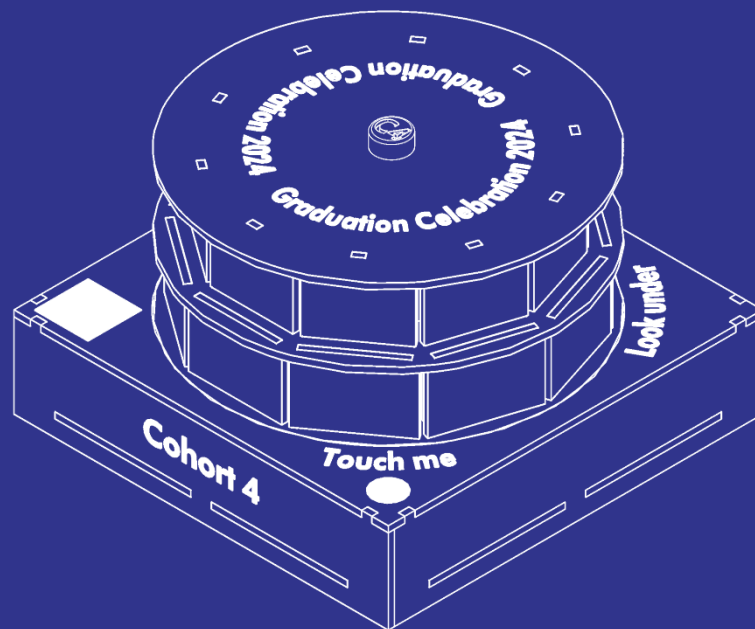


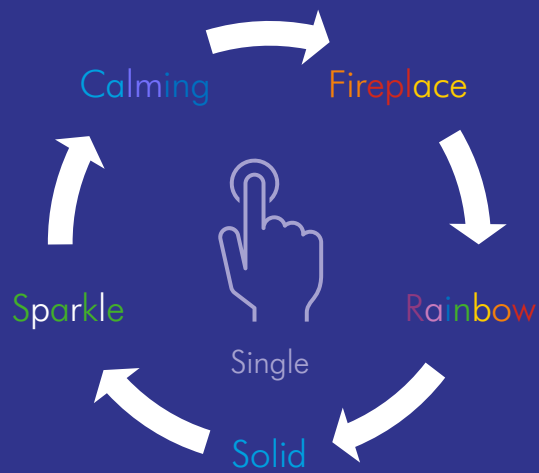
Graduation Celebration Table Centrepiece



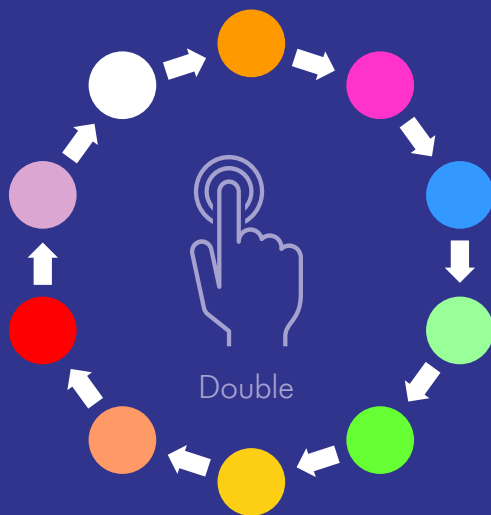
We sought to create a unique and interactive centrepiece which focussed on our cohort and could be appreciated at all angles during the evening. The underlit windows showcase key moments from our time at the Institute and a shared photo album is accessible via the QR code. The capacitive plate enables direct control, alongside the bearing mechanism which ensures all windows are accessible through rotation, it offers users interaction to make it more than just a light.

-The Graduation Centrepiece Group

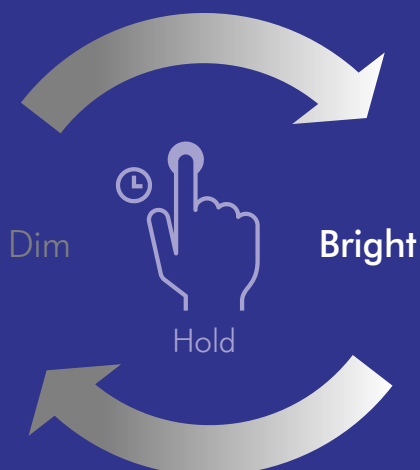
Touch Controls



A single tap cycles through a series of different lighting patterns.



A double tap sets the light to the solid colour pattern and then cycles through pre-set colours.



Holding cycles the brightness from highest to lowest and back again.

Roundhouse Centrepiece

RH01

110mm M6 Bolt

Aligns and secures the entire upper assembly to the display box; also functions as a handle for roundhouse assembly removal.

50mm Ø Polycarbonate Frosted Opal Tube

Extends the full height of the roundhouse, serving as a backing for window engravings to prevent overlap.

Illumination System

Five LED strips encircle the raceway, programmed to illuminate the roundhouse with various ambient lighting modes.

ESP8266

A microcontroller with Wi-Fi connectivity, used to remotely control and synchronise lighting across all centrepieces.

QR Code

Directs towards a dynamic landing page, used to share information with attendees.



Capacitive Plate

Utilises body electrical conduction to detect touch, enabling manual control of the lights when Wi-Fi is unavailable.

M6 Nyloc Nut

Locks the top assembly to the box, easily undone to enable the removal of the roundhouse assembly and replacement of batteries.

Top Cap

Custom 3D-Printed decorative top cap conceals the bolt head.

3.6mm Plywood

Laser-cut main body components for the roundhouse assembly, designed for an interlocking press-fit to minimise glue usage.

3mm Clear Acrylic

Used for all 10 upper and 10 lower window panels, laser-engraved with key moments and locations central to the course experience.

Bearing Raceway

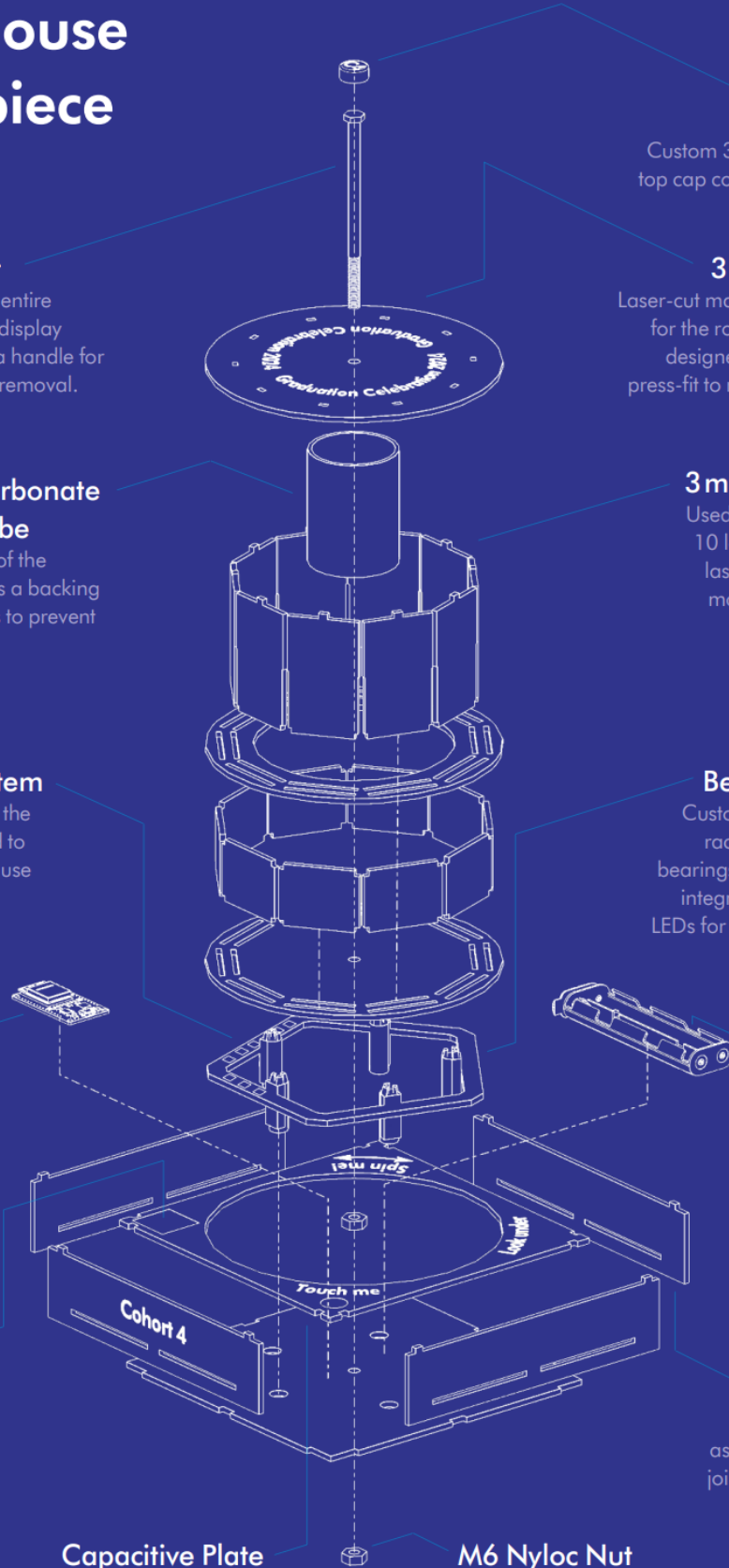
Custom 3D-printed 2-in-1 raceway utilises five ball bearings for rotation, with an integrated shelf to position LEDs for window illumination.

Battery Pack

Four AA batteries connected in series power the microcontroller and LED strips.

3mm Matte Black Acrylic

Five laser-cut pieces, assembled using finger joints, combine with the transparent base to form the display box.



Meet the Team

Aidan Plant

Project Manager

Came up with the initial design for the centrepiece and managed the project. Procured components, organised manufacturing and assisted bearing design.



Ben Howick

Design Advisor

Provided design advice throughout development and helped during assembly.



Daksh Brijwani

Electrical + Software Engineering

Explored innovative user interaction methods and lighting systems. Assisted in manufacturing.



Isaac Jones

Mechanical Design

Evolved the bearing design and provided design advice.



Kuba Rogozinski

Graphic Design + Software Engineering

Created all graphics and the QR code system. Fine-tuned the software systems and CAD design. Organised part fabrication.



Luke Pike

Mechanical Design

Brought the initial idea to life with the first model. Made material choices and improved the lighting consistency.



Oliver Johnson

Electrical Engineering

Revised the electrical circuit and explored innovative user interaction methods. Spearheaded early stage software development.

