



THE EPILIGHT

DNB311 - CAPSTONE A2

TECHNICAL REPORT

Lachlan Whyte
N11628464

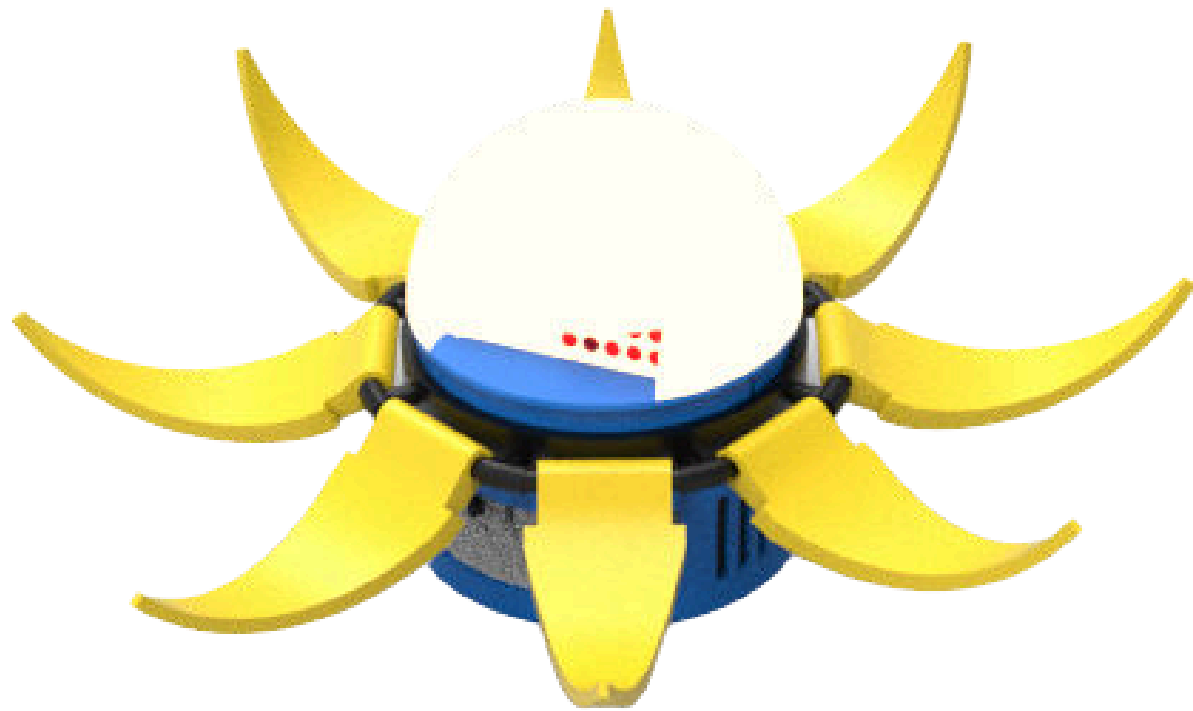


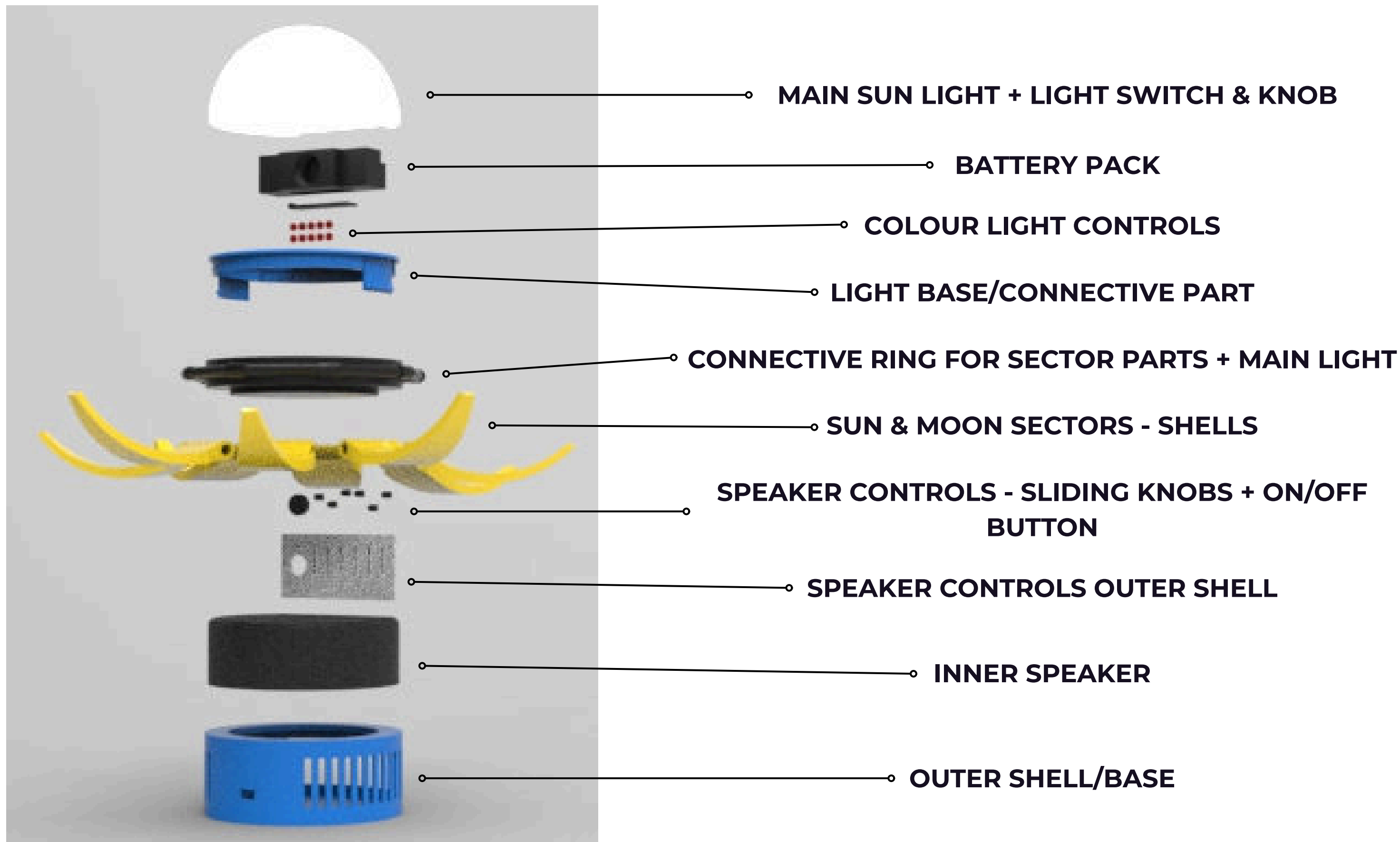
THE EPILIGHT

EXPLODED VIEWS

PART NAMES

MANUFACTURING
PROCESS





EXPLODED VIEWS & PART NAMES

**POLYCARBONATE - INJECTION
MOULDED**



Injection moulded under (**~280.C - 320.C**). Used to shape into globe.

**LITHIUM ION BATTERIES -
FORMATION + AGING**



Formation & Aging - initial charging & discharging, forming **Solid Electrolyte Interphase (SEI)** layers.

PLASTIC - INJECTION MOULDED



Polymerisation and Injection moulding - Melting plastic pellets + injecting into moulds.

**POLYPROPYLENE - INJECTION
MOULDED**



Injection moulding - pellets processed into end-use products - knobs and switches.

ACOUSTIC FOAM - RETICULATION



Reticulation - controlled explosion, chemical treatment, removes thin cell walls - increases airflow.

VELCRO - WEAVING + KNITTING



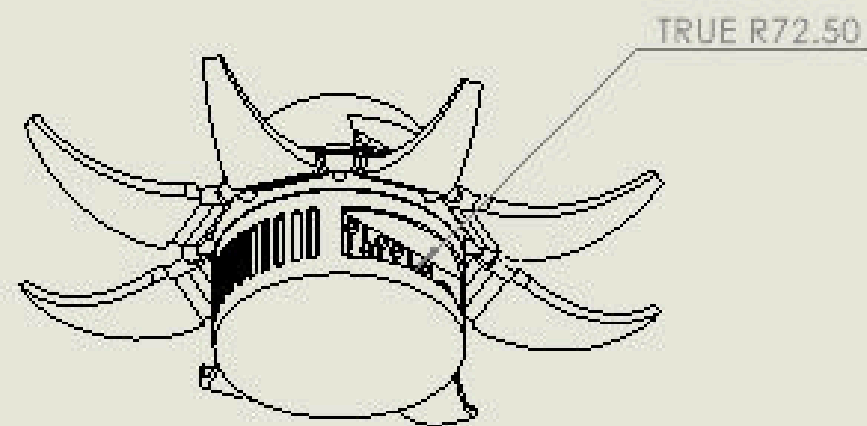
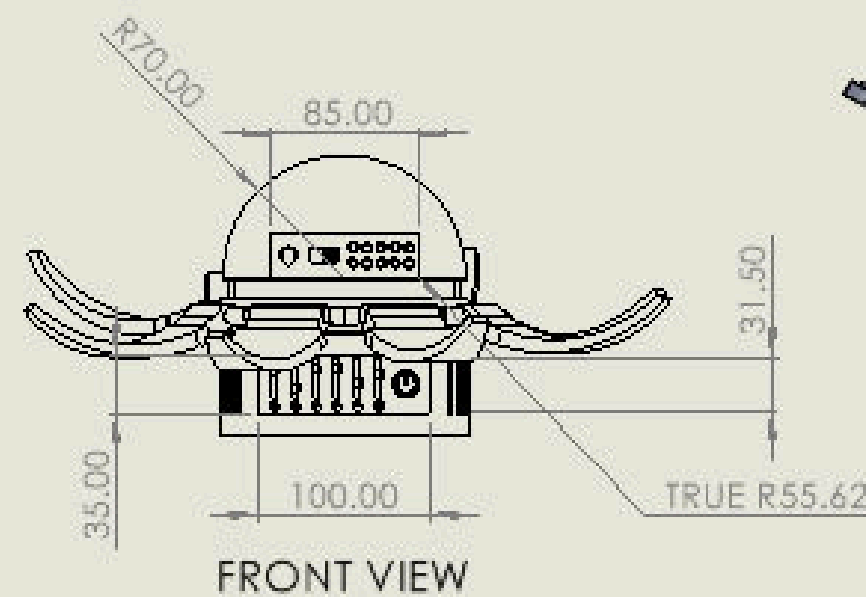
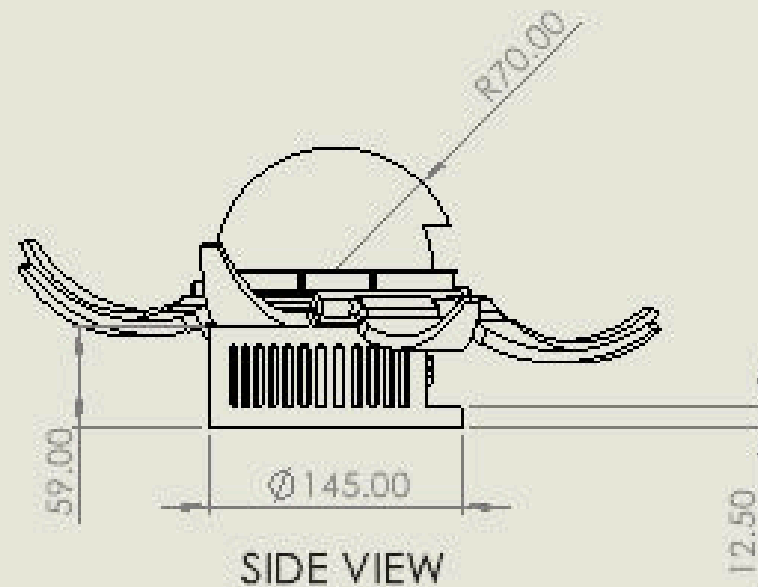
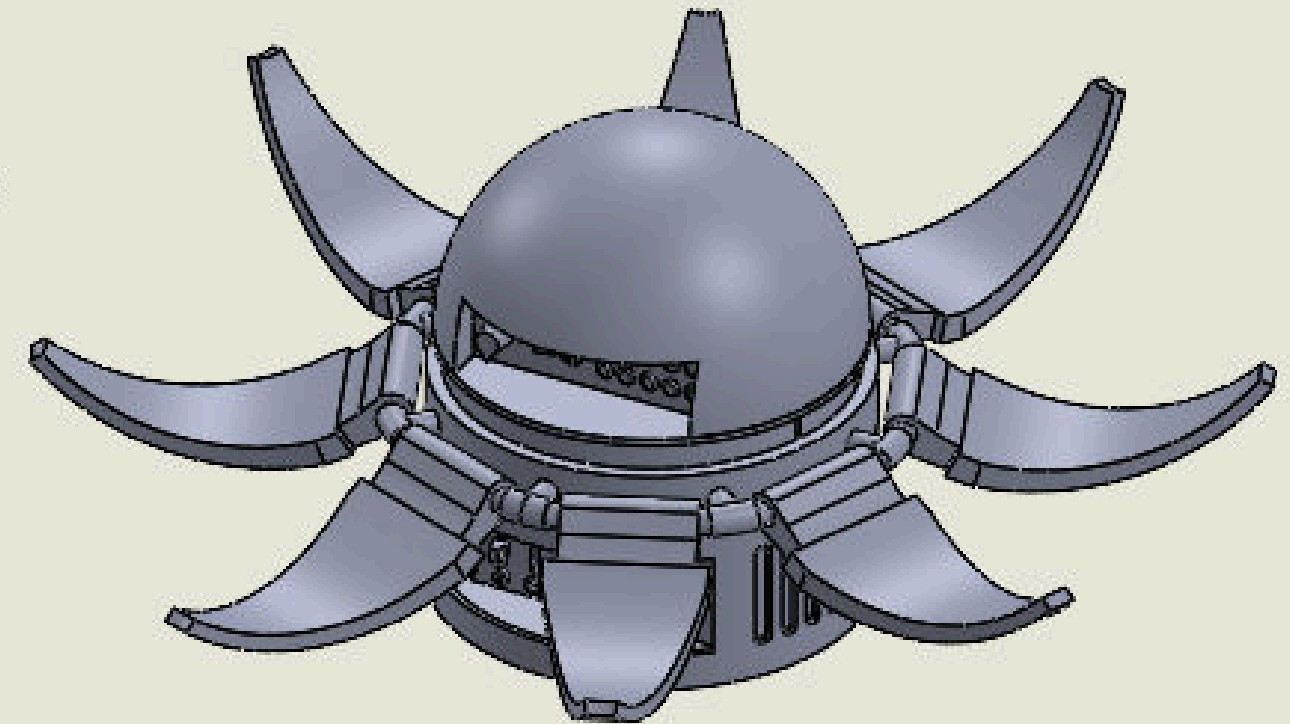
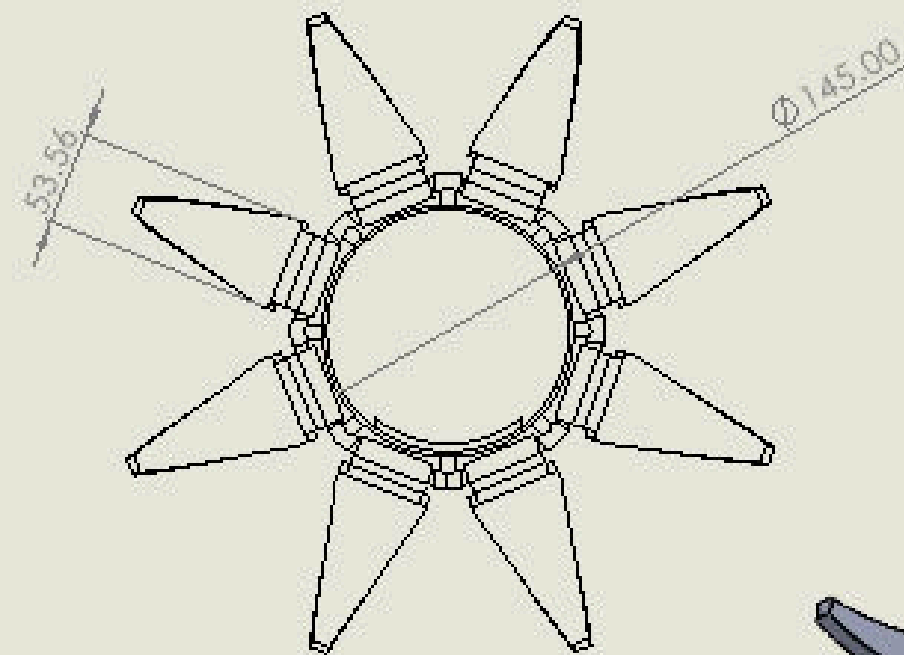
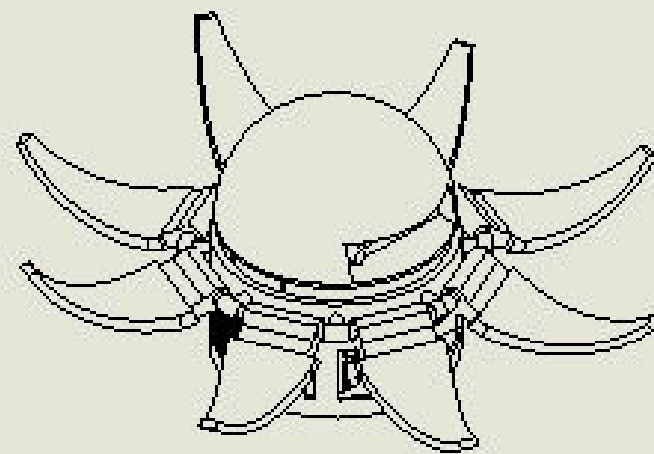
Weaving & knitting the base fabric, heat setting, adhesive backing.

MANUFACTURING PROCESSES

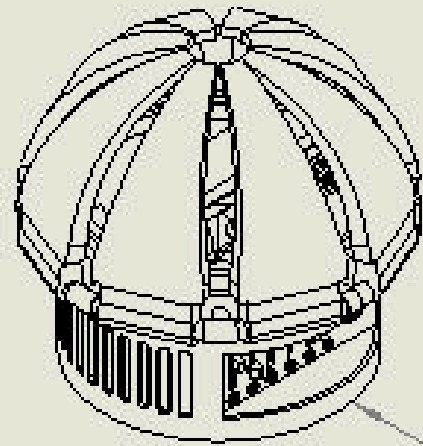
THE EPILIGHT

BILL OF MATERIALS

	Plastic	Polycarbonate	Acoustic foam	Polypropylene	Lithium-Ion Batteries	Velcro
Features	Strong, lightweight, durable, mouldable.	High impact strength, durable, heat resistant.	Flexible and provides optimal sound absorption.	It is impact resistant and can be moulded into any shape easily and efficiently.	Easy to use and replace, provides optimal charge for light bulbs.	Easy to replace, surface can be attached and dethatched easily.
Industries	Often used for lamps, night-lights.	Safety glasses, phone covers, computer cases, LED light covers.	Often used in speaker grilles.	Often used for bottle caps, electrical enclosures, pipes, etc.	Used for any electrical device like remotes, controllers, lamps and other small lights.	Used in clothing, jackets, footwear, medical wraps, securing tools, bags, etc.
Manufacture	Polymerisation and Injection moulding	Injection moulded under (~280.C - 320.C). Used to shape into globe.	Reticulation - controlled explosion, chemical treatment, removes thin cell walls - increases airflow.	Injection moulding - pellets processed into end-use products - knobs and switches.	Formation & Aging - initial charging & discharging, forming SEI layers.	Weaving & knitting the base fabric, heat setting, adhesive backing.
Cost	Upfront tooling (mould) cost per part ~ \$2-\$10.	Is an engineering plastic (higher cost than ABS) ~ \$3.00-\$6.50 per kg.	A generic acoustic foam sheet (2,100 x 1,900 x 50mm) costs \$119.90.	For low volume - \$7-\$75 per part.	Reasonably budget around \$900 - \$1,200 per kWh of usable capacity.	A roll of 25mm x 1mm ~ \$8.40. Bulk roll 25mm x 25m ~ \$89.62.

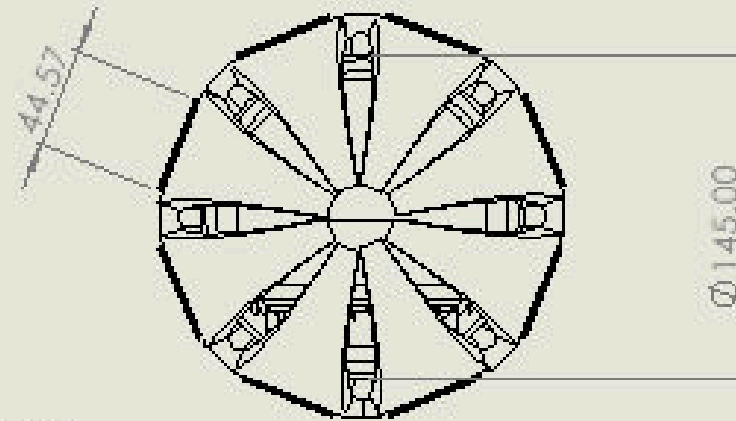


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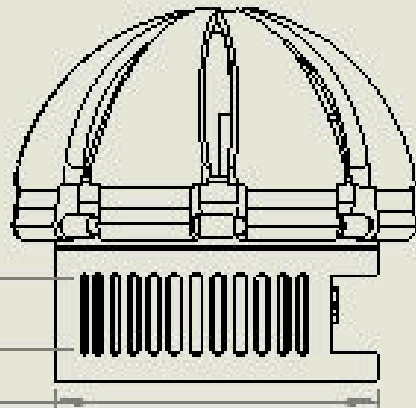


TOP VIEW

TRUE R72.50

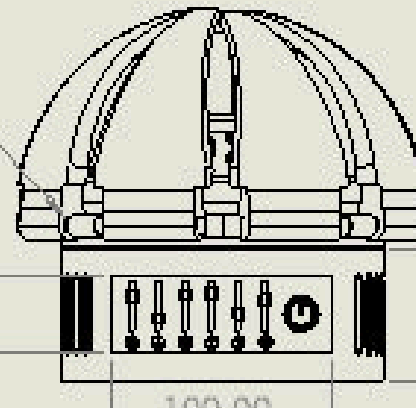


TOP VIEW

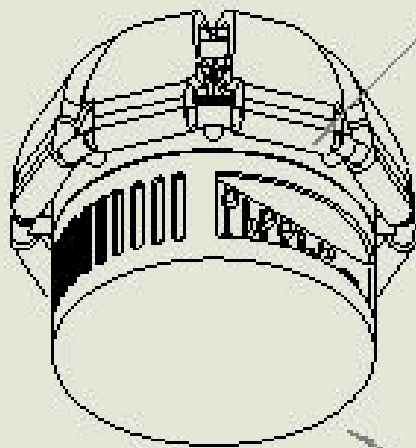


SIDE VIEW

TRUE R4.12



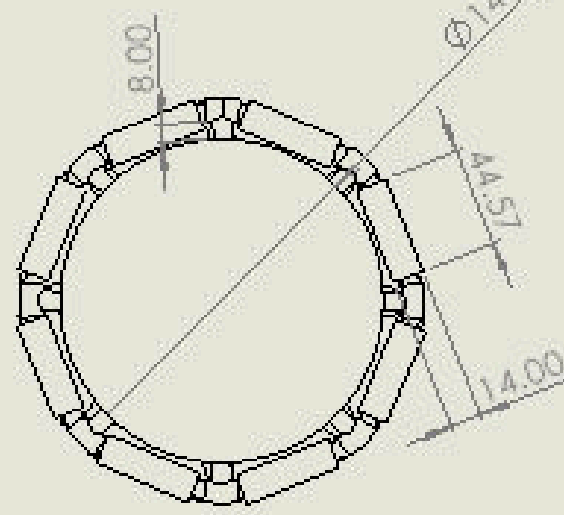
FRONT VIEW



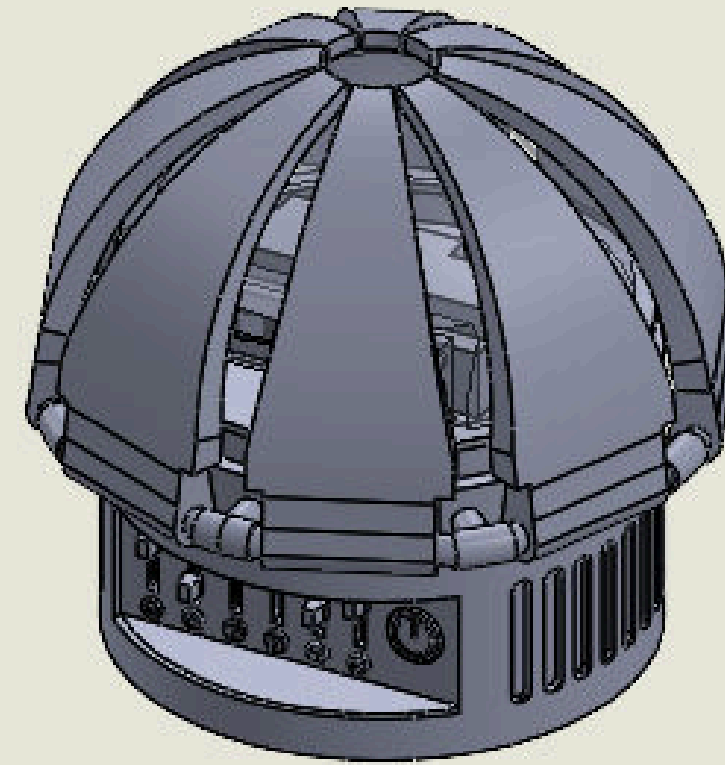
BOTTOM VIEW

TRUE R72.50

TRUE R72.50

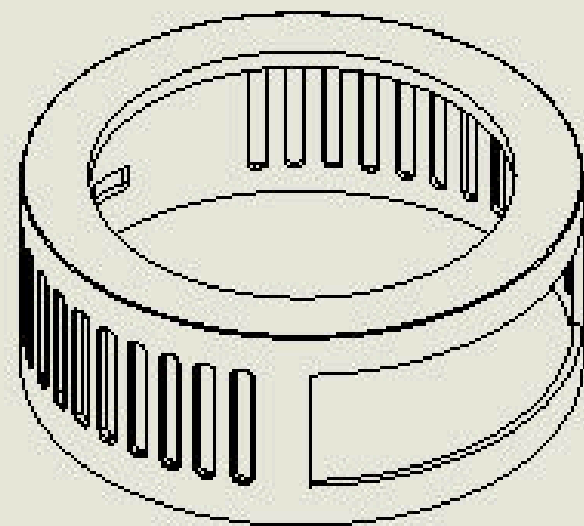


BOTTOM VIEW

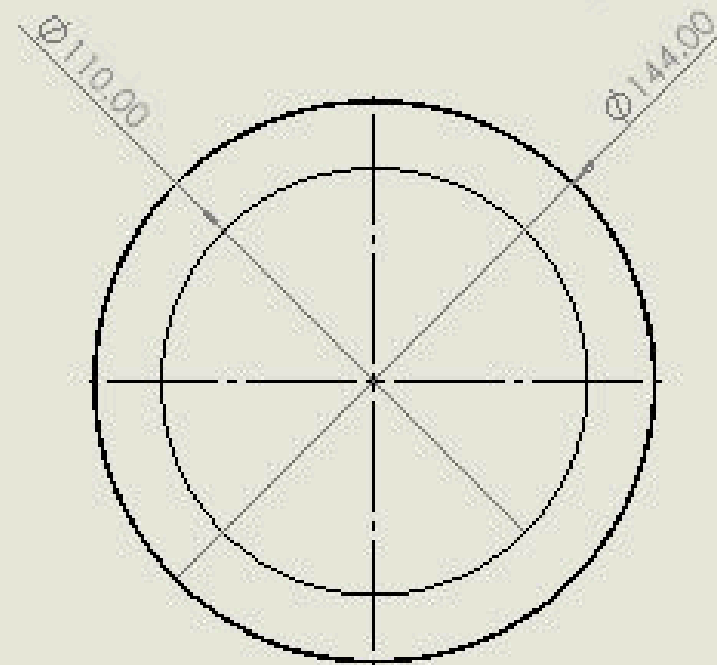


TRIMETRIC VIEW

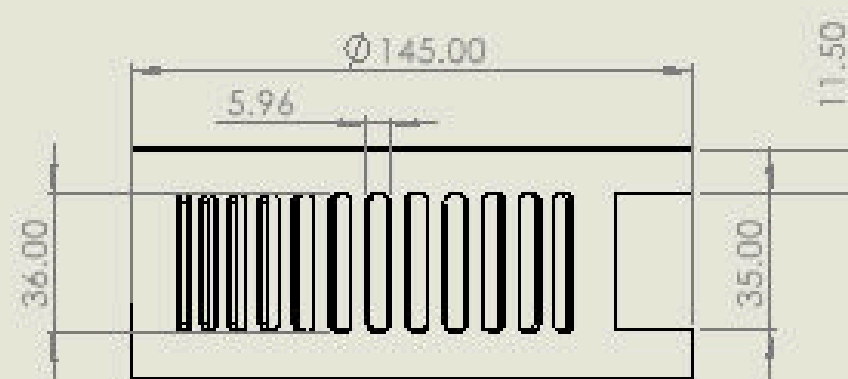
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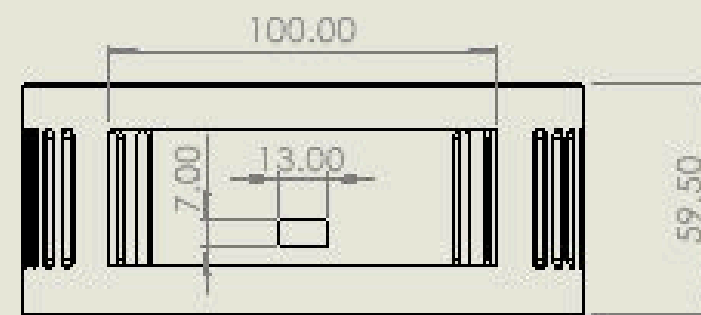
ISOMETRIC VIEW



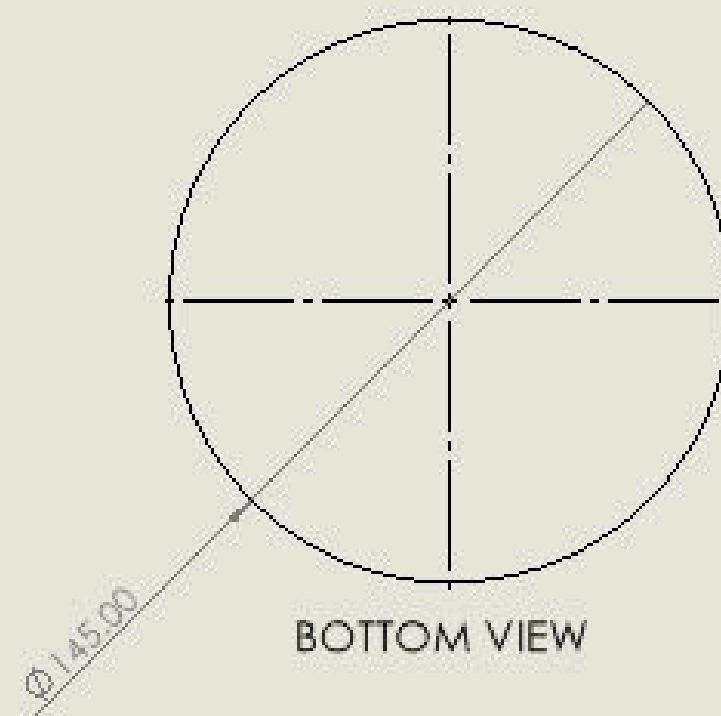
TOP VIEW



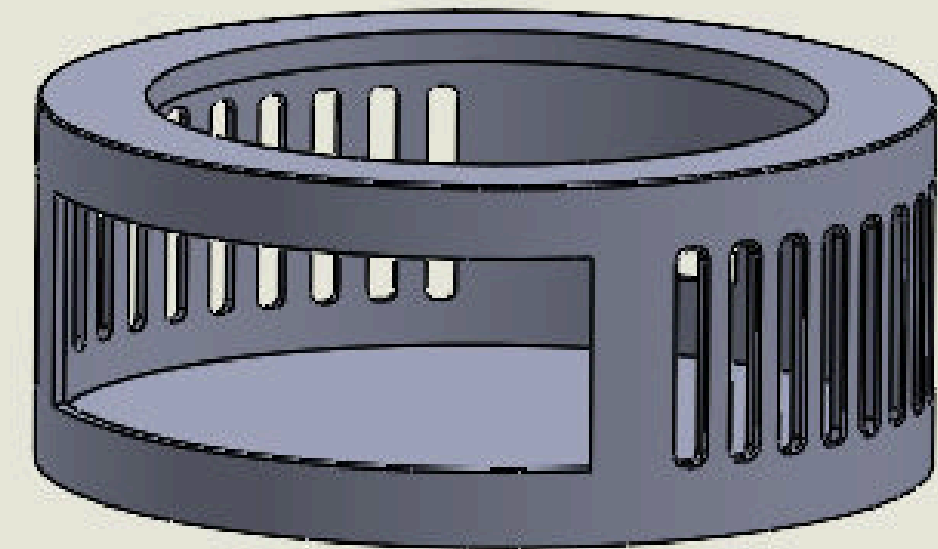
SIDE VIEW



FRONT VIEW

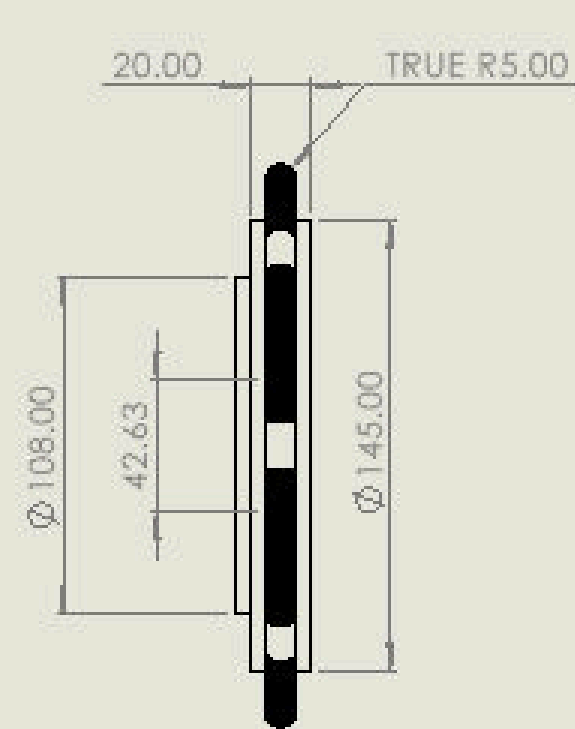


BOTTOM VIEW

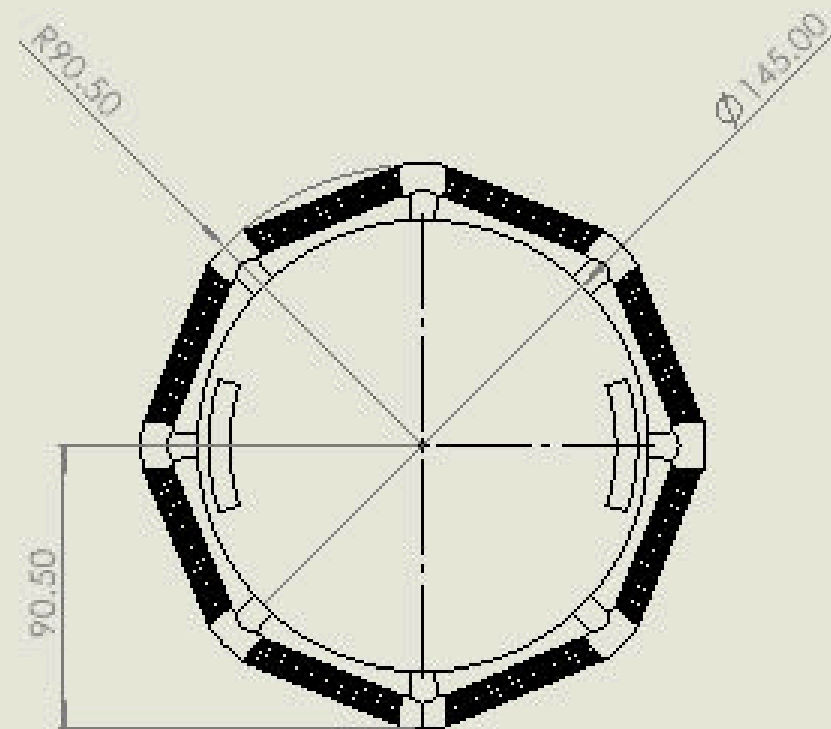


TRIMETRIC VIEW

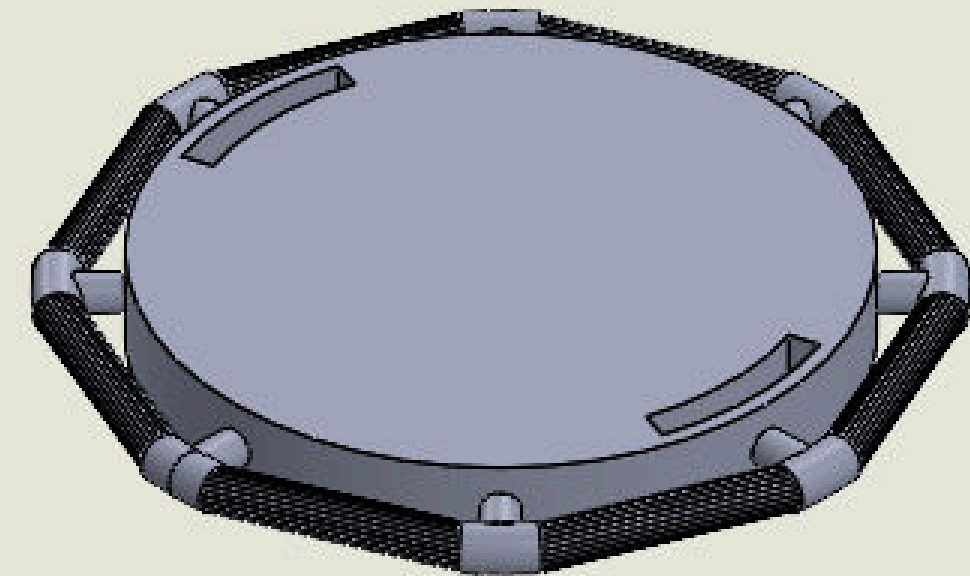
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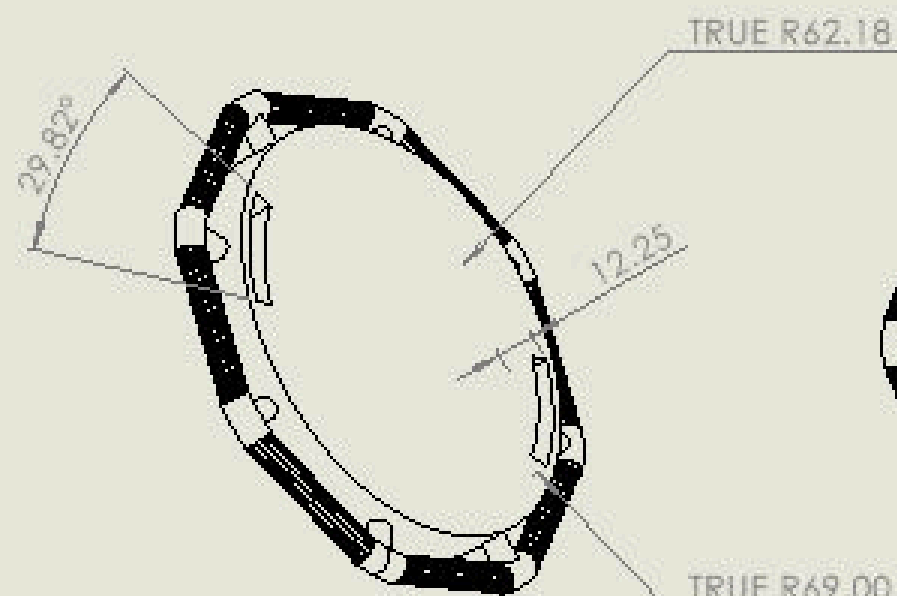
SIDE VIEW



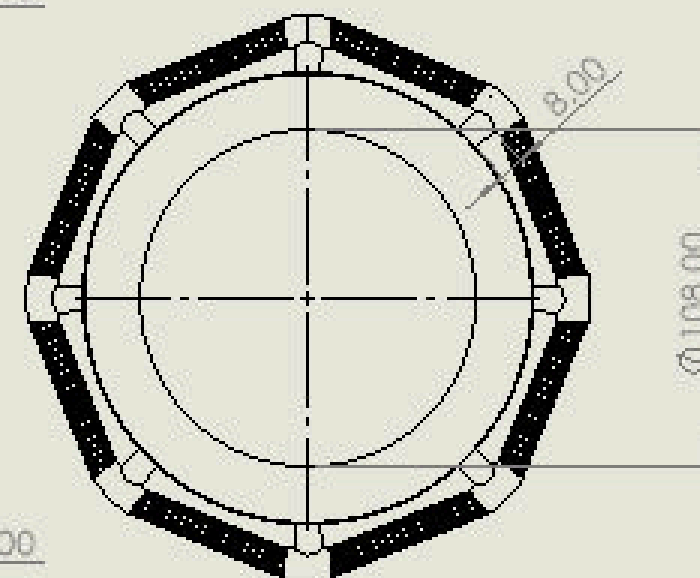
BOTTOM VIEW



TRIMETRIC VIEW

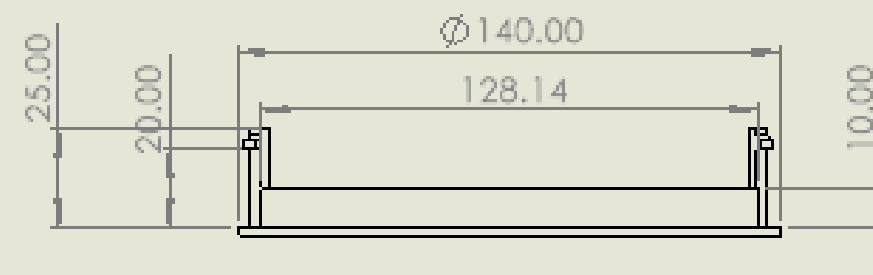


SIDE-ISOMETRIC VIEW

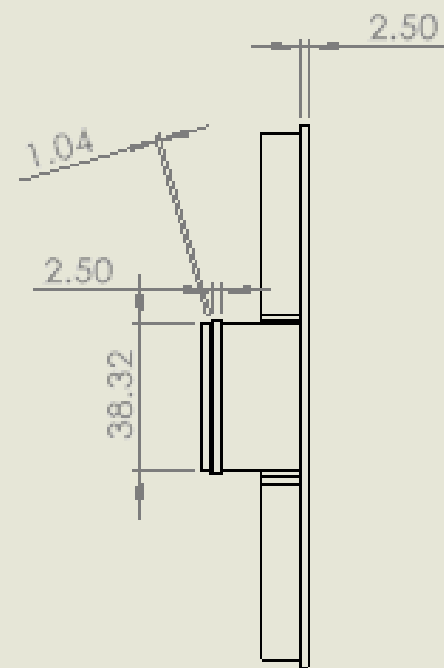


TOP VIEW

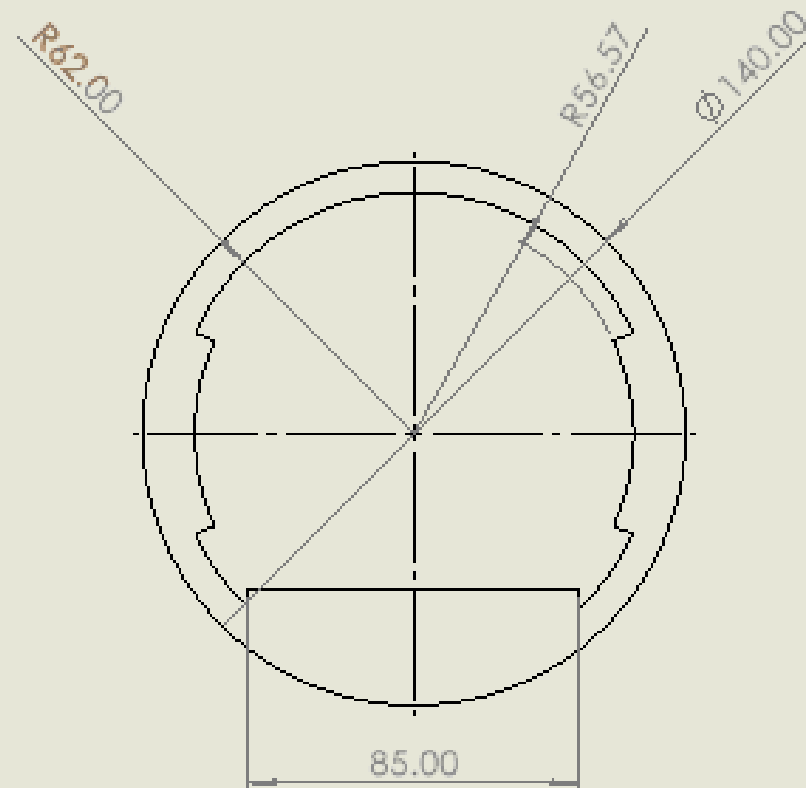
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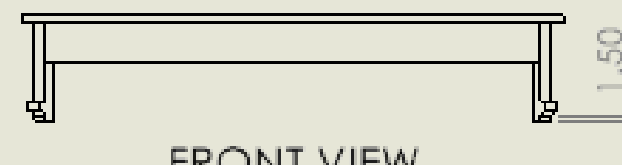
BACK VIEW



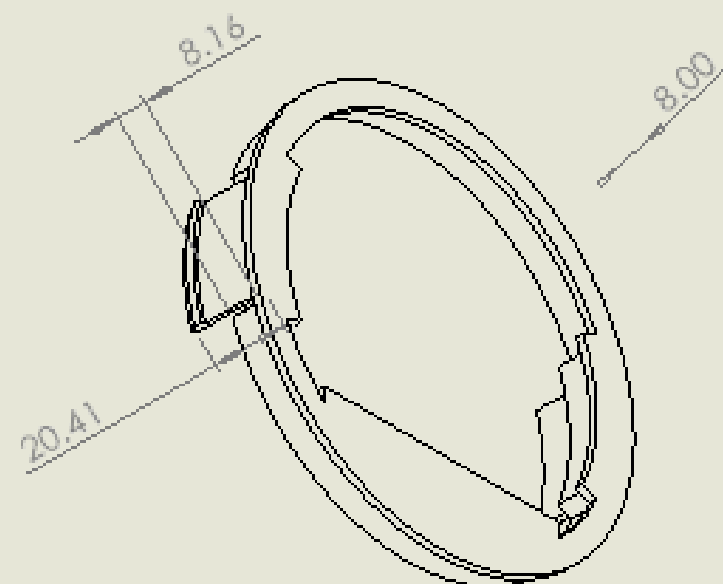
SIDE VIEW



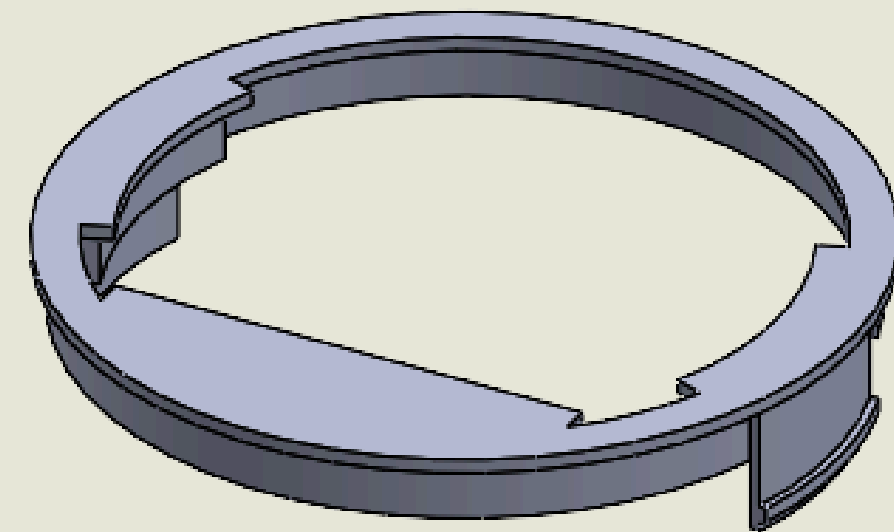
TOP VIEW



FRONT VIEW

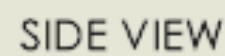


BOTTOM-ISOMETRIC VIEW



TRIMETRIC VIEW

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