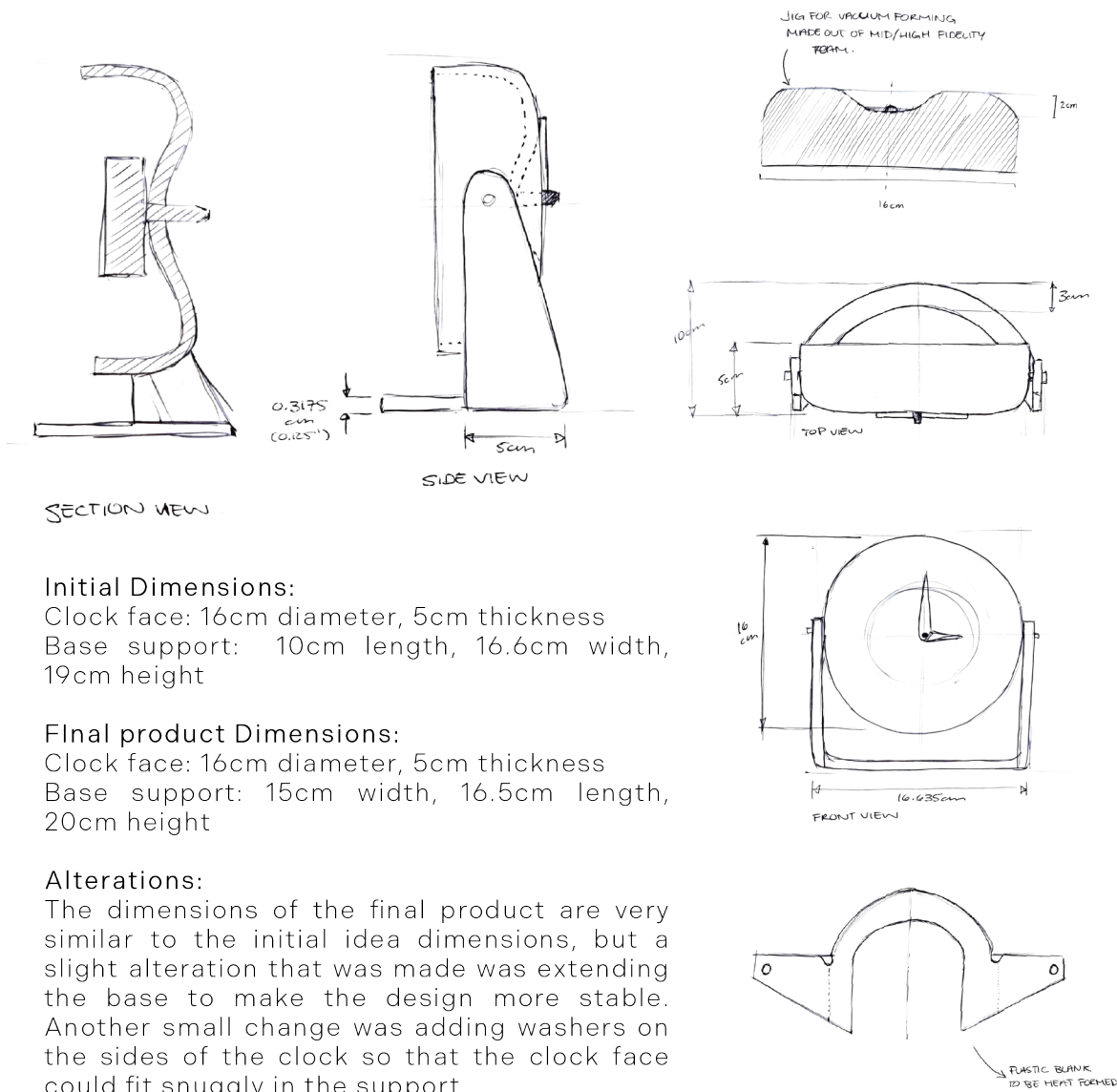


DIAL



Dial a clock designed for a manufacturing class to learn about the process of thermoforming. Dial was created in a team with Isabel Clement and Luciana Garavito.

ORTHOGRAPHIC



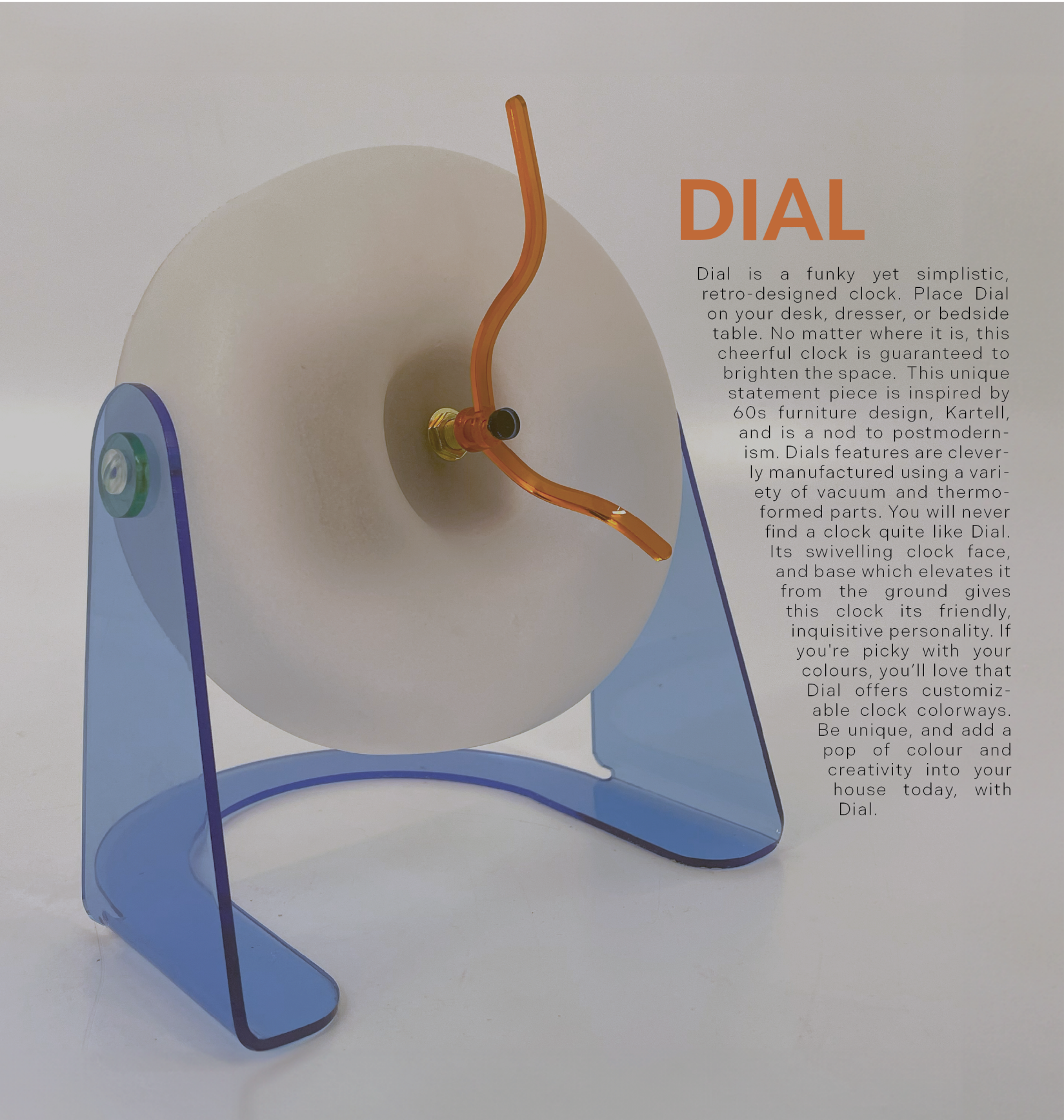
Initial Dimensions:
Clock face: 16cm diameter, 5cm thickness
Base support: 10cm length, 16.6cm width, 19cm height

Final product Dimensions:
Clock face: 16cm diameter, 5cm thickness
Base support: 15cm width, 16.5cm length, 20cm height

Alterations:
The dimensions of the final product are very similar to the initial idea dimensions, but a slight alteration that was made was extending the base to make the design more stable. Another small change was adding washers on the sides of the clock so that the clock face could fit snugly in the support

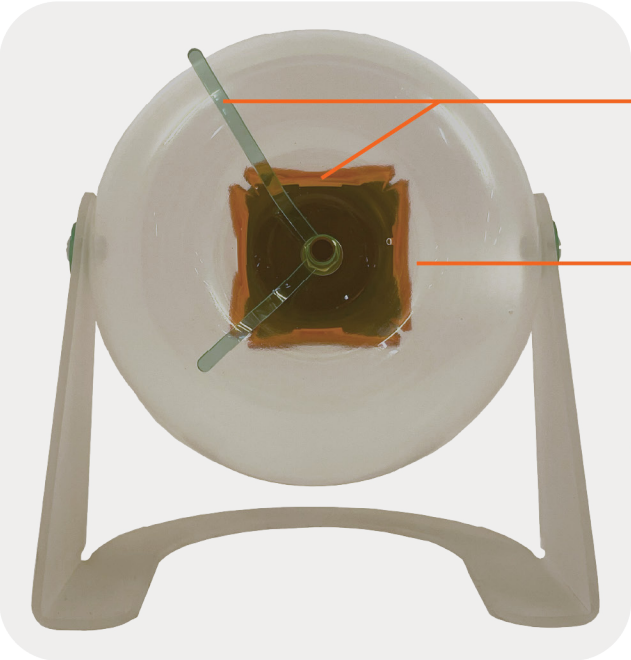
DIAL

Dial is a funky yet simplistic, retro-designed clock. Place Dial on your desk, dresser, or bedside table. No matter where it is, this cheerful clock is guaranteed to brighten the space. This unique statement piece is inspired by 60s furniture design, Kartell, and is a nod to postmodernism. Dials features are cleverly manufactured using a variety of vacuum and thermoformed parts. You will never find a clock quite like Dial. Its swivelling clock face, and base which elevates it from the ground gives this clock its friendly, inquisitive personality. If you're picky with your colours, you'll love that Dial offers customizable clock colorways. Be unique, and add a pop of colour and creativity into your house today, with Dial.



DIAL

FEATURES

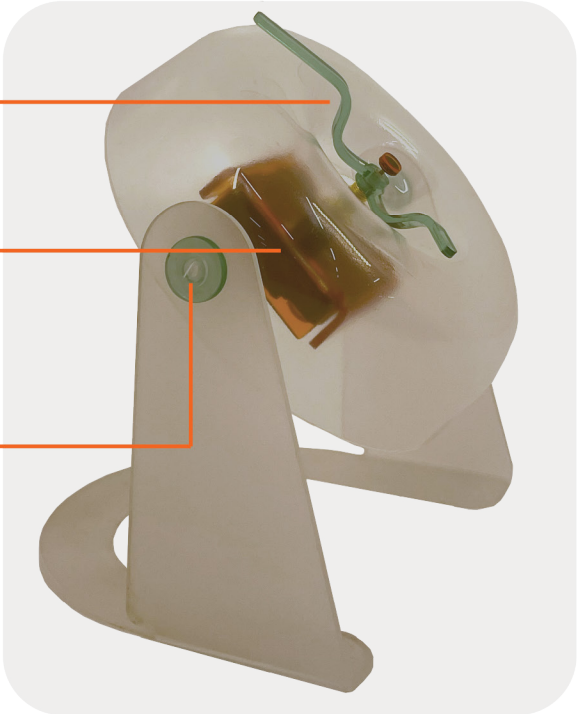


- Colours of the clock features are customizable
- Thermoformed box covers the clock mechanism for aesthetic appeal
- Stable base that can support the centre of gravity of the clock

Clock hands are curved to follow the form of the clock face

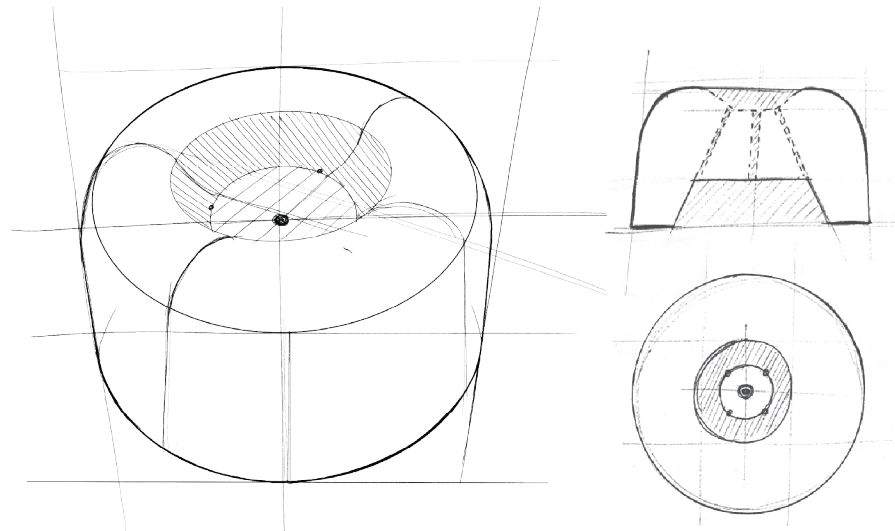
Easily accessible battery

Fasteners and washers allow the clock face to pivot to the user's desired angle

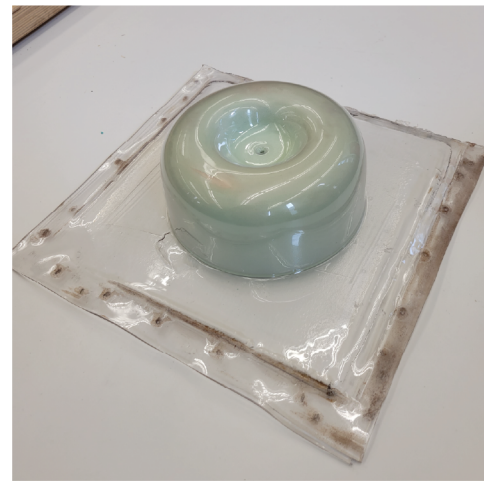


DIAL

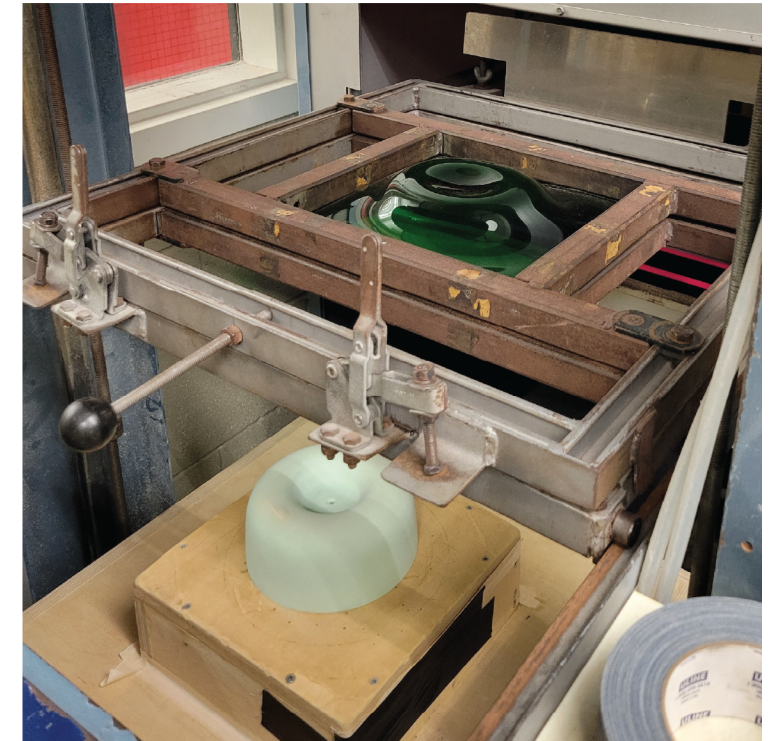
JIG DESIGN



VACUUM FORMING



- We first tried two attempts at vacuum forming coloured acrylic, but discovered that it behaves differently than clear acrylic. We had to change the colour of our design to account for this
- We successfully vacuum formed 3 clock bodies (two out of clear acrylic and one out of clear PET) – we used 12x12" pieces of plastic in the vacuum former.



JIG MANUFACTURING



- We used medium-density polyurethane foam to create our vacuum forming jig.
- The jig was made on the wood lathe using handheld carving tools.
- A high grit sandpaper was used to give the foam a smooth finish for minimal texture on the plastic vacuum formed part.
- A large hole was drilled in the centre of the jig for venting and to create a guide for where to drill the hole in the vacuum formed piece later.
- After drilling vents in the jig, some dents were discovered that had to be filled in with wood filler and then sanded down again after it had dried.

SANDBLASTING



Two of the clock bodies were sandblasted to hide the clock mechanisms behind it, and one of the bases was sandblasted for aesthetics purposes.



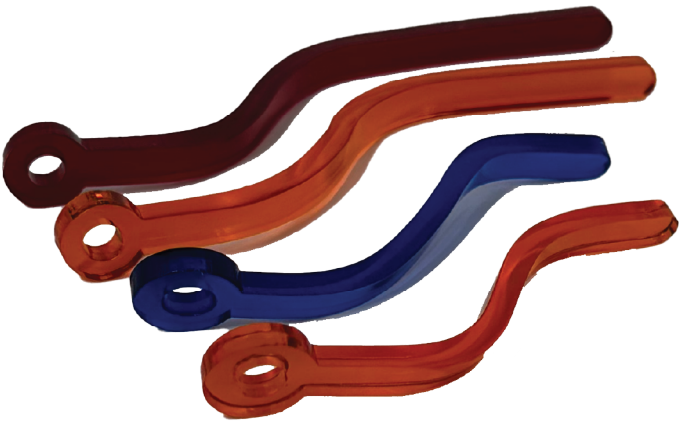
DIAL

LASER CUTTING & THERMOFORMING



Laser cut files were made in AutoCAD and then transferred to Adobe Illustrator. A test was first performed on cardboard.

The support legs were originally too tall because the radius of the clock face was not accounted for, therefore the AutoCAD file was changed so that it would align with our design intent

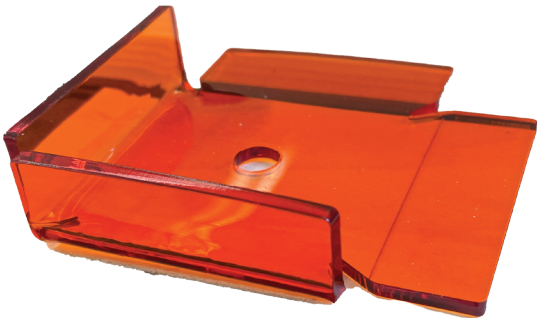
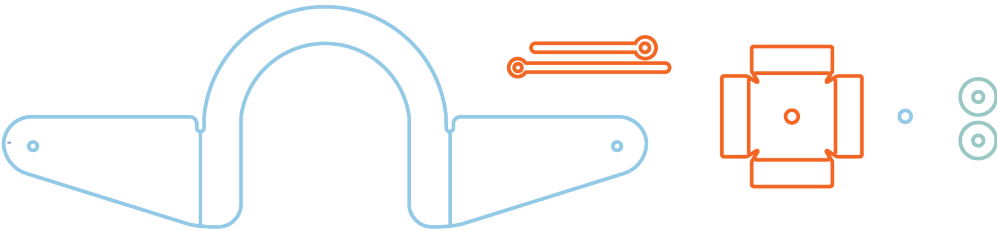


The final copies of the supports, clock hands and boxes to cover the clock mechanisms were then laser cut out of different coloured the acrylic.

The bases were thermoformed so the legs stand straight at 90 degrees to support the clock body



When thermoforming the piece to cover the clock mechanism boxes, a small rectangular jig was made out of wood. The strip heater was used to thermoform these parts. It was important to make relief cuts in all the corners of the heat bent parts, to ensure tight corners.



To achieve the fun curvature in the clock hands, they were thermoformed over the clock-face jig.

DIAL

CHALLENGES



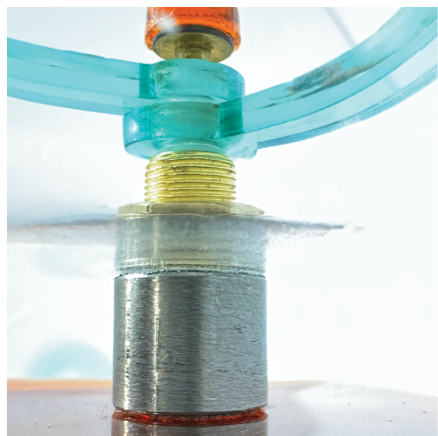
The fasteners were too long so we had to laser cut spacers to hold it in place.



The coloured acrylic did not vacuum form, therefore the intended colours of the design had to change.



The coloured plastic took longer to melt on the strip heater than the clear plastic.



The peg on the clock mechanism was too long. A steel tube spacer was made so the right amount of peg was exposed.



The acrylic is prone to cracking so it required more support when drilling holes than the PET. Because of this, there was some minor cracking that occurred when we were drilling the side holes.

