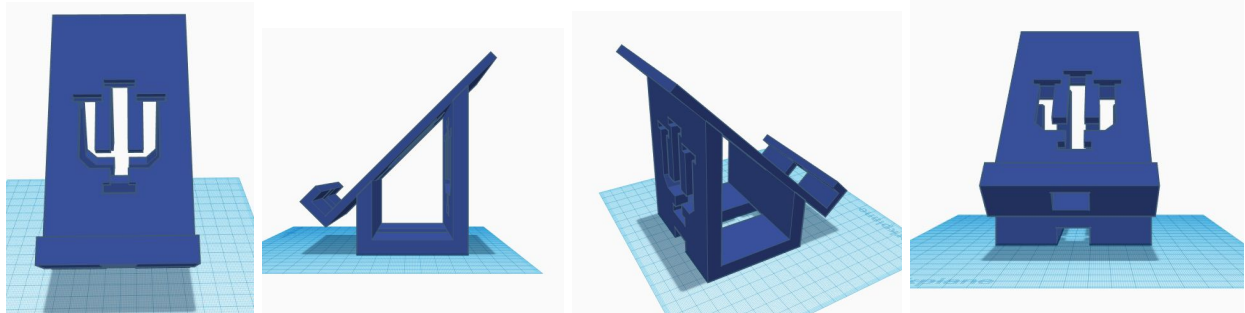


# CREATING A CUSTOM PHONE STAND IN TINKERCAD



## Before You Begin

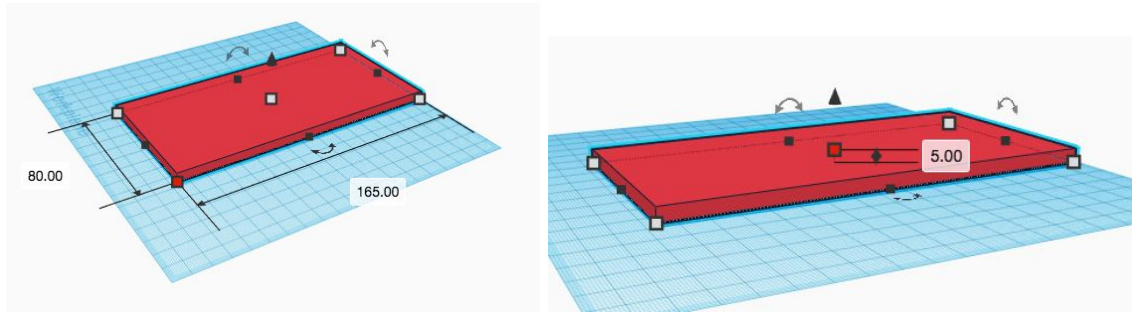
1. Sign in to [Tinkercad.com](https://tinkercad.com) and click the **Create New Design** button
2. Brainstorm about how you would like your stand to look. Check out existing designs at [Thingiverse.com](https://thingiverse.com).
3. Measure the height, width, and thickness of your phone (in its case if you use one!)



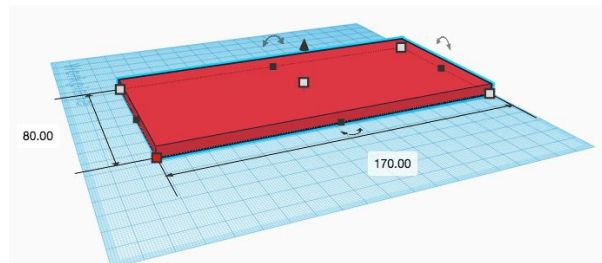
4. If you wish to embed an image into the stand, like the IU logo in the images above, make sure it is in the .svg file format. You can convert an image to .svg using a conversion website like <https://convertio.co/jpg-svg/>.

## Creating Your 3D Design

1. **Create the back of the stand**
  - a. Drag and drop a box onto the workplane
  - b. Adjust the length and width to match your phone's dimensions. If you would like the back to be slightly larger than the phone add ~5 mm to each measurement.
  - c. Decide how thick you want the back to be (e.g. 5 mm)

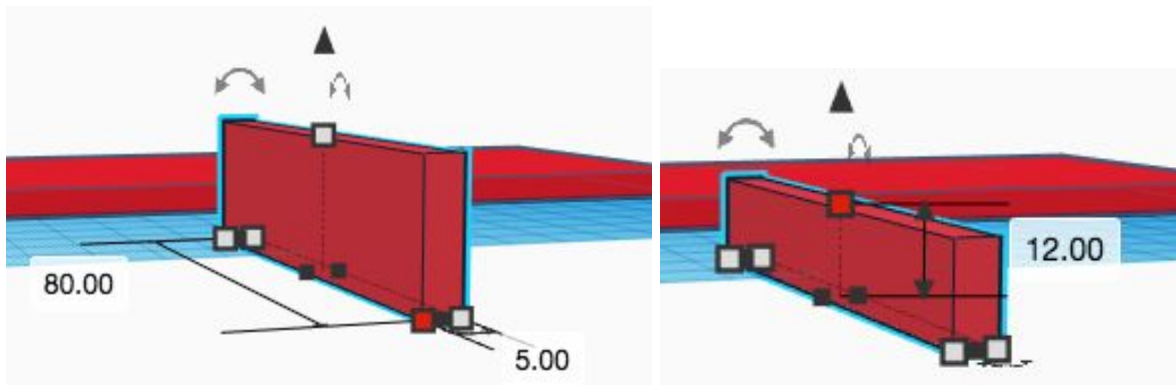


- d. Add the thickness of the back to the length of the back. E.g. if your back is 165 mm long and you've made it 5mm thick, change the length to 170mm

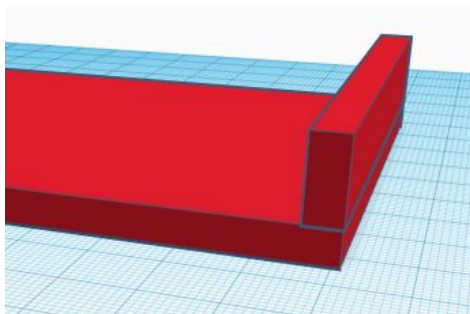


**2. Create the shelf for the phone to rest on**

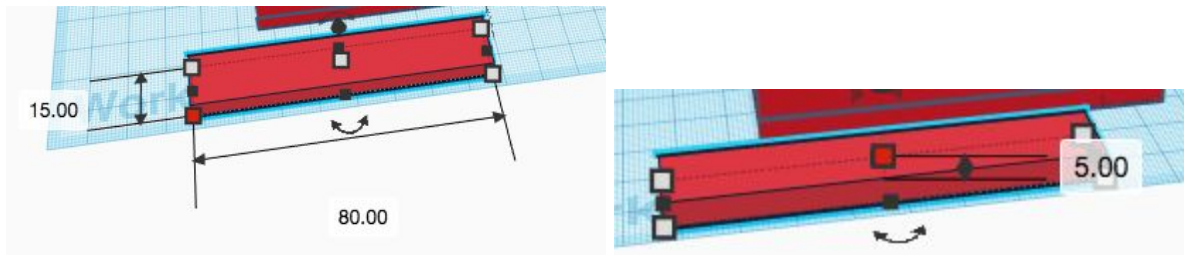
- a. Drag and drop another box to the workplane and make the width the same as the back and the length the same as the thickness of the back. Make the height the thickness of your phone + a few mm.



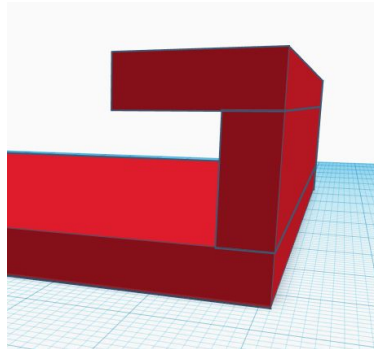
- b. Move this box to align it with the bottom of the back and place it on top of the back



- c. Drag and drop another box and make it the same width as the back, the same height as the thickness of the back and the length at least 10 mm, adjust as you like.



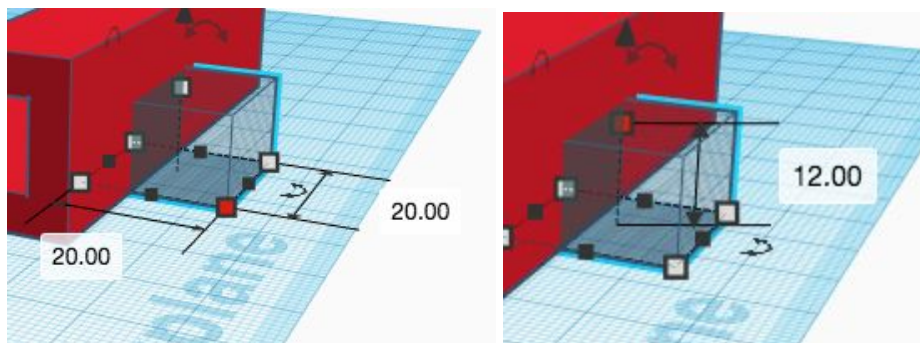
- d. Place this box on top of the previous box, aligned with the back.



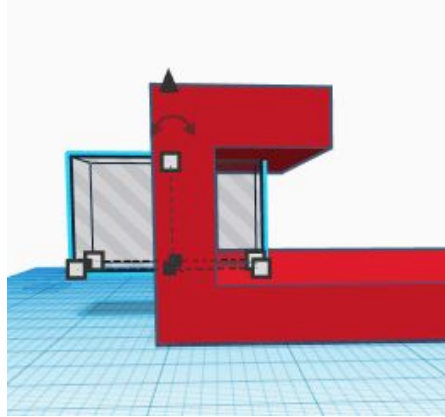
- e. Select all three boxes and group them

### 3. Create a hole for a charger cord to fit through

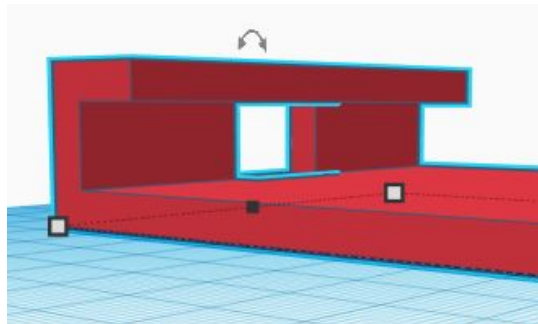
- a. Measure the width of the charger port on your phone and add a few mm
- b. Drag and drop a box hole to the workplane
- c. Change the width to the width you just measured, the length to ~10 mm or larger than the thickness of the back, and the height to the height of the second box you made in step 2.



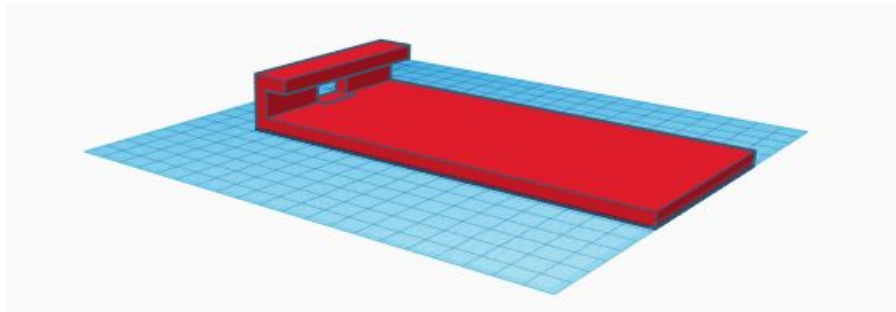
- d. Align the box hole to the middle of the back (or wherever your charger plugs into your phone) and raise it up to the middle of the shelf. Make sure the box hole sticks through the shelf so that it will create a hole.



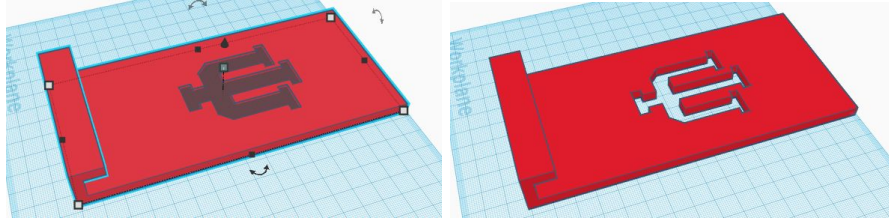
- e. Group the box hole and the back of the stand.



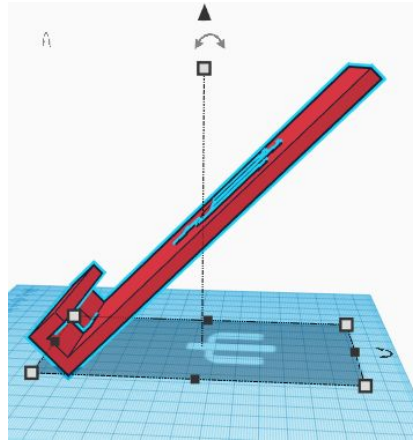
You should have something that looks roughly like the image below:



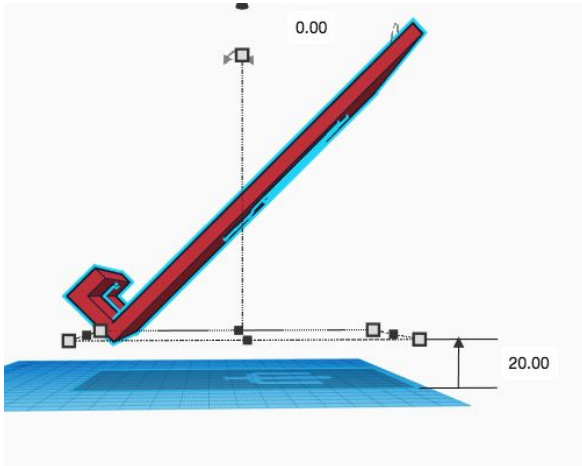
- 4. If you wish to add an image to your phone stand, click Import and select your .svg file
  - a. Resize your image object to the desired size. Make sure its height/thickness is larger than the thickness of the back.
    - i. If you wish to use the same image for the base, make a copy now and move it to the side.
  - b. Once happy, change the object to a hole.
  - c. Select the image and the back of the stand and group them together to cut the image into the back.



5. Create the base of the stand. Note: The base of the stand can be created in many different ways. You can use boxes or a big wedge with box holes etc. We will show you two different methods.
- Rotate the back of the stand to a 45 degree angle And raise it up so the bottom is at 0.



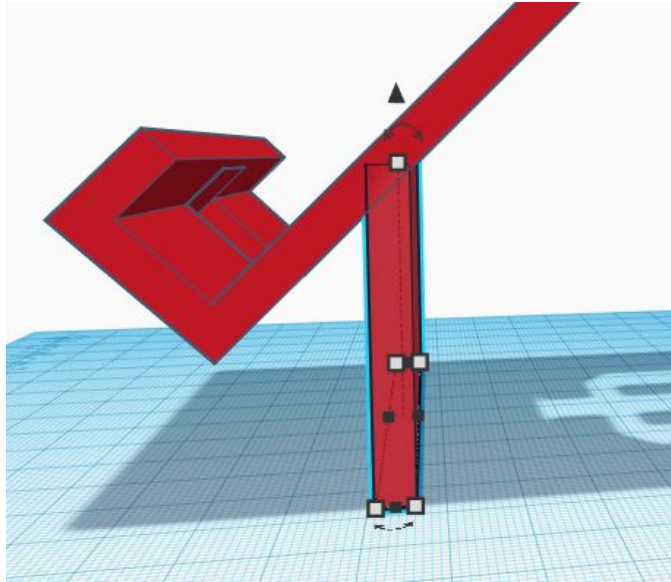
- Raise up the back again about 20 mm more so there is room for the charger cable.



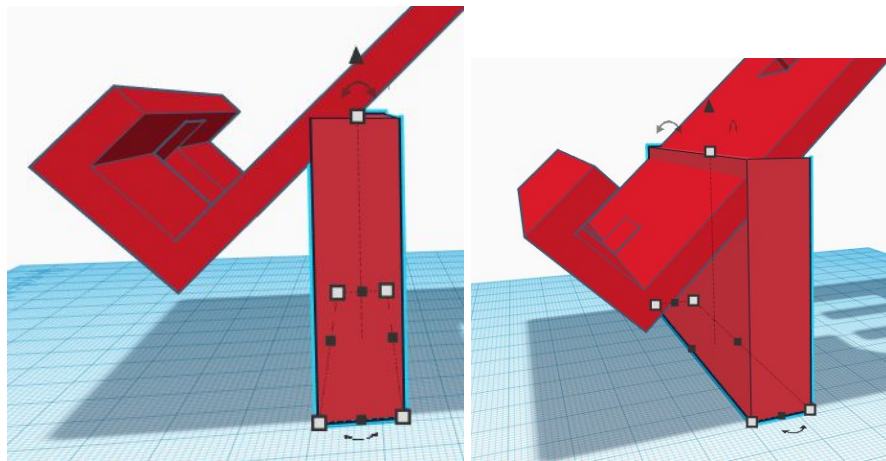
- Method 1: Boxes only. This is the simplest method, but it only works if you want the thickness of the stand to be the same thickness as the back.
  - Drag and drop a box on the workplane and make its width equal to the width of the back. Make its length equal to the



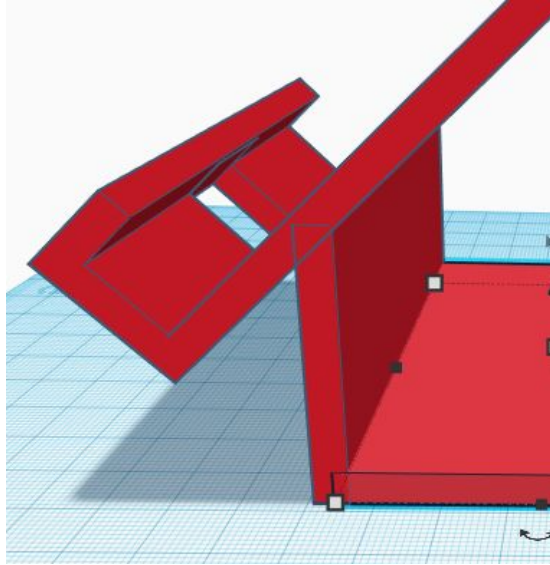
thickness of the back. Drag the box to a location under the front of the back and extend its height until it intersects with the back. Make sure the box and back are aligned in the center.



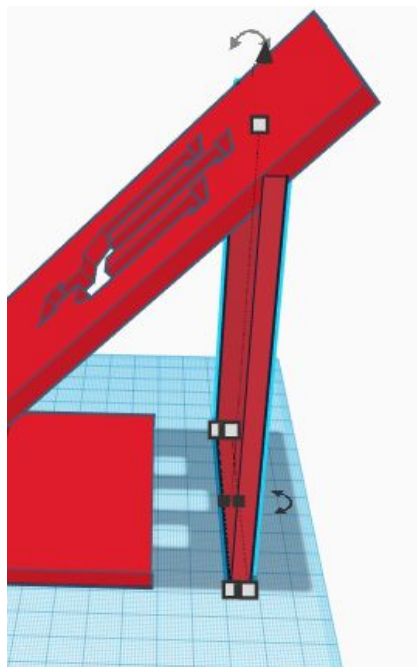
- ii. Note: If the thickness of this new box is larger than the thickness of the back it will cause problems when grouping the objects (see the images below). If you would like the base to be thicker, see method 2.



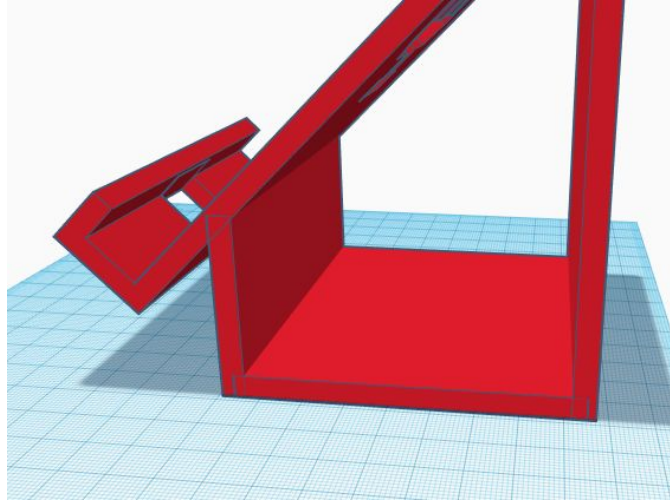
- iii. Drag and drop another box to the workplane. Again make its width equal to the back's width. Make its height equal to the thickness of the back. Drag this box so that it intersects with the first box of the base. Make sure all objects are aligned at the center.



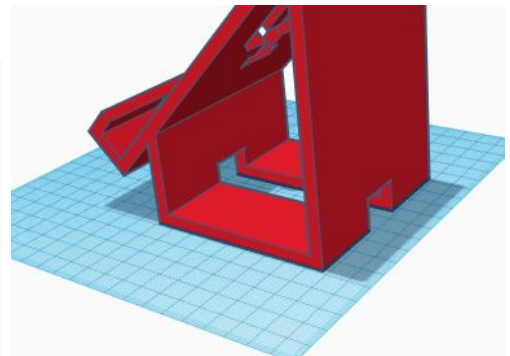
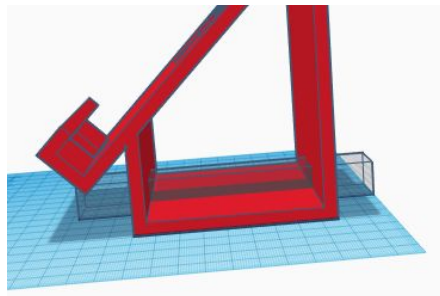
- iv. Drag and drop a third box to the workplane. Again make its width equal to the back's width. Make its length equal to the thickness of the back. Drag this box to a location at the posterior of the back and extend its height to intersect with the back. Make sure all objects are aligned at the center and that this box does not interfere with the image you cut into the back.



- v. Extend the length of the second box so that it intersects with the third.

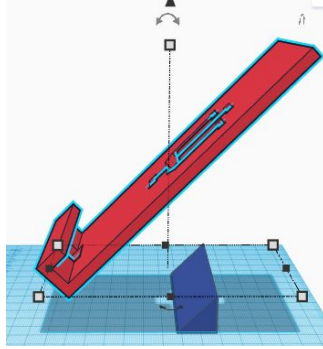


- vi. Select all of the objects and group them together.
- vii. Drag and drop a box hole to create a hole for the charger cord. Make the width equal to the width used previously for the shelf. Make the height equal or larger as what was used for the shelf and make sure it is long enough to reach both legs of the base. Align it with the center of the phone stand.
- viii. Align the hole to the center of the stand and group it with the phone stand.

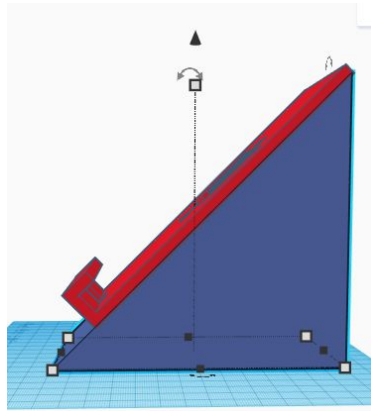


- d. Method 2: Wedge + Box holes. This method is more complicated but it allows for different thicknesses in the base parts.
- i. Drag and drop a wedge to the workplane. Rotate the wedge so the angled edge matched the angled back of the stand.
  - ii. Make the width of the wedge the same as the width of the back and align it with the back.



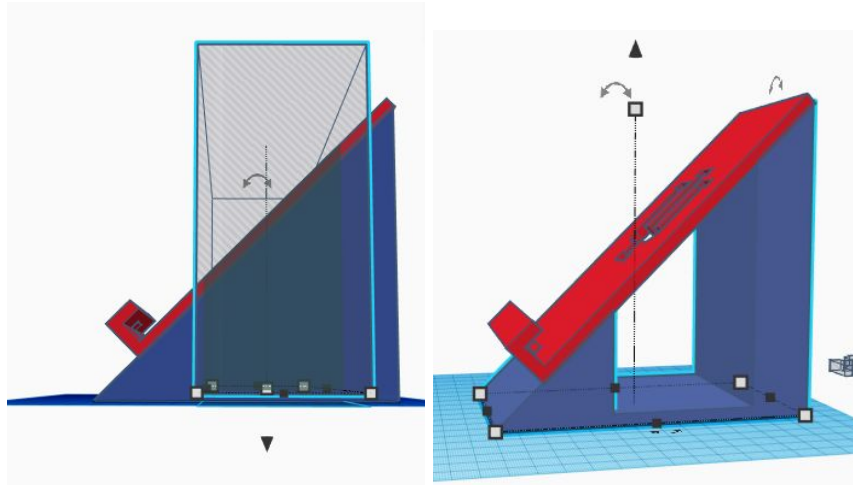


- iii. Adjust the height and length of the wedge until it reaches the back. Make sure the height and length are equal to keep the 45 degree angle.



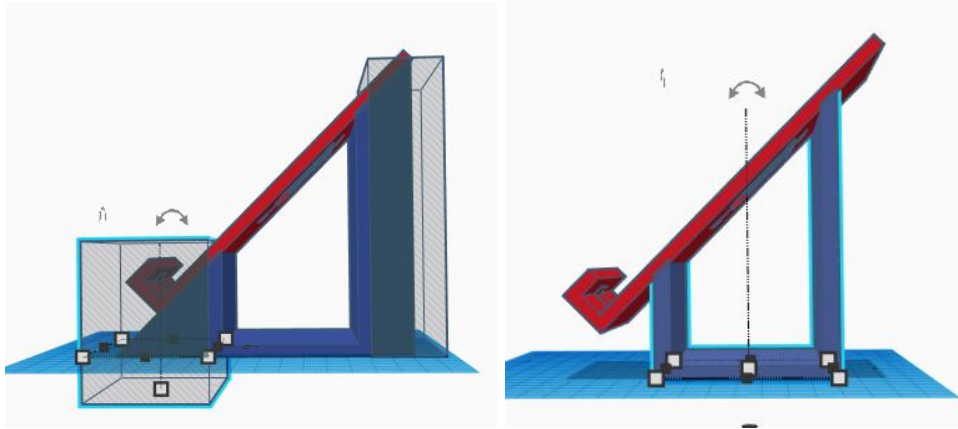
e.

- i. Drag and drop a box hole and adjust dimensions to desired size to cut a hole in the middle of the wedge. Select the wedge and the box hole and group them.

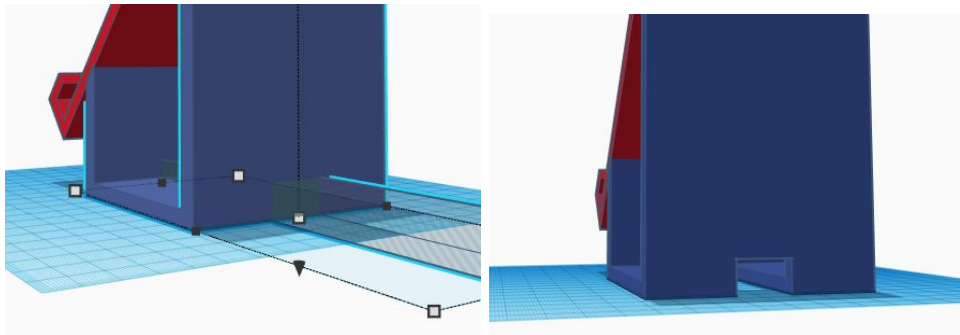


f.

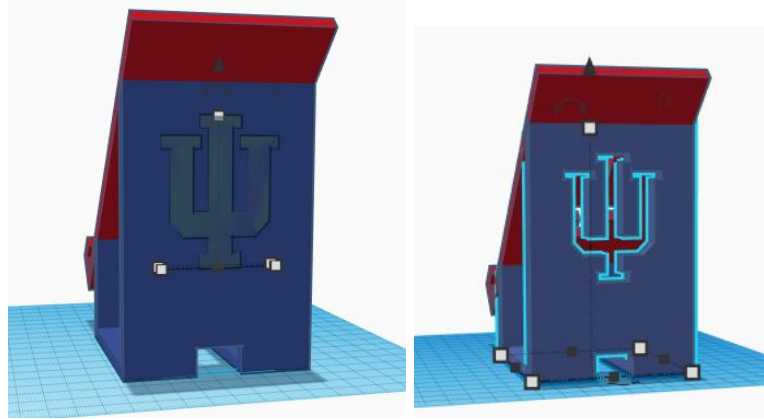
- i. Drag and drop two more box holes to cut out the front and back of the wedge however you like.



- ii. Drag and drop one more box hole to create a hole for the charger cord. Make the width equal to the width used previously for the shelf. Make the height equal or larger as what was used for the shelf and make sure it is long enough to reach both legs of the base.
- iii. Align the hole to the center of the stand and group it with the wedge.



- iv. Group the wedge and the back of the stand together.
6. **Add an image to the back of the base.** If you wish to add an image to the back of the base, import your image again or use the copy you made earlier.
- a. Resize to your desired size. Rotate the image to match the back of the base and place it where you wish. Make the image a hole and group the base and the image.



7. Finally, You should have a completed custom phone stand!

