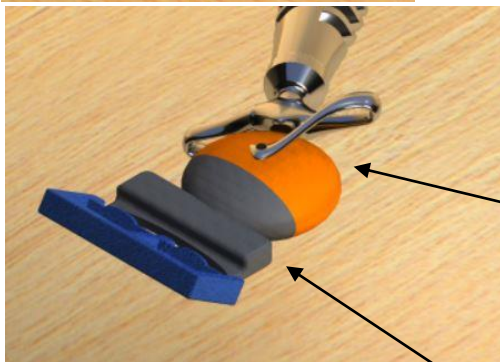


The S-Hold was made using two Sweep Blends with varying sections (a circle in the centre, points at the end and ellipses in the middle). The combination of sweep blends was warped to create the shape able to hold the swivel mechanism. Extrudes and rounds were then added to form the base of the hold. A cylindrical extrude was used to create the inserts for the bolts.

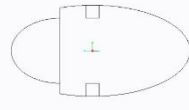
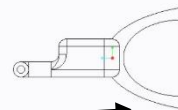


The Shaft is one of the most complex features. The initial structure was composed of a tapered cylindrical extrude. A helical sweep runs down the shaft. The cylindrical extrude was added to a plane tangential to the tapered extrude then wrapped the tapered surface. The aggregate part was warped to flatten and produce varying ridgelines to serve as the grip. Apart of the grip is a warped power symbol. Theoretically, the power button uses touch sensitive technology, similar to a touch lamp, to activate.

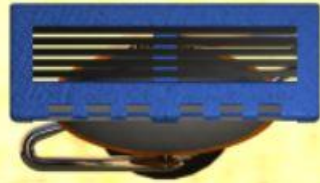


Two revolves and a removal extrude made the shape of the swivel mechanism. The initial revolve formed the flattened sphere. A cut was removed with another revolve added to create the revolve connector, similar to the product I am designing.

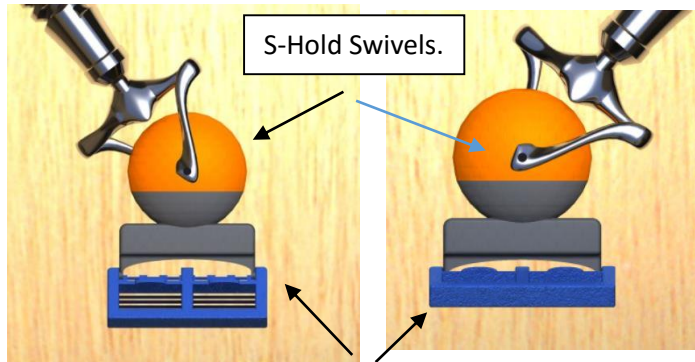
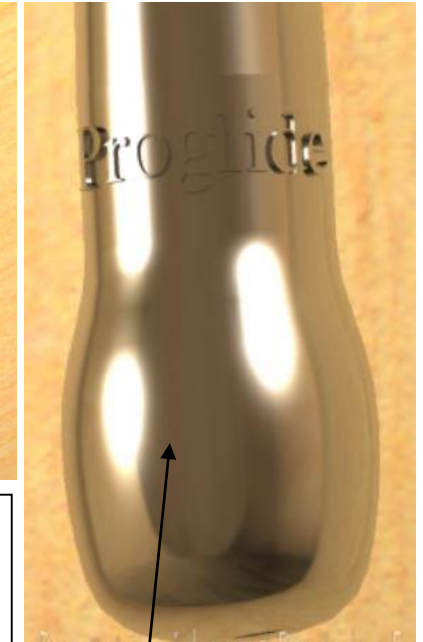
The shape on the Hinge Connector that connects to the Swivel Mechanism was made using the same process as the Swivel mechanism. Addition extrudes and revolves were added to complete the part.



Frame with five blade attachments. Frame created via simple extrudes, geometric patterning and rounds. Blade produced via sweep blends. Placed on frame via geometric patterning. Rendering uses bump mapping.

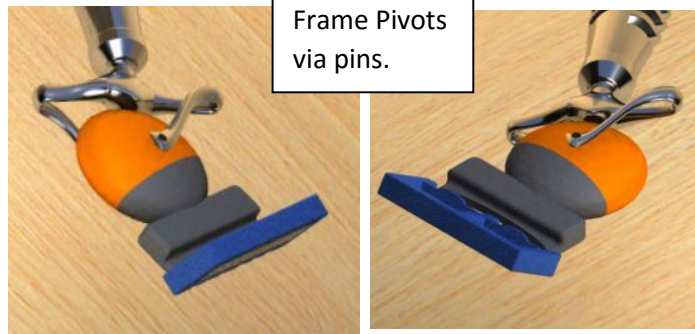


Isometric view of complete assembly. I used Ash wood as my backdrop as resembled my workspace.



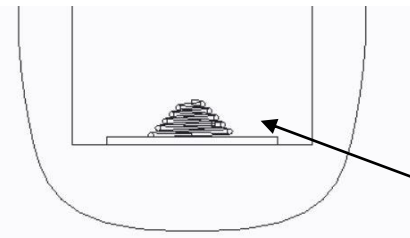
S-Hold Swivels.

Right side of the complete assembly. Note: The constraints state the major parts dimensions may not be less than 1mm. Minor parts are not included within this constraint.



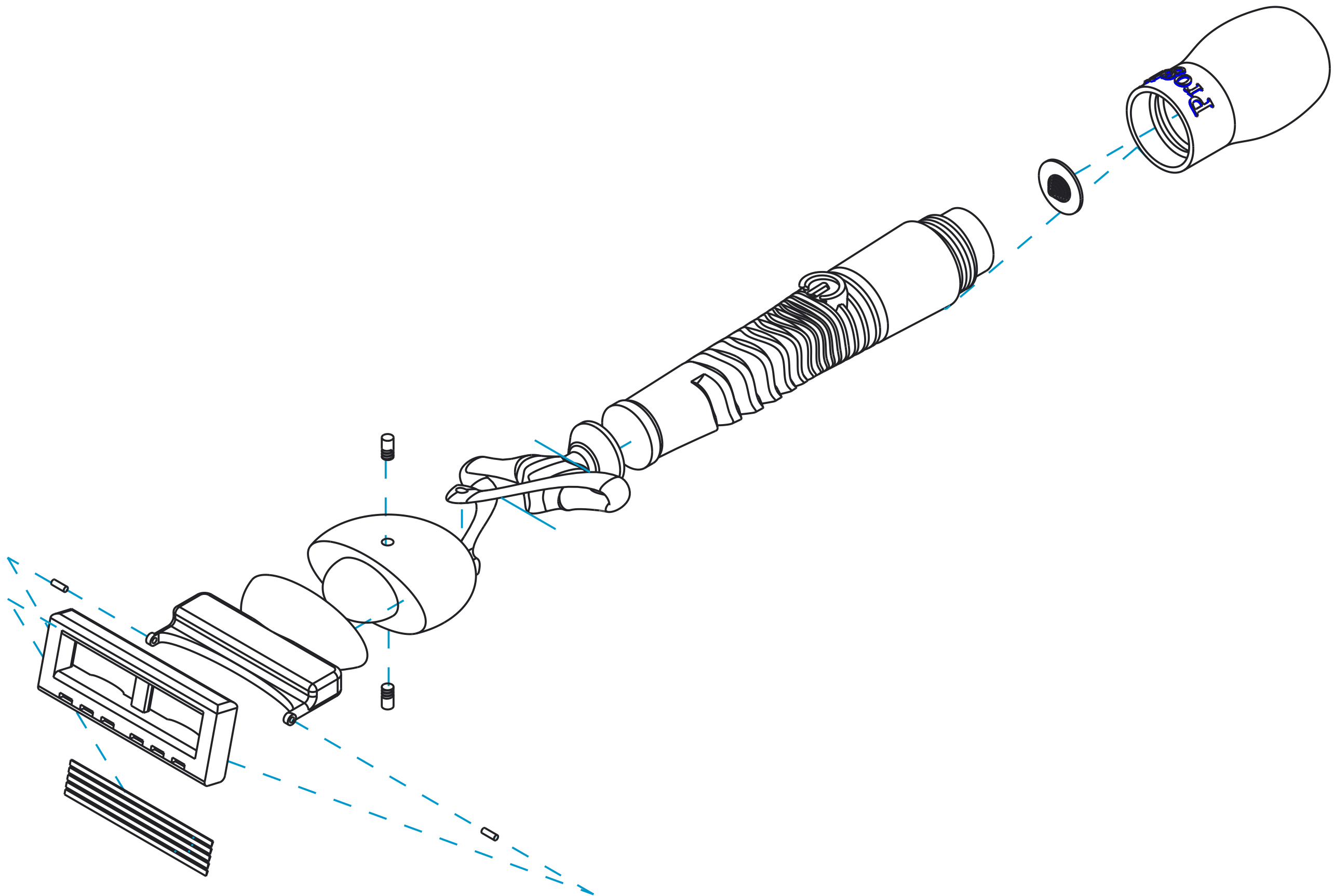
Frame Pivots via pins.



Two moving parts. The frame is connected to the Hinge connector via a pin constraint. The hinge pivots 90 degrees. The S-Hold is connected to the Swivel Mechanism via a cylinder constraint. The S-Hold is set to pivot 180 degrees.

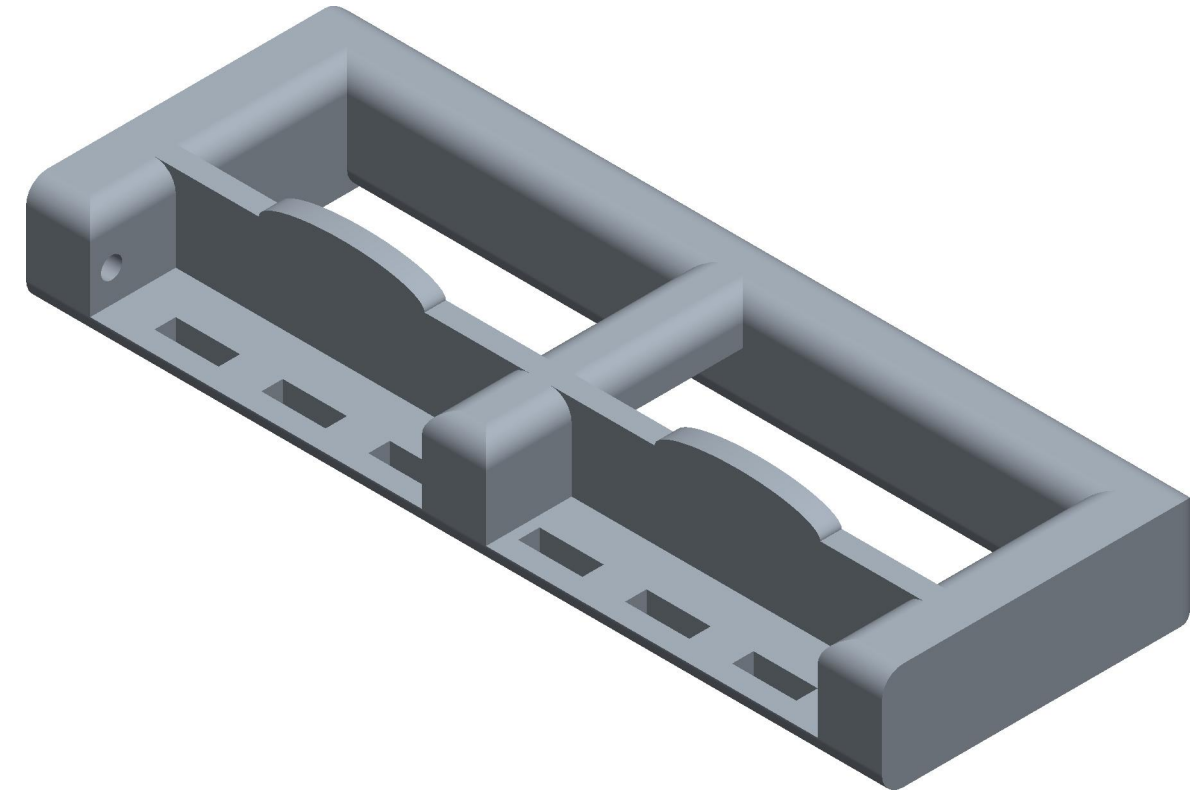
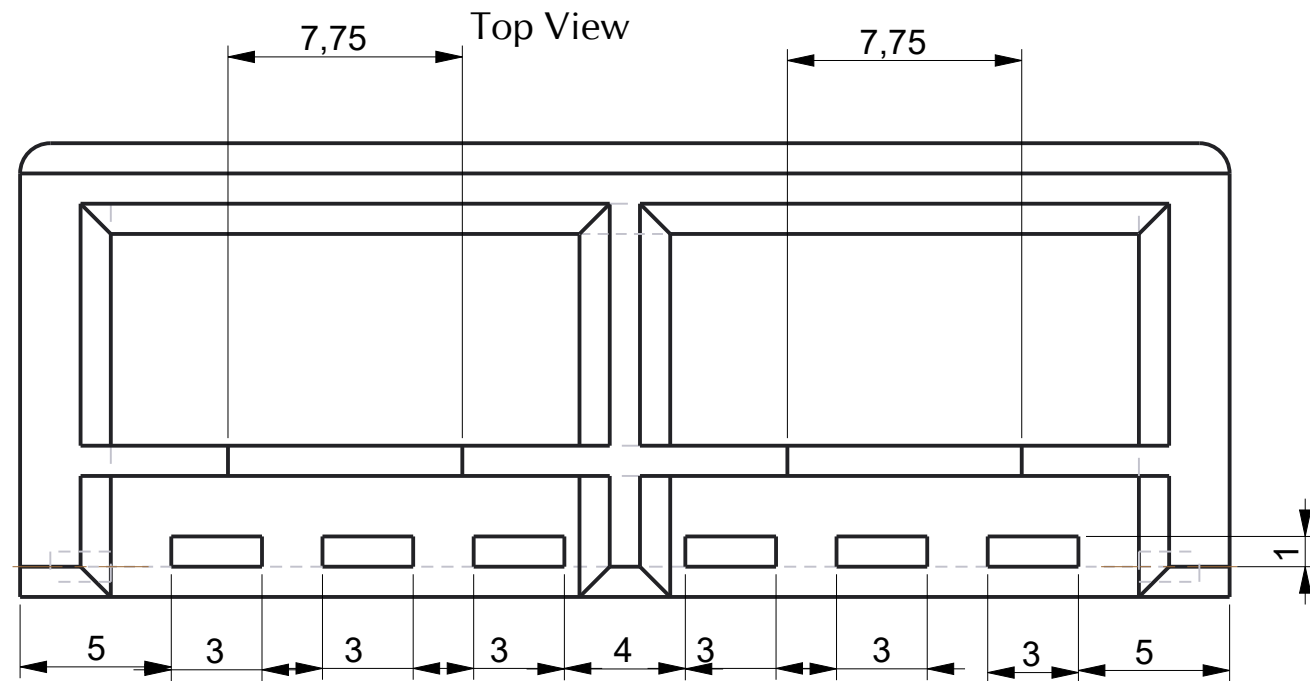


The Cap was made using a simple revolve feature. The Embossed text is an extrude offset on a tangential plane then wrapped around the cylindrical surface. Within the cap is a minor spring, created via a cylindrical extrude and a spiral sweep. See on exploded isometric drawing. The spring has a pitch of 0.40mm and slant height of 2.83mm (3.s.f)

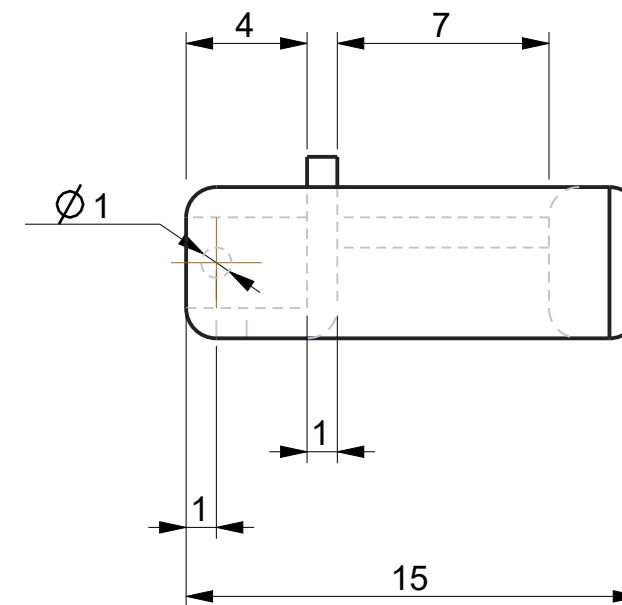
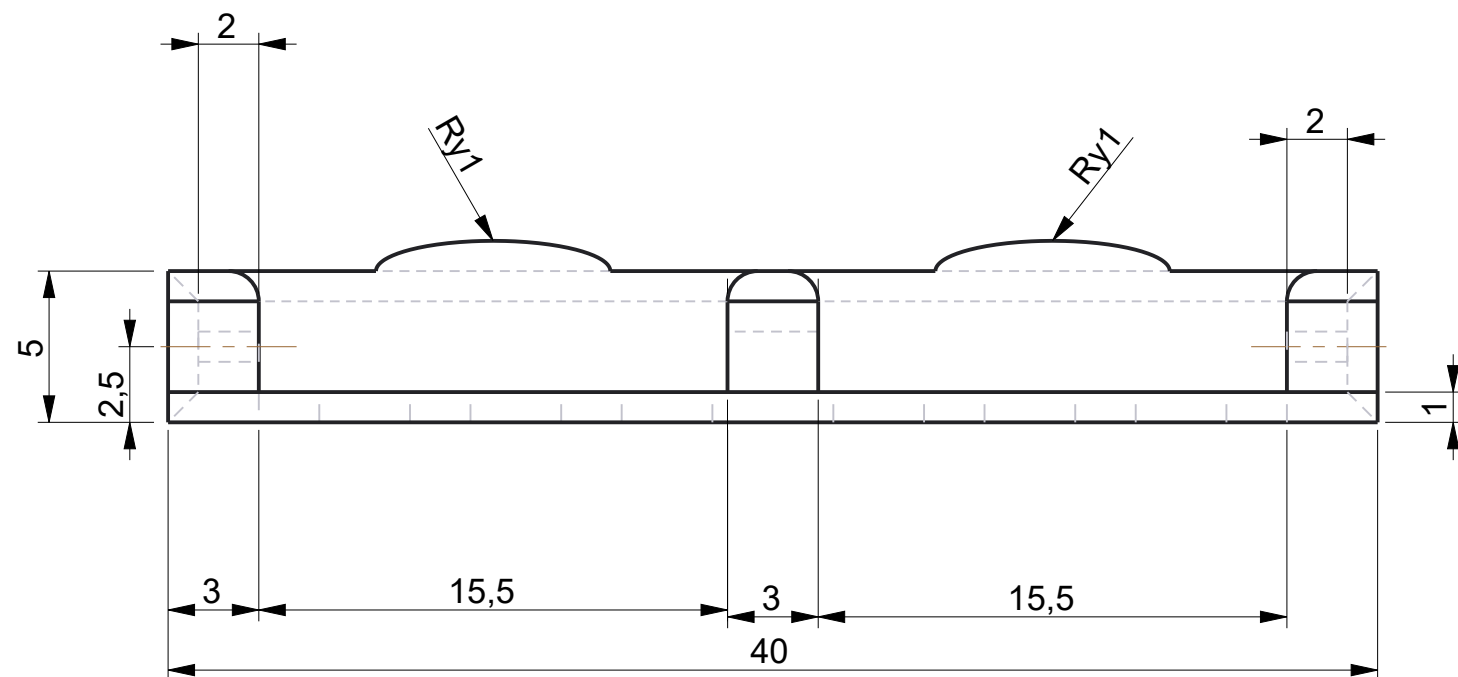




<div></div>	<div><p>THE UNIVERSITY OF AUCKLAND NEW ZEALAND</p></div>	DRAWN BY		TITLE Gillette Fusion Proglide Razor			
		DATE		DEPARTMENT			
		FILENAME		FILE LOCATION			
		TUTOR		QUANTITY	SCALE	SHEET	A3
		GROUP No.					
ALL TOLERANCES ARE ±0.1mm UNLESS OTHERWISE SPECIFIED	ALL DIMENSIONS IN MILLIMETRES						



All Round dimensions are R1 unless otherwise stated.



Front View

Right Side



DRAWN BY Connor McDowall

DATE 21/04/16

FILENAME
TUTOR Rohann DSouza
GROUP No.

TITLE Frame

DEPARTMENT Engineering General

FILE LOCATION

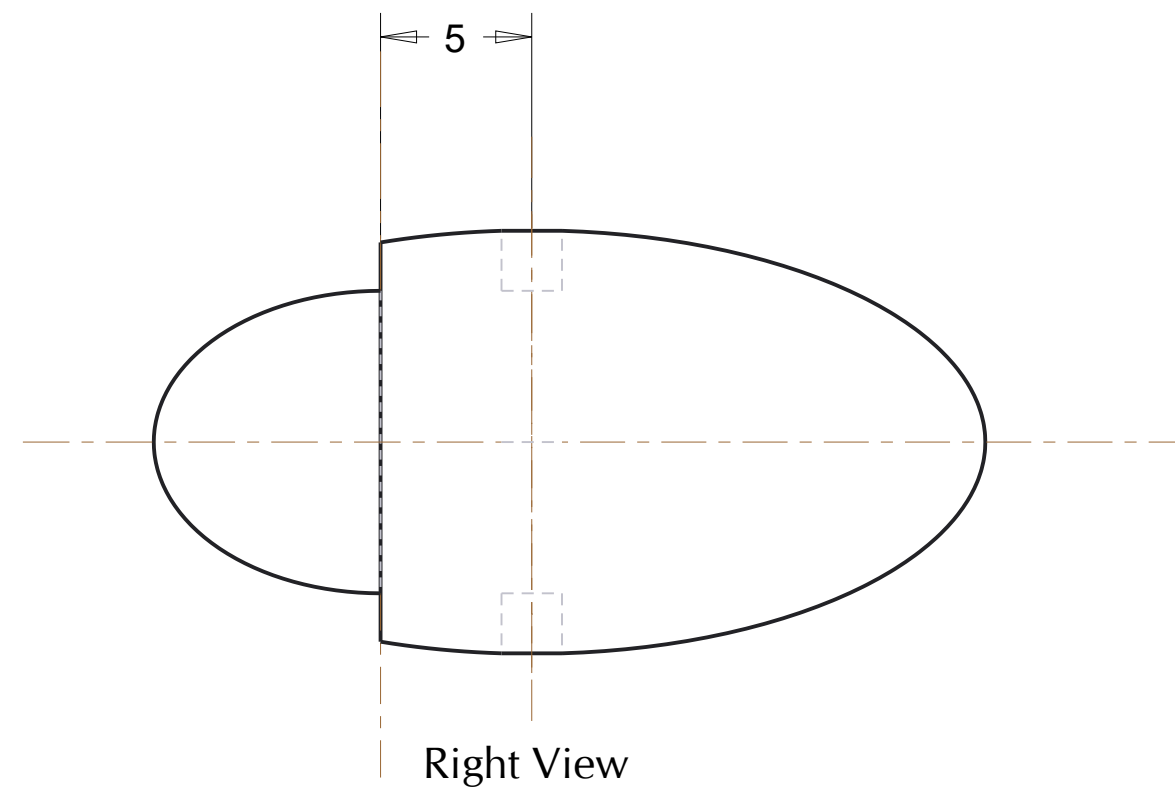
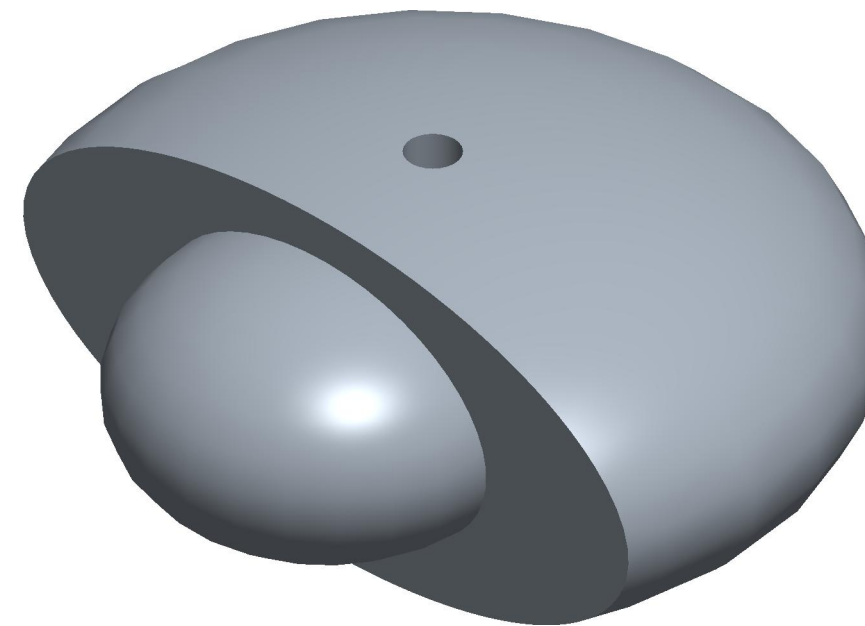
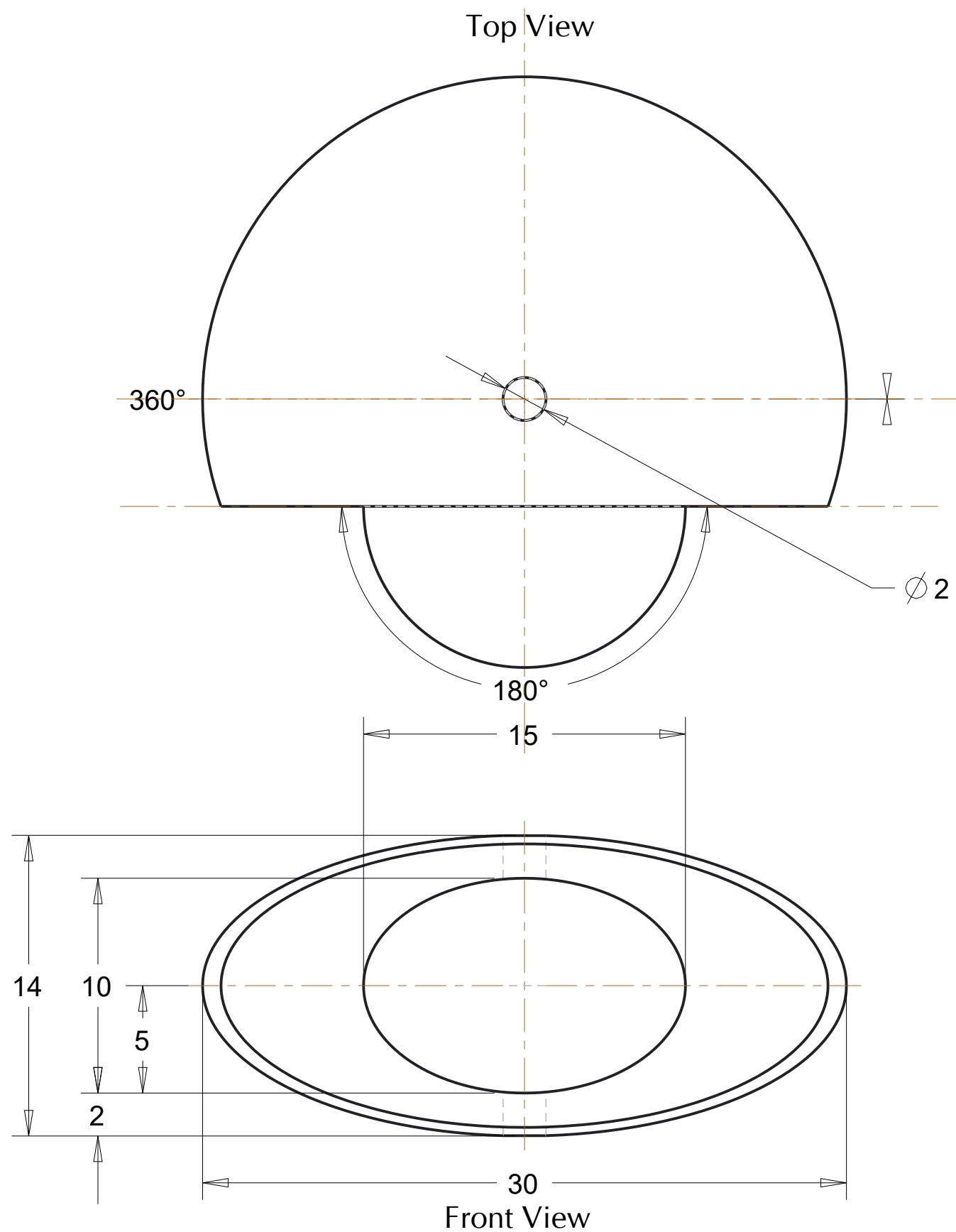
MATERIAL PVC



QUANTITY 1

SCALE 4:1

SHEET 1 of 1

A3



<div></div>		DRAWN BY Connor McDowall		TITLE Swivel Mechanism									
		DATE 21/04/16		DEPARTMENT Engineering General									
		FILENAME		FILE LOCATION									
		TUTOR Rohann DSouza		MATERIAL PVC		QUANTITY 1		SCALE 4:1		SHEET 1 of 1		A3	
		GROUP No.											
ALL TOLERANCES ARE ±0.1mm UNLESS OTHERWISE SPECIFIED		ALL DIMENSIONS IN MILLIMETRES											

Issue: 1	Product Design Specification For Gillette Fusion Proglide Razor	Reference: A0001
Date: 19/04/2016		
Relating Specifications:		
Issuing Authority:		
Contents:		
Foreword: Men have needed to Shave for thousands of years. The Gillette Fusion Proglide Razor will be the best to date.		
Introduction: Design a Premium Razor that delivers an excellent shave and has longevity.		
Scope: All Adolescents and Adults from the ages 12 to 80 must be able to use the razor.		
Definitions		
Functional Requirements:	<ul style="list-style-type: none"> • Provide a clean shave to the user • Adjust to the changing gradients and curves of the human neck, face and chin. • The razor must have rigidity and return to a default position after use. • The razor must adapt to different face shapes. • Use Gillette's Vibration aided shaving functionality. • The razor must have blades within a detachable frame. The razor must use replacement frames, following Gillette business plan and razor blade model business strategy. • The blade must be of high quality product to meet the quality Proctor and Gamble demand. • The product must operate in temperatures between -20°C and 60 °C. • The product must operate in water temperature between 0°C and 100 °C. Higher temperatures may cause plastic materials to soften/melt. • Humidity exposed to will range between 0% to 100%. • Must be capable of full submersion. • Must resist and be unaffected by shaving creams, soaps, detergents or any other personal hygiene product. • Target Population is for adolescents to adults aged 12 to 80. The razor must be able to function for the 95% confidence interval of this population. Varying hand, face, chin and neck sizes will need to be accounted for. • Function for both men and women of different cultures, worldwide. Will be marketed to men. • Razors appearance must be aesthetically pleasing, in line with Gillette's strategy of a premium razor. • Total assembly length must be in the range 100mm – 180mm. • Must have a minimum dimension (part) no less than 1mm and an overall assembly dimension no less than 8mm • Overall weight must be less than 200g • Frame must be able to move in a way that adjusts to changing gradients • The razor will be fully assembled before distribution • Replacement of Frame must take less than 10 seconds for someone with average co-ordination • The Swivel Mechanism, Bolt, Hinge connector and Frame must be made out of a polymer • The Cap, Shaft, S-Hold, pins and Spring must be made out of a metallic alloy • Blades must be of Gillette's patented design • Any Plastic and Metallic alloy as long as other specifications met 	
Other Additional Requirements:	<ul style="list-style-type: none"> • No Sharp edges apart from the blades to prevent accidental lacerations • Must have non-toxic materials • Any paints, solvents, dyes used must not bleach • Must have a satisfactory grip so the razor does not slip. • Must be comfortable to hold • Electric compartment facilitating vibration must be watertight or waterproof • Materials must be prone to erosion/corrosion • Must have a life time of 910 hours with 90% efficiency • Must be drop resistant, withstanding drops from a maximum of 2m • Must have sufficient room to facilitate shaving residue processing and removal. 	