

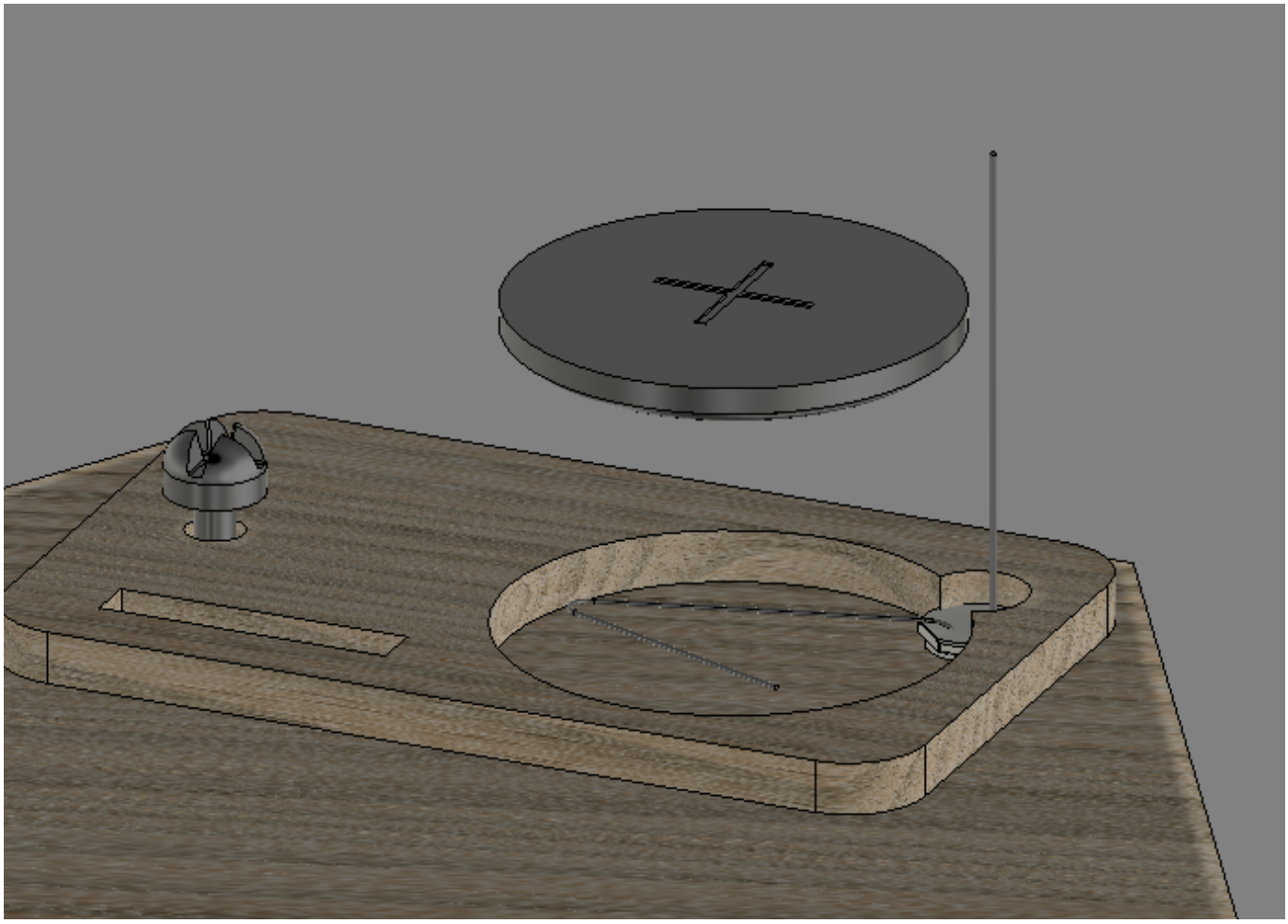


Step Three: - Continued

Turn the badge over so you are looking at the face and hot glue the LED in the hole in this position from the front

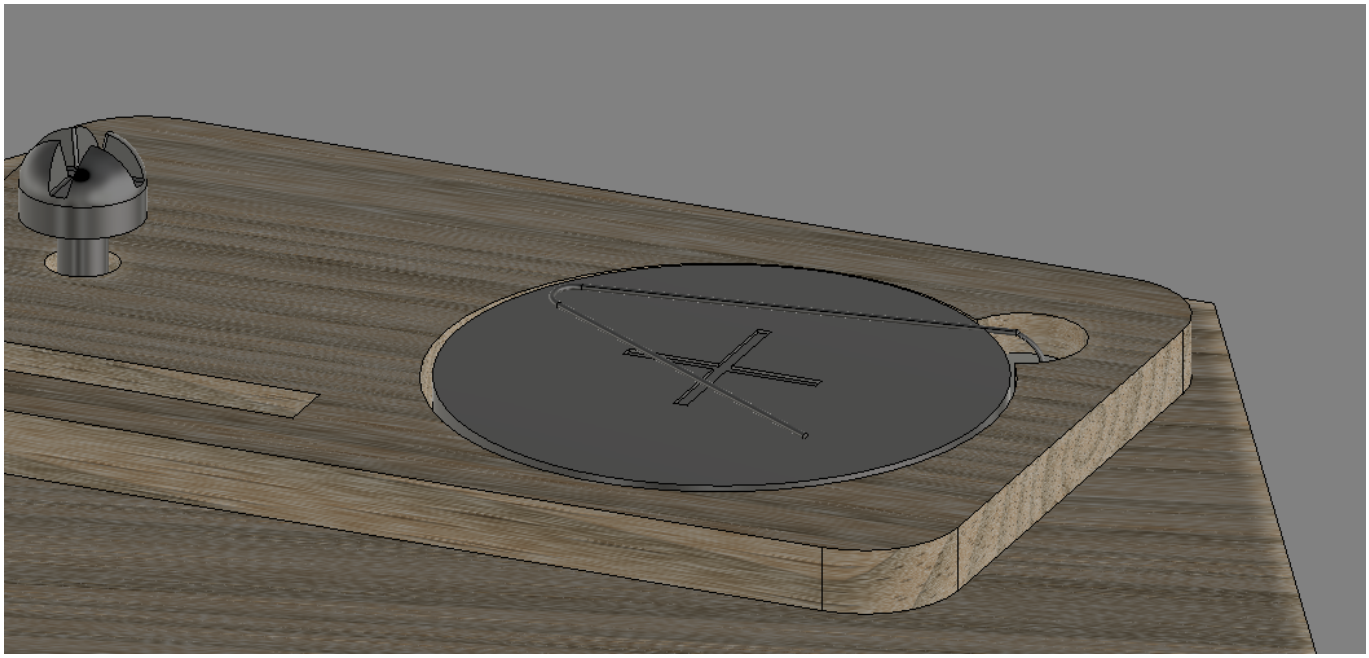


Turn the badge over again so it is face down and insert the Cell (battery) with the positive (+) up.



Step Four:

Bend the long positive leg over the Cell and back on itself



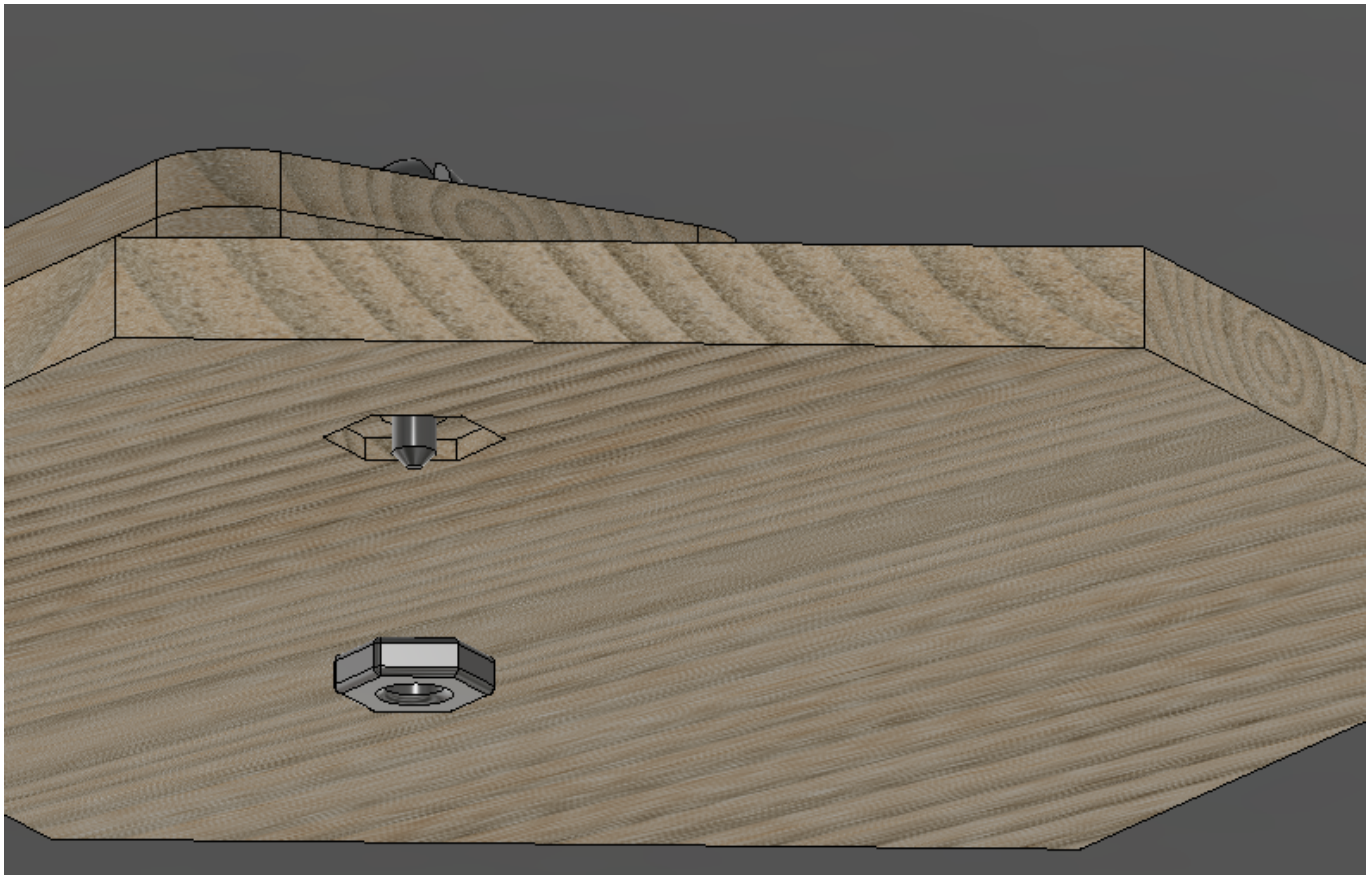
The LED should Light up.

Step Five:

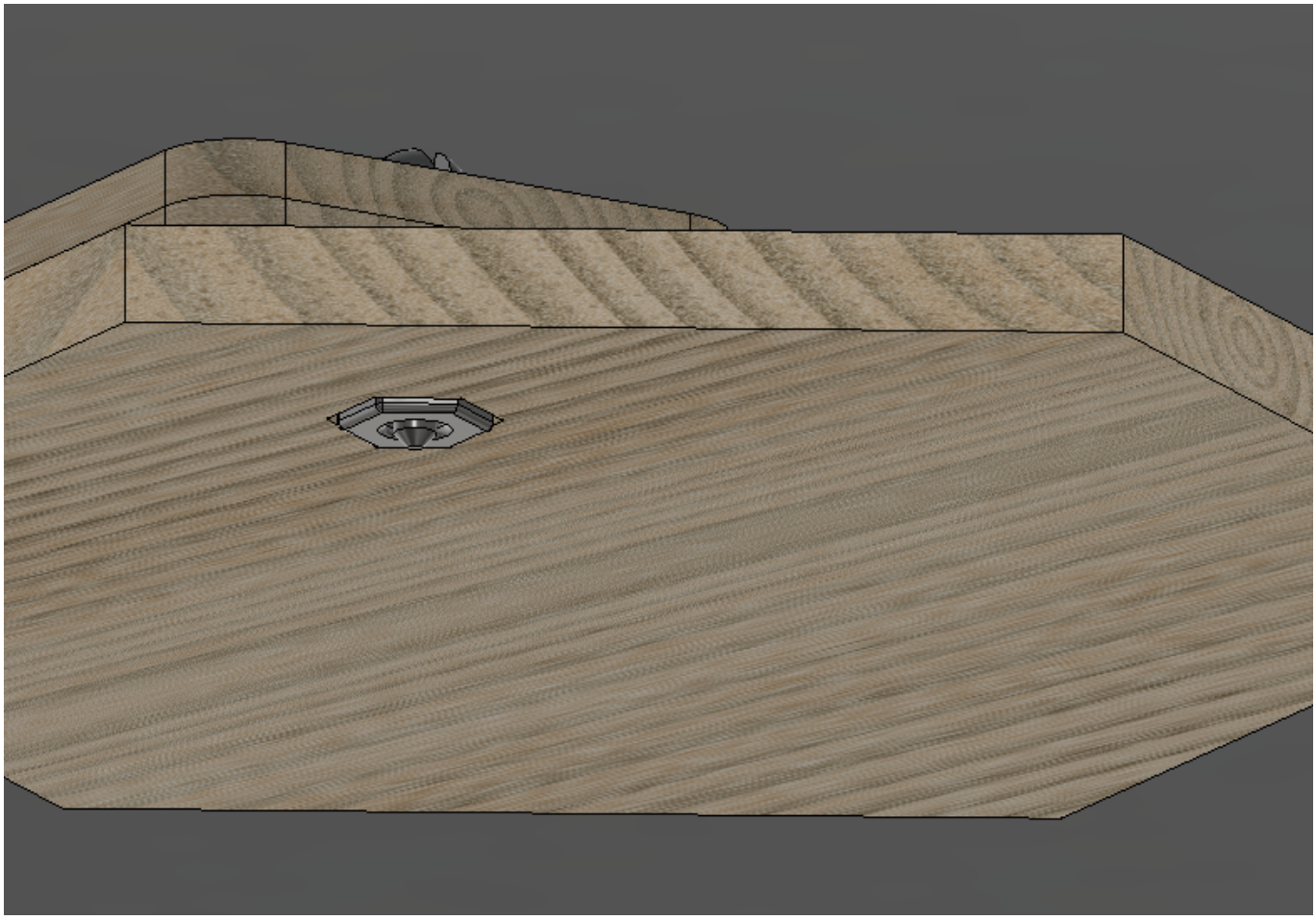
Align the **Battery Back (Part 4)** screw hole with the screw hole in the badge front/ battery retainer.



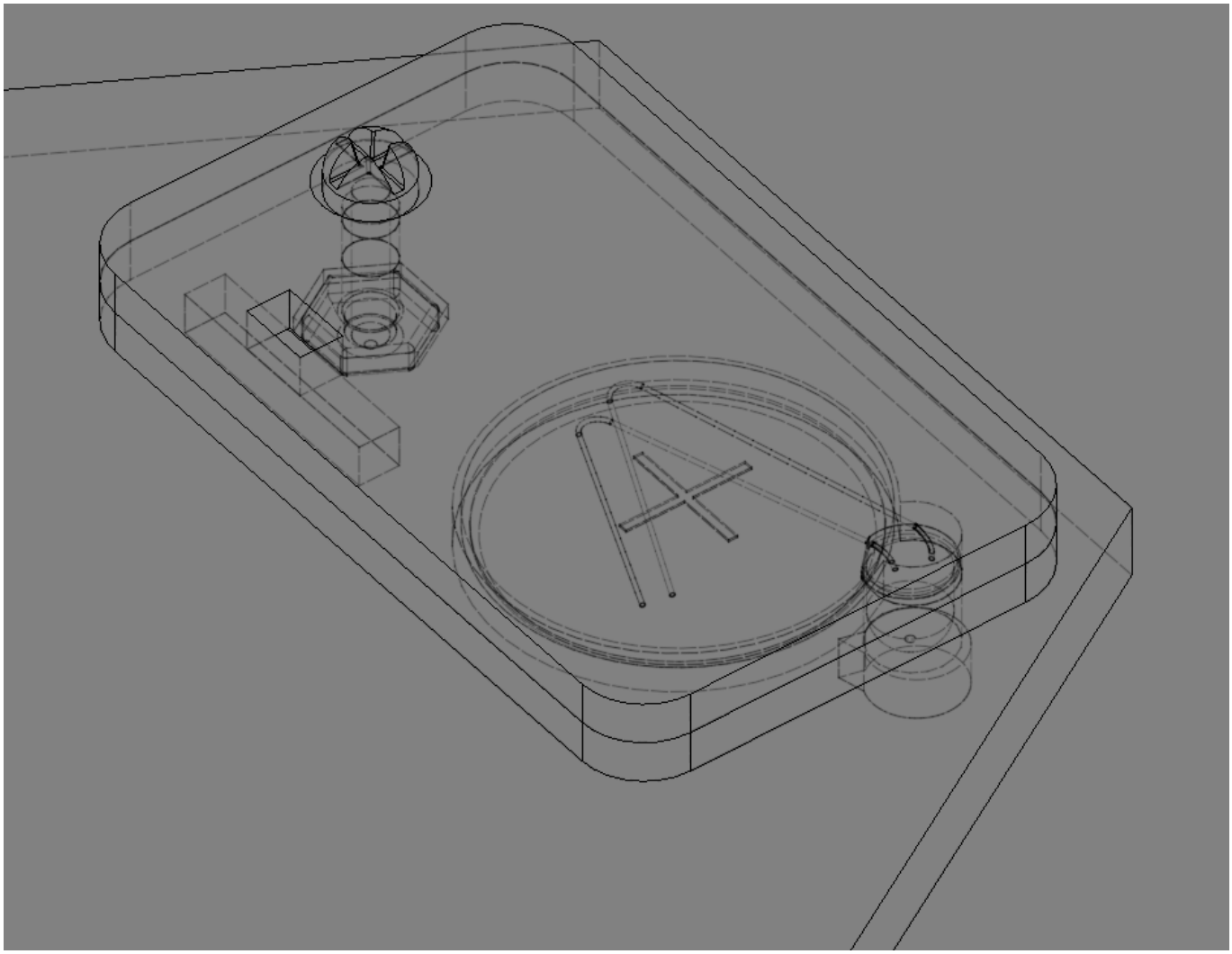
Insert **Screw (part)** from back to front and screw on nut.



Allow **nut** to seat in captured nut recess on **Badge Front**



Tighten Nut and bolt using Phillips head screwdriver and adjustable spanner.

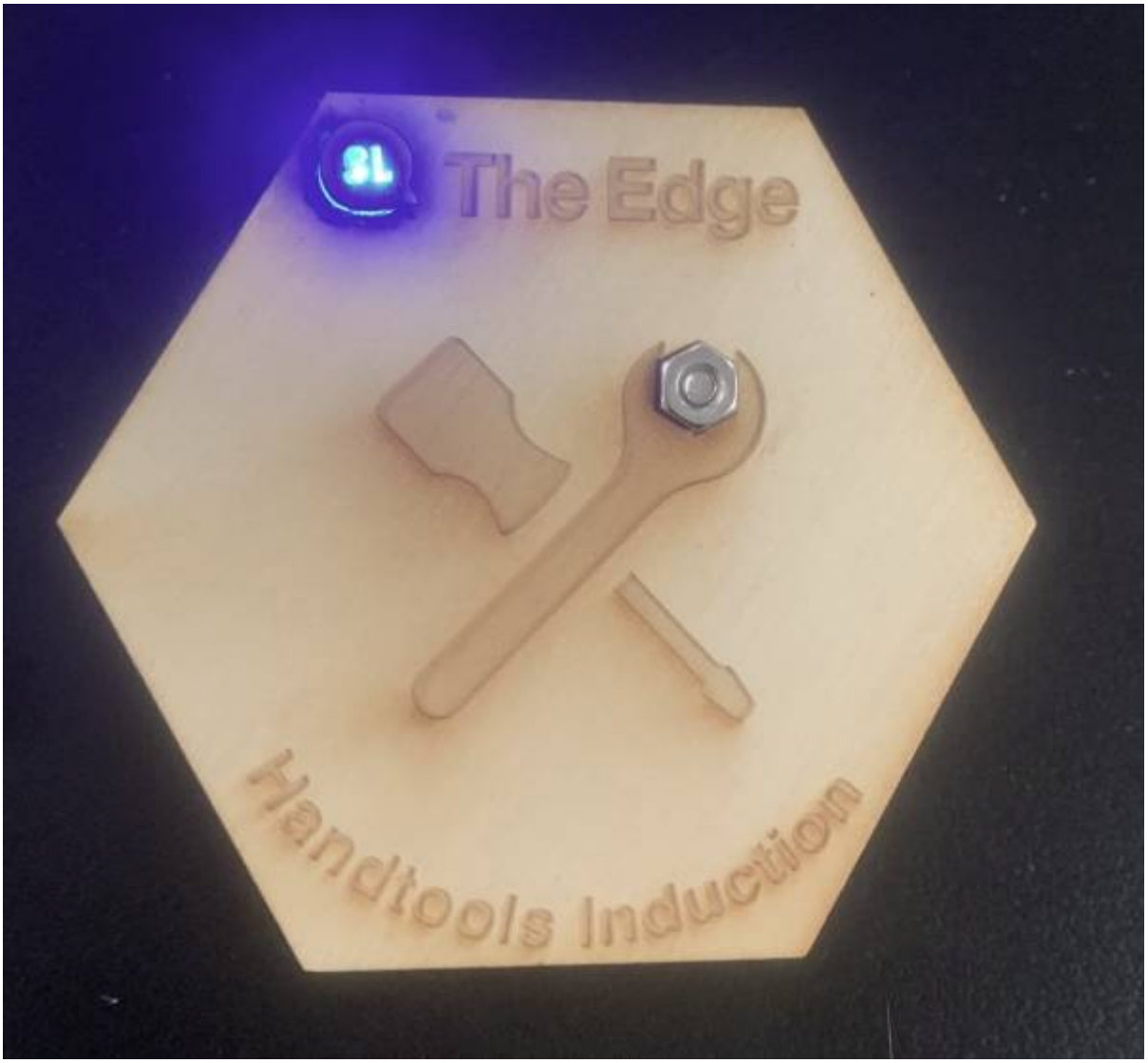


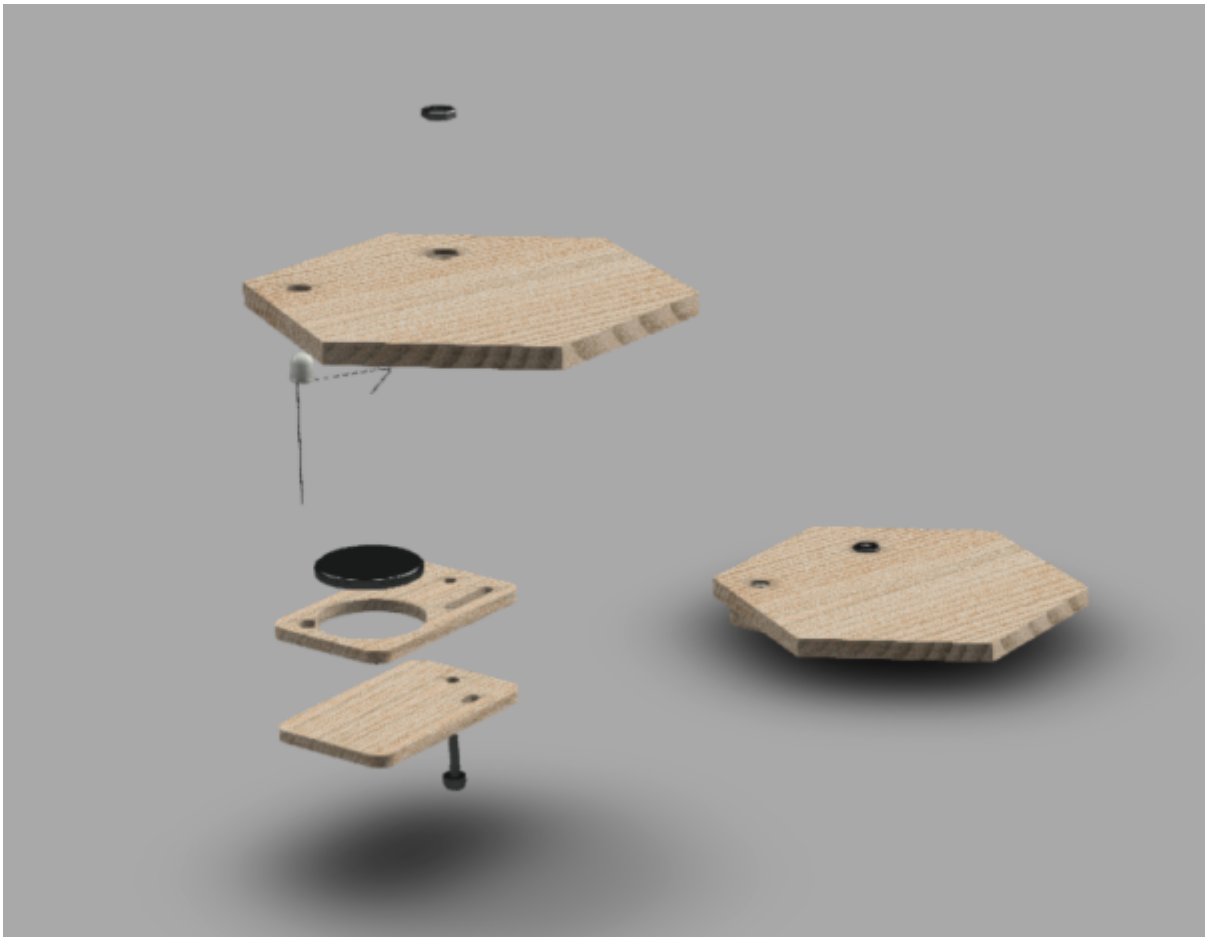
Step Six

hot glue the badge back



Hot glue the Logo over the LED

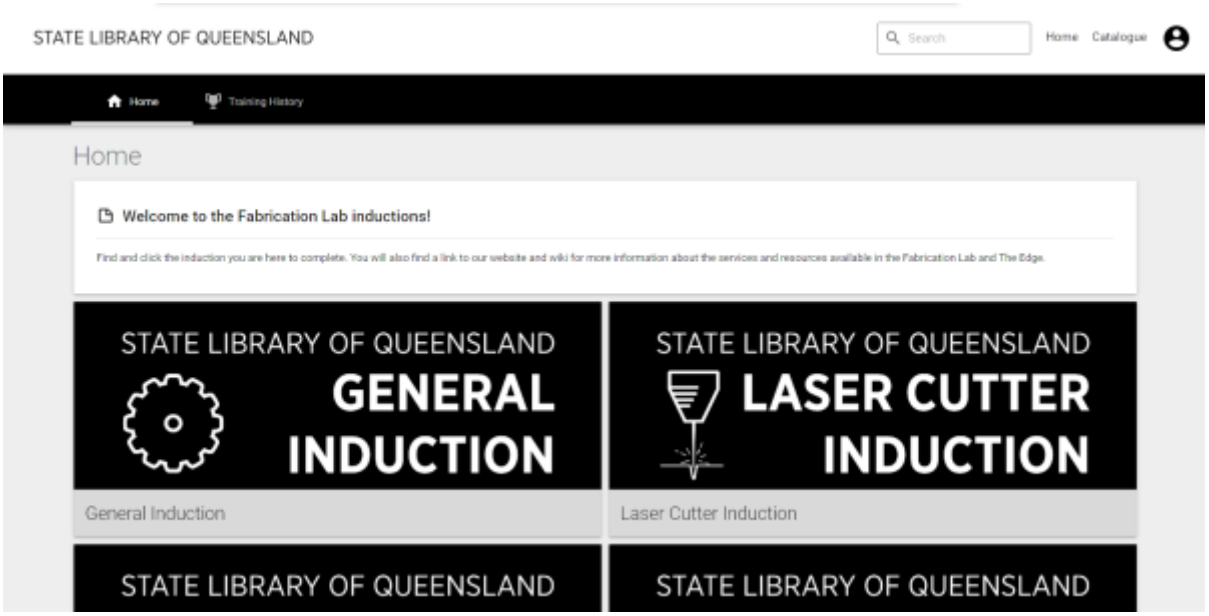

The Edge
Handtools Induction



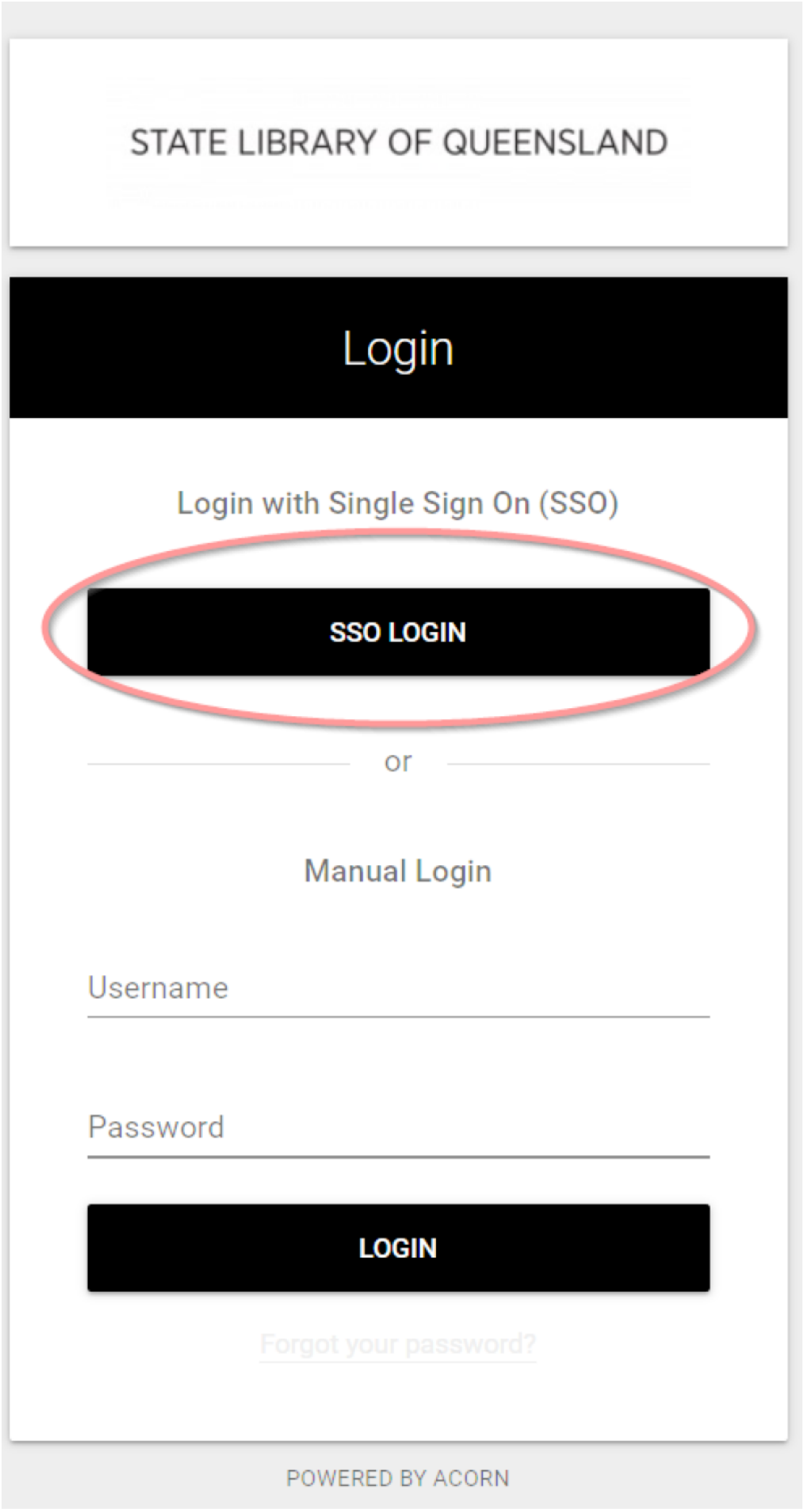
3D explodable view online

Complete the General Induction Online

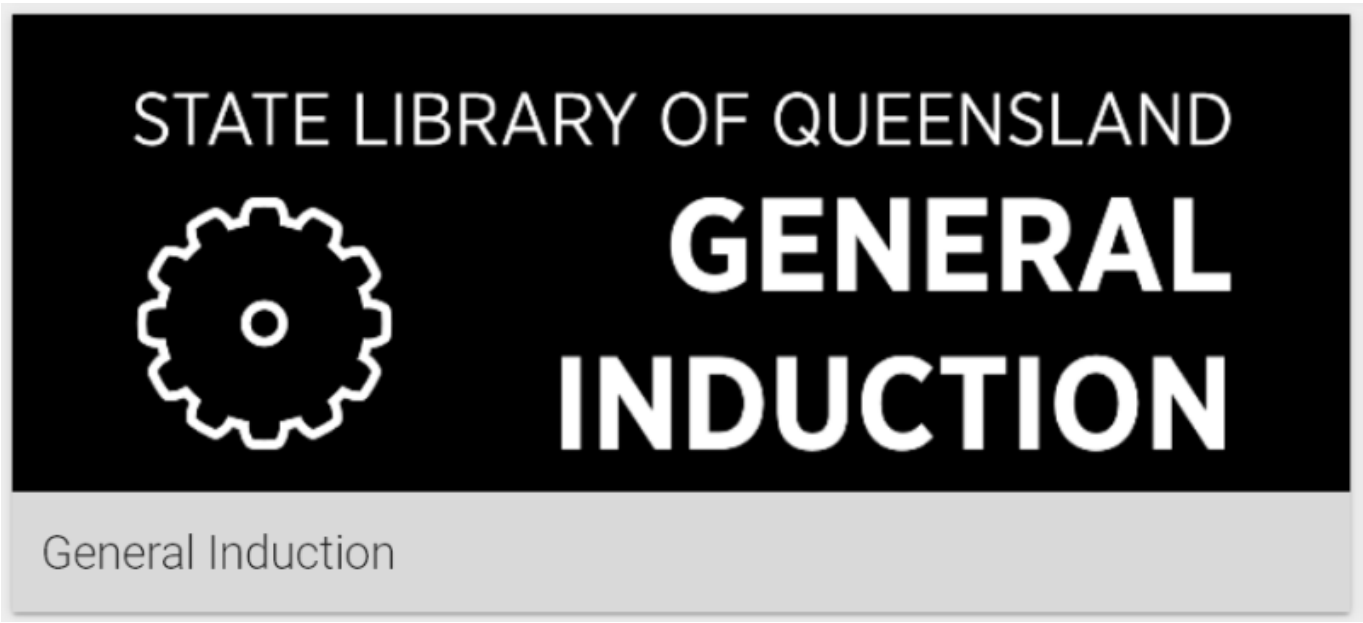
Now its time to complete your General Induction online quiz. Go to State Library's inductions site.



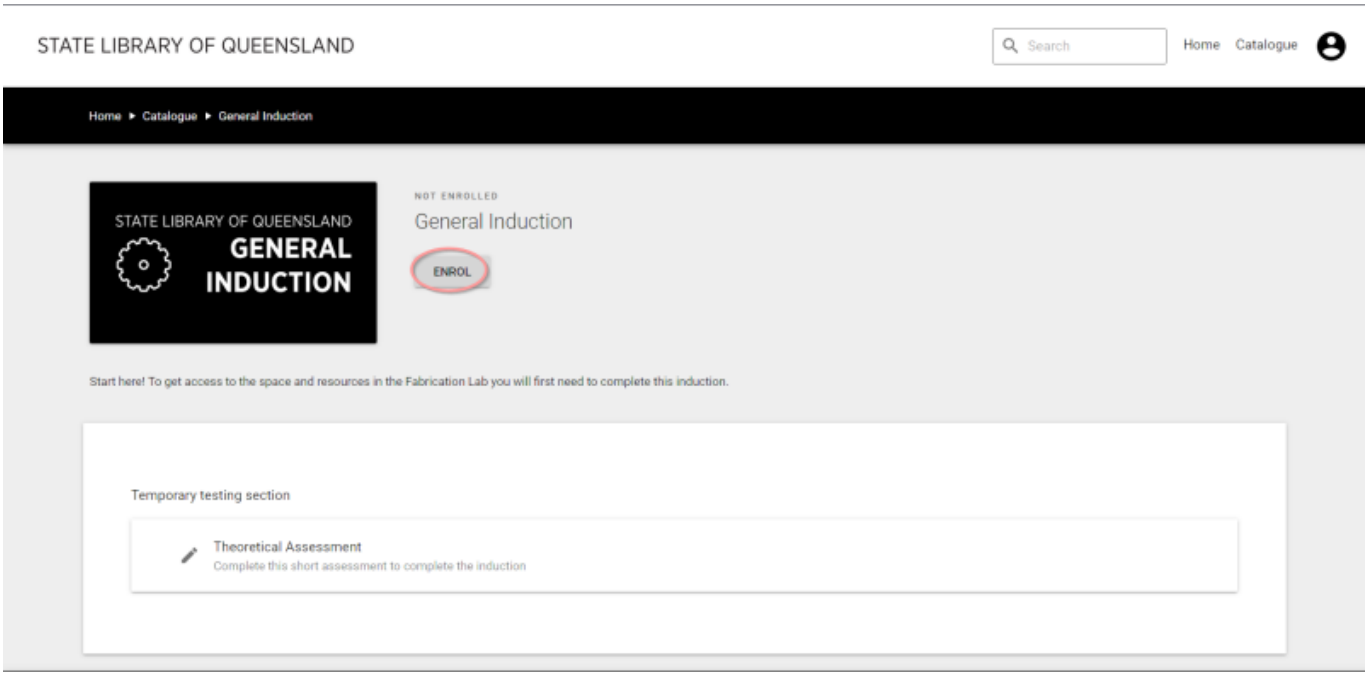
You will be asked to log-in - use the SSO option


STATE LIBRARY OF QUEENSLAND
Login
Login with Single Sign On (SSO)
SSO LOGIN
or
Manual Login
Username
Password
LOGIN
Forgot your password?
POWERED BY ACORN

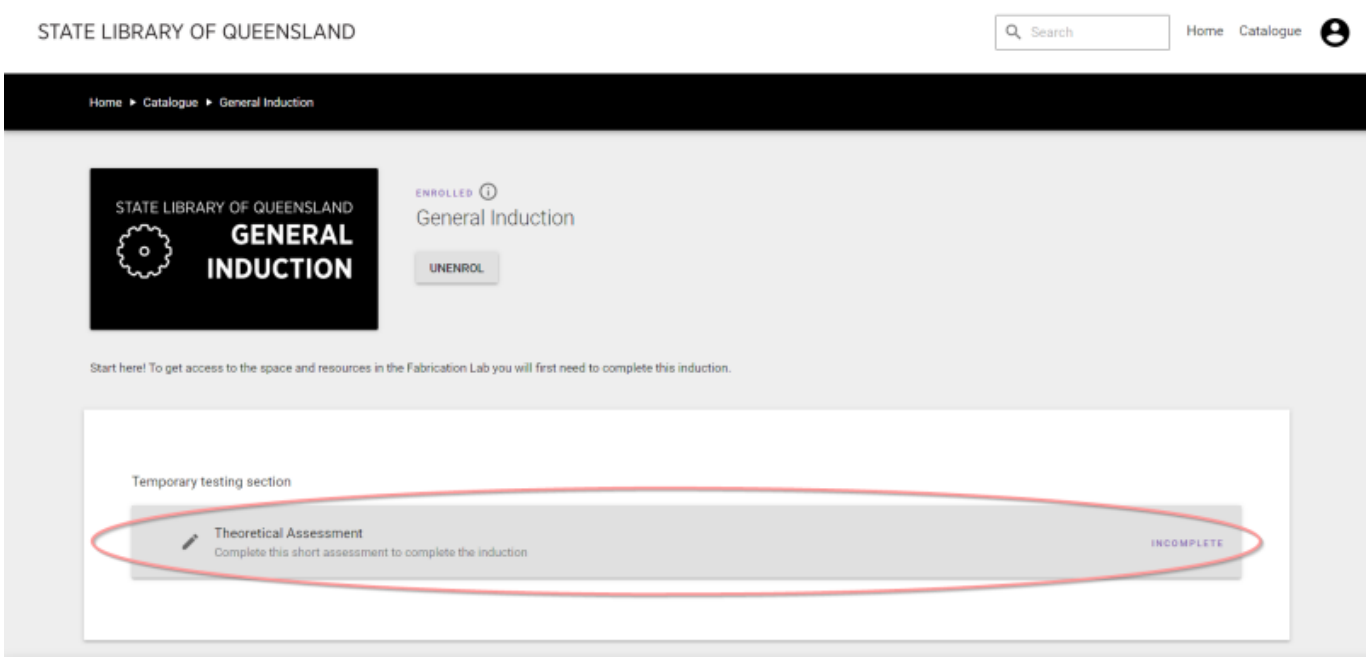
Select the General Induction



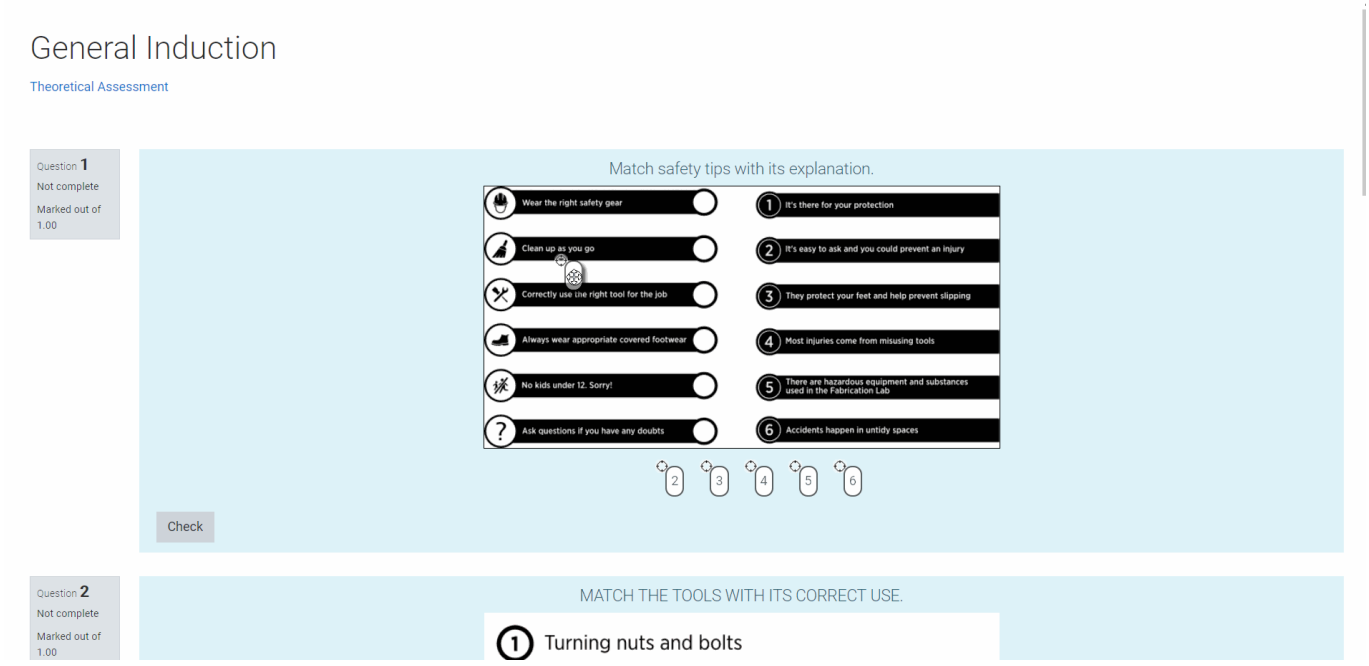
Click on enroll



And start your assessment



Drag the cross-hairs (not the mouse) over the correct answer.



13032021_handtoolsbadgefntnested_captured_nut.cdr

Preparation

This workshop requires

- the below to be cut out on the laser. Total cutting/ etching time (for 60 parts) = 1.5 hours

Files

Badge fronts

New Corel file
to suit new machine profiles. Just print as colour with 6.9mm plywood profile or use this
trotech job file
.

Badge Backs

Badge backs

handtools_induction_backs.cdr
are to be cut on 4mm plywood