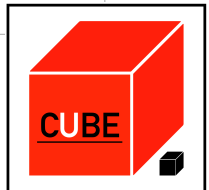
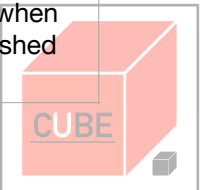


Diary of making:

Hour	Stage	Who did what	Equipment and tools used	Materials	Photos	Problems	Solutions	Team Performance
1	Measuring - the product will be measured creating an isometric and net drawing with measurements to then be peer reviewed.	Joe created a drawing of the Car stand on paper using the technical drawing. Thomas created the box drawing. James checked all the drawing are correct.	Pencil, paper and vernier caliper	Paper	Image 4	Laser cutter was broken	We worked on the cad models more to ensure there aren't any issues when we can laser cut	We did well working as a team checking each others work.
1,2,3	Modelling - the CAD files will be created on 2D design and Fusion 360 and sent through cura creating the assets to be cut / printed.	James continued on the stand CAD model Thomas began to create the CAD model for the Box and feet. Thomas set two test prints off in the first hour one for the box and one for the feet. Joe began drawing a design and create a jig.	2D design, Lasercut 5.3, Fusion 360, Ultimaker-Cura 5.1.0 and Computer	N/A	Image 2 Image 5 Image 14 A&B Image 15 Image 17	Laser cutter was broken The glow in the dark filament was too small for the printer as the printer uses 2.85mm PLA and the glow in the dark filament was 1.75mm	As the laser was still broken we moved back the timeframe for the project so we didn't was time waiting. We had to use compatible red 2.85mm PLA.	Team mate C was off for an hour which reduced productivity.
3 & 4	Test Print / Cut - print in lower quality and cut on paper to check to dimensions are accurate and there are no issues with the machines before you use more expensive materials.	James continued creating the stand CAD model. Thomas adapted the feet and box model changing the diameter of the bolt to allow the the bolt to spin freely on the foot bolt and added a logo to the box. Joe created a jig to guide the acrylic into place when line bending which should increase efficiency and accuracy when line bending.	Laser cutter, 3D printer	Card, PLA	Image 7 Image 11 Image 16 Image 19 Image 21 Image 22	Laser cutter was broken during the 3rd hour however it was fixed	As the laser was fixed we focused on the laser cutting so we didn't loose more time waiting for it.	Team mate C was late arriving after a team meeting which reduced productivity further and we had to explain what he missed.



Hour	Stage	Who did what	Equipment and tools used	Materials	Photos	Problems	Solutions	Team Performance
4 & 5	Edit & Print / laser cutting - the test print / cut will be checked against the measurement and the origins design.	Thomas and James made the first test laser cut on black acrylic after checking the card one against our measurements. Thomas also checked the holes and box with two M10x3g nuts and bolts after James drilled the box holes. Joe continued work on the jig and tested scrips of the acrylic on the line bender and jig.	Laser cutter, 3D printer, 2D design, Lasercut 5.3, Fusion 360, Ultimaker-Cura 5.1.0 and Computer	Acrylic, PLA, 2 M10x3g nuts and bolts	Image 20A Image 20B Image 24 Image 25 Image 26 Image 27 Image 28 Image 29 Image 33	Our main problem which we encountered during this time frame was a filament issue on the 3D printer. While printing one of the boxes we experienced old filament being printed with our favoured red colour causing a mix of blue and red causing us to stop the print, recue and start it again which wasted vital time.(Image 20B)	The way in which we fixed this issue was by doing a small test print which allowed any more potential reminiscence of the unwanted blue filament to be forced completely out of the 3D printers system which then allowed us to print the rest of our boxed without any issue.	We worked well figuring out the issues with the feet and the screw mechanism.
6	Drilling - drill the feet holes (four per stand)	Thomas and James used the pillar drill to drill the box holes.	Pillar drill, apron, safety goggles, two clamps, wooden board, chuck key, 3mm drill bit	NA	Image 34 Image 38	The wood and stand moved slightly when we were preparing to drill (as we only were using one clamp).	We used a second clamp and placed them further under the drill surface (shown in Image 34).	Thomas and James worked well drilling efficiently.
6 & 7	Line Bending - line bend on the line bender, set the angle and double check with designs	Joe begun line bending the stand, James helped once all the stands where drilled. Thomas went back to printing the feet in red PLA, Thomas also created a code file that prints four feet at a time.	Plastic line bender, apron	NA	Image 37	As the jigs angles were slightly inaccurate they made the stands angles wrong.	We used the adjustable jig to fix the angles to be correct.	Joe continued to line bend and Thomas and James helped when they finished drilling.



Hour	Stage	Who did what	Equipment and tools used	Materials	Photos	Problems	Solutions	Team Performance
7	Assembly - the products will be assembled	Thomas began checking and assembling one of the stands as James and Joe continued line bending and fitting the feet.	Allen key	8 M10x3g bolts and M10x3H nuts, 24 20x20x4 mm foam feet with adhesive	Image 43 Image 44 Image 46	The 3D printed nut and bolt of the feet don't screw easily. We tried to fix this with WD-40 but it had little to no effect.	The feet were loosened by the use of the nut and bolt (screwing and unscrewing to make it easy).	I took lead on assembly (adding the box to the stand).
8	Final quality check / final changes with emery paper	We all worked together collecting the feet of the 3D Printer, line bending and assembling the stands together.	Vernier caliper, emery paper	NA	Image 47 Image 48 Image 49 Image 52	We were still printing the feet as there was many people trying to use the printer.	Thomas and James came after school to print and loosen feet to speed up the manufacturing.	Person B took charge and lead the quality checking and instructed the group to concentrate on the angles as they could easily be fixed with the line bender.

