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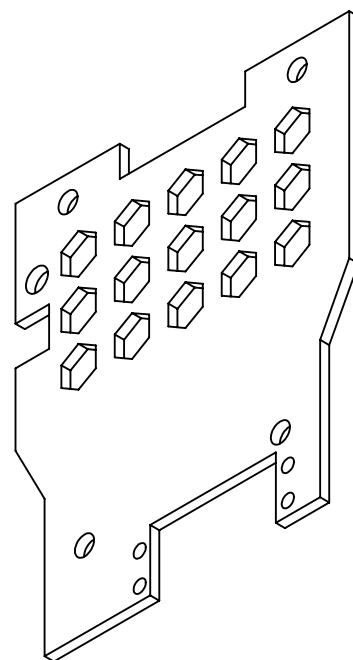
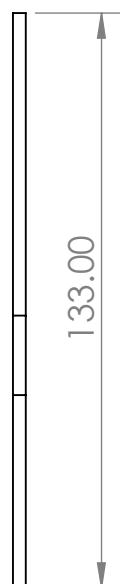
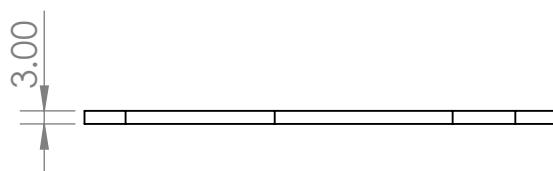
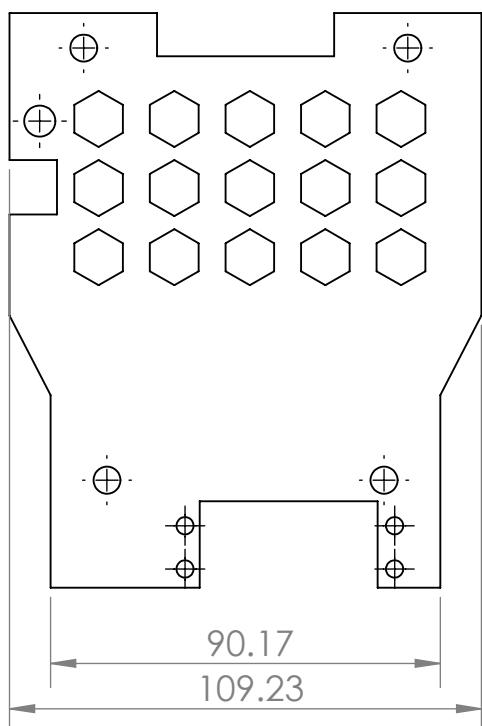
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3D PRINTING PARAMETERS		
PARAMETER	TYPICAL VALUE	DESCRIPTION
LAYER HEIGHT	0.20 mm	Vertical resolution per layer.
WALL THICKNESS	1.2 mm (\approx 3 walls)	Number of perimeter walls.
INFILL DENSITY	15-35 %	Internal structure fill percentage.
PRINTING SPEED	\sim 60 mm/s (standard)	Linear print speed of nozzle.
NOZZLE TEMPERATURE	210-220 °C (PLA)	Extruder temperature.
BED TEMPERATURE	60 °C (PLA)	Heated bed temperature.
COOLING FAN SPEED	100 %	Improves surface finish and overhangs.
SUPPORTS	Disabled	Optional for overhangs.
ADHESION TYPE	None	No special adhesion; PEI textured plate.

CREATED BY
RULOBOT TEAM 08/06/2025

APPROVED BY
WILMER DE JESÚS REYES 08/12/2025

DOCUMENT NAME
RULOBOT_ASSEMBLY

EVENT
WRO SINGAPORE INTERNATIONAL FINAL

TITLE

MATERIAL
PLA

MANUFACTURING TECHNOLOGY

REV DATE OF ISSUE SHEET
REV1 08/12/2025 1

Upper_Base

FDM 3D PRINTING



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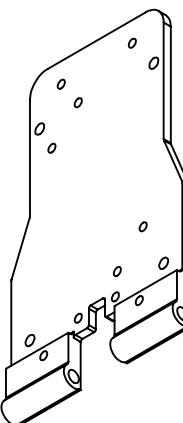
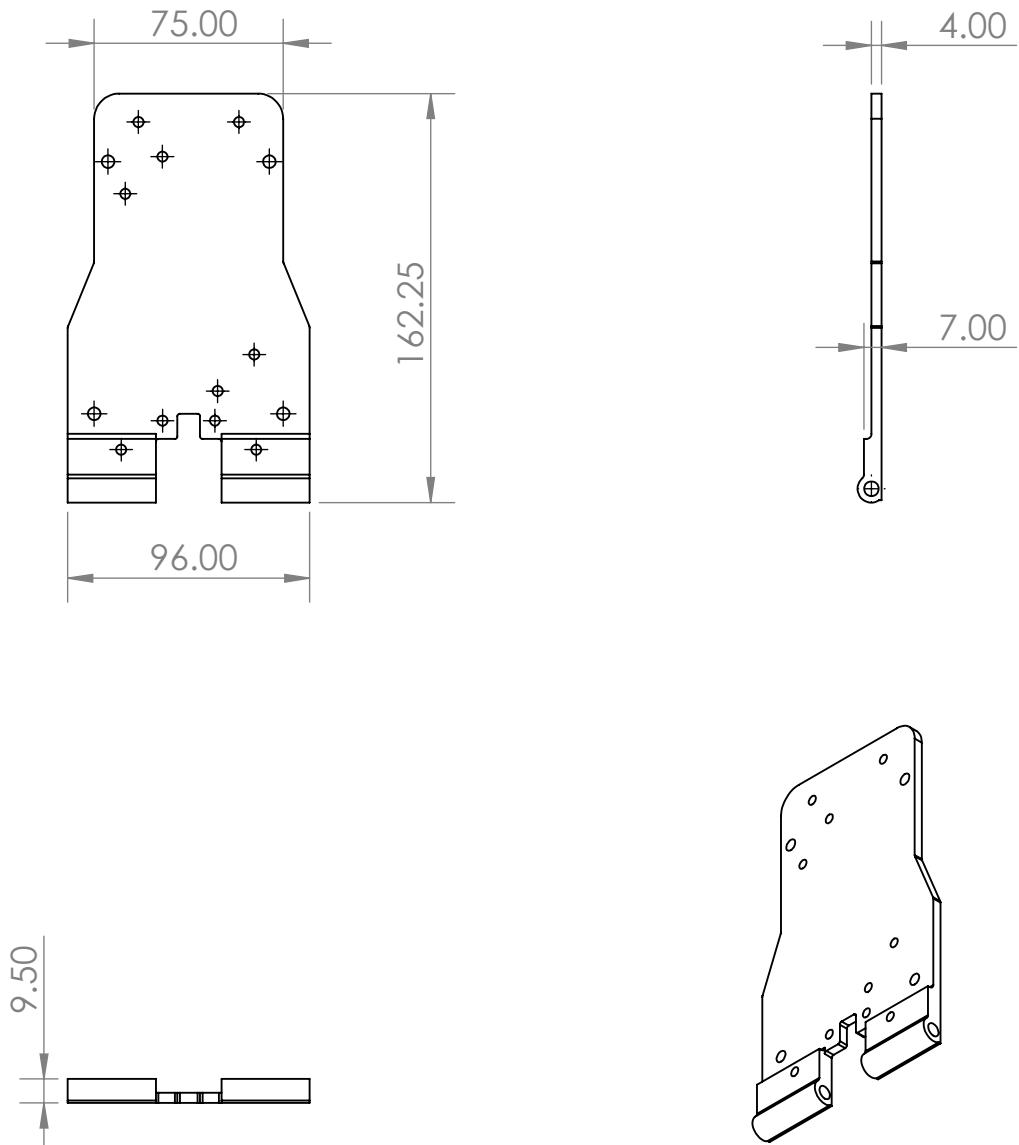
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3D PRINTING PARAMETERS		
PARAMETER	TYPICAL VALUE	DESCRIPTION
LAYER HEIGHT	0.20 mm	Vertical resolution per layer.
WALL THICKNESS	1.2 mm (~3 walls)	Number of perimeter walls.
INFILL DENSITY	15-35 %	Internal structure fill percentage.
PRINTING SPEED	~60 mm/s (standard)	Linear print speed of nozzle.
NOZZLE TEMPERATURE	210-220 °C (PLA)	Extruder temperature.
BED TEMPERATURE	60 °C (PLA)	Heated bed temperature.
COOLING FAN SPEED	100 %	Improves surface finish and overhangs.
SUPPORTS	Disabled	Optional for overhangs.
ADHESION TYPE	None	No special adhesion; PEI textured plate.

CREATED BY
RULOBOT TEAM 08/06/2025

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DOCUMENT NAME
RULOBOT_ASSEMBLY

EVENT
WRO SINGAPORE INTERNATIONAL FINAL

TITLE

MATERIAL

PLA

REV DATE OF ISSUE SHEET
REV1 08/12/2025 1

MANUFACTURING TECHNOLOGY

FDM 3D PRINTING

Base



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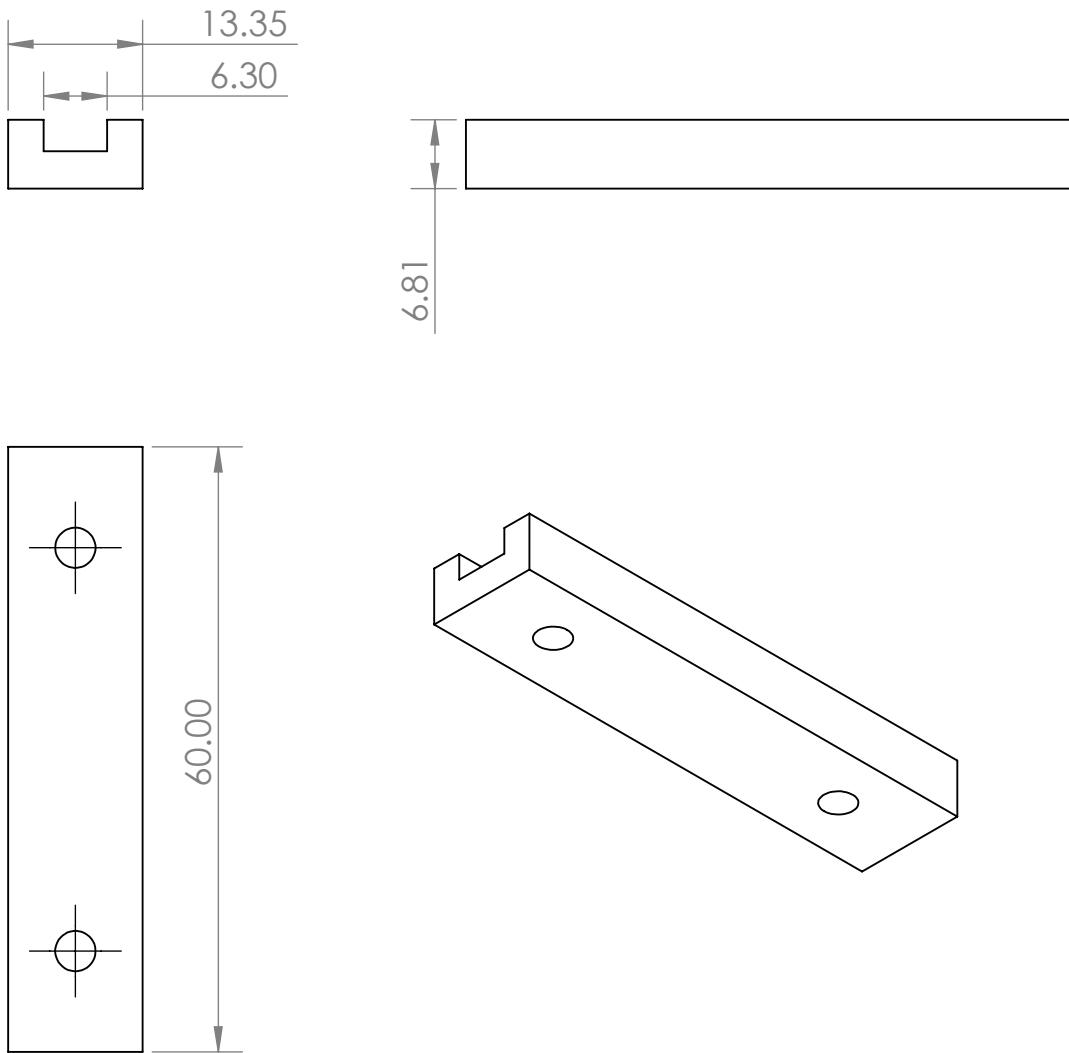
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3D PRINTING PARAMETERS

PARAMETER	TYPICAL VALUE	DESCRIPTION
LAYER HEIGHT	0.20 mm	Vertical resolution per layer.
WALL THICKNESS	1.2 mm (~3 walls)	Number of perimeter walls.
INFILL DENSITY	15-35 %	Internal structure fill percentage.
PRINTING SPEED	~60 mm/s (standard)	Linear print speed of nozzle.
NOZZLE TEMPERATURE	210-220 °C (PLA)	Extruder temperature.
BED TEMPERATURE	60 °C (PLA)	Heated bed temperature.
COOLING FAN SPEED	100 %	Improves surface finish and overhangs.
SUPPORTS	Disabled	Optional for overhangs.
ADHESION TYPE	None	No special adhesion; PEI textured plate.

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EVENT

WRO SINGAPORE INTERNATIONAL FINAL

MATERIAL

PLA

TITLE

Gyro_support_Bracket

MANUFACTURING TECHNOLOGY

FDM 3D PRINTING



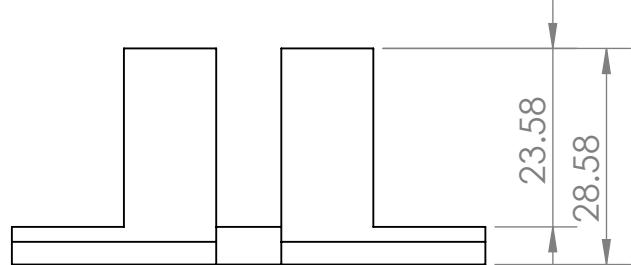
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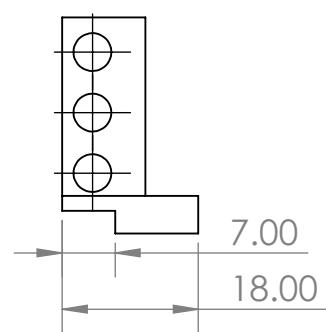
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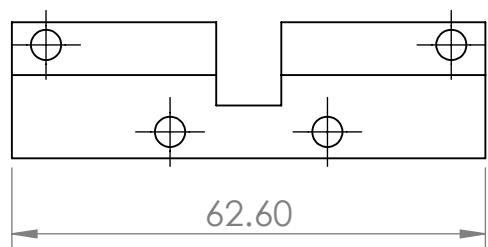
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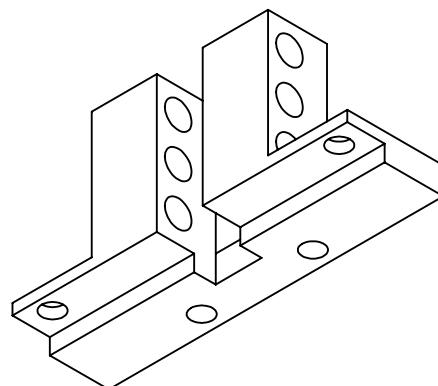
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3D PRINTING PARAMETERS

PARAMETER	TYPICAL VALUE	DESCRIPTION
LAYER HEIGHT	0.20 mm	Vertical resolution per layer.
WALL THICKNESS	1.2 mm (~3 walls)	Number of perimeter walls.
INFILL DENSITY	15-35 %	Internal structure fill percentage.
PRINTING SPEED	~60 mm/s (standard)	Linear print speed of nozzle.
NOZZLE TEMPERATURE	210-220 °C (PLA)	Extruder temperature.
BED TEMPERATURE	60 °C (PLA)	Heated bed temperature.
COOLING FAN SPEED	100 %	Improves surface finish and overhangs.
SUPPORTS	Enabled	Optional for overhangs.
ADHESION TYPE	None	No special adhesion; PEI textured plate.

CREATED BY

RULOBOT TEAM 08/06/2025

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DOCUMENT NAME

RULOBOT_ASSEMBLY

EVENT

WRO SINGAPORE INTERNATIONAL FINAL

MATERIAL

PLA

TITLE

REV

DATE OF ISSUE

SHEET

REV1

08/12/2025

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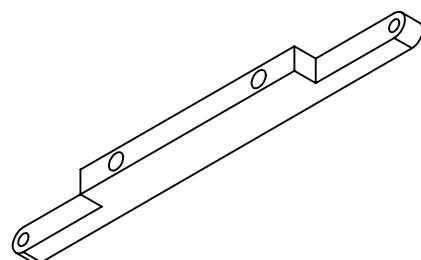
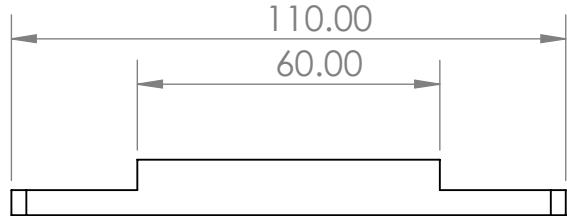
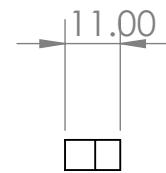
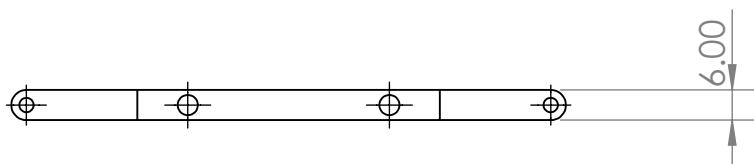
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Chassis_Joint

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RULOBOT_ASSEMBLY

EVENT
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MATERIAL
PLA

TITLE

REV DATE OF ISSUE SHEET
REV1 08/12/2025 1

MANUFACTURING TECHNOLOGY

FDM 3D PRINTING



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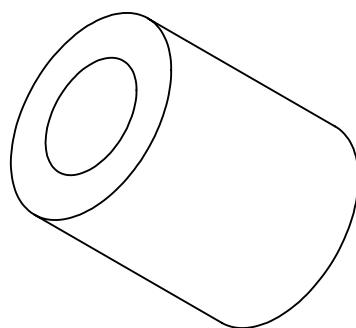
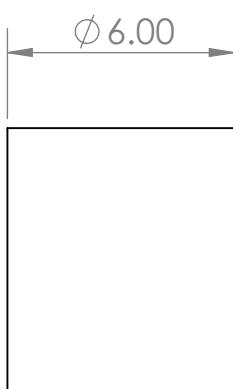
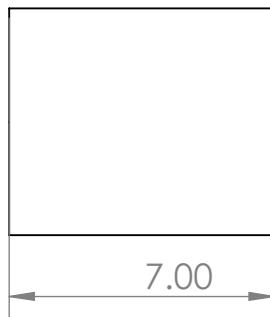
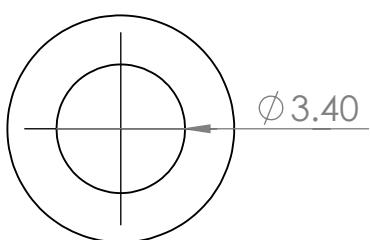
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3D PRINTING PARAMETERS		
PARAMETER	TYPICAL VALUE	DESCRIPTION
LAYER HEIGHT	0.20 mm	Vertical resolution per layer.
WALL THICKNESS	1.2 mm (~3 walls)	Number of perimeter walls.
INFILL DENSITY	15-35 %	Internal structure fill percentage.
PRINTING SPEED	~60 mm/s (standard)	Linear print speed of nozzle.
NOZZLE TEMPERATURE	210-220 °C (PLA)	Extruder temperature.
BED TEMPERATURE	60 °C (PLA)	Heated bed temperature.
COOLING FAN SPEED	100 %	Improves surface finish and overhangs.
SUPPORTS	Disabled	Optional for overhangs.
ADHESION TYPE	None	No special adhesion; PEI textured plate.

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EVENT

WRO SINGAPORE INTERNATIONAL FINAL

MATERIAL

PLA

TITLE

Servo_Connector

MANUFACTURING TECHNOLOGY

FDM 3D PRINTING



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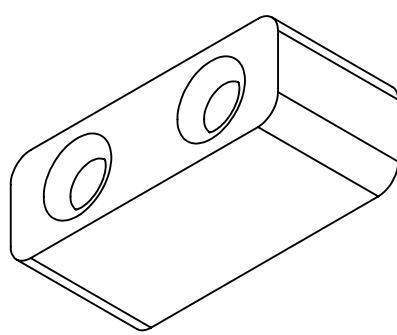
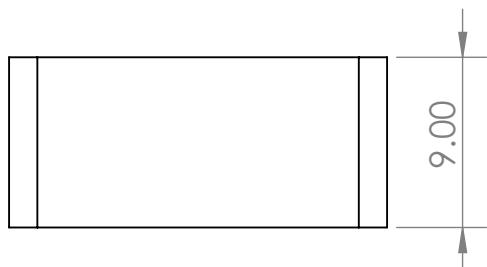
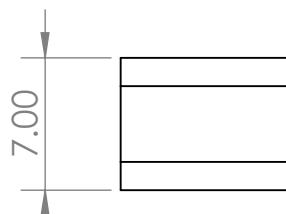
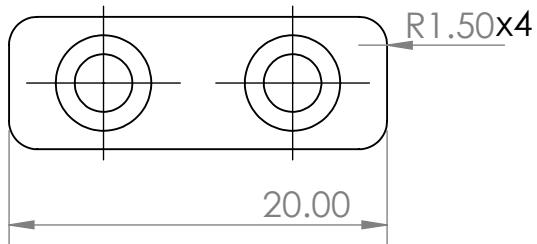
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3D PRINTING PARAMETERS

PARAMETER	TYPICAL VALUE	DESCRIPTION
LAYER HEIGHT	0.20 mm	Vertical resolution per layer.
WALL THICKNESS	1.2 mm (~3 walls)	Number of perimeter walls.
INFILL DENSITY	15-35 %	Internal structure fill percentage.
PRINTING SPEED	~60 mm/s (standard)	Linear print speed of nozzle.
NOZZLE TEMPERATURE	210-220 °C (PLA)	Extruder temperature.
BED TEMPERATURE	60 °C (PLA)	Heated bed temperature.
COOLING FAN SPEED	100 %	Improves surface finish and overhangs.
SUPPORTS	Disabled	Optional for overhangs.
ADHESION TYPE	None	No special adhesion; PEI textured plate.

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EVENT

WRO SINGAPORE INTERNATIONAL FINAL

MATERIAL

PLA

TITLE

Servo_Screw_Mount

MANUFACTURING TECHNOLOGY

FDM 3D PRINTING



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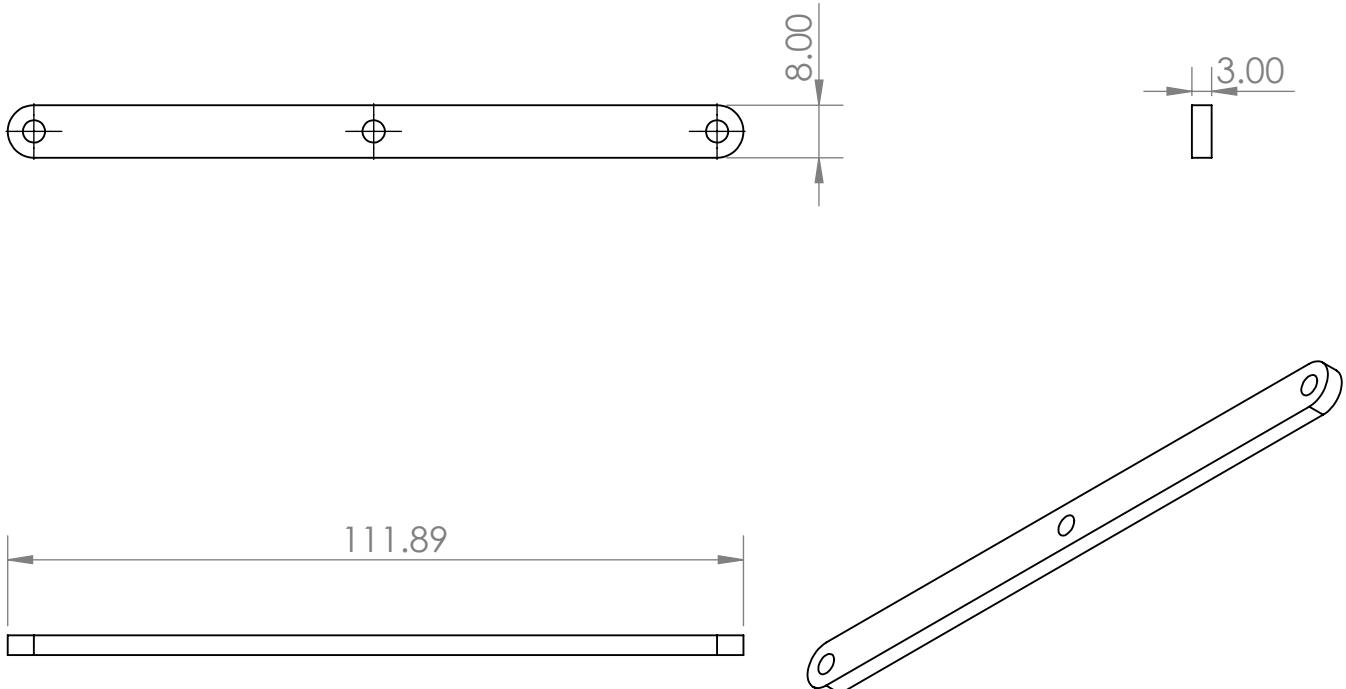
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Movable_Assembly

3D PRINTING PARAMETERS		
PARAMETER	TYPICAL VALUE	DESCRIPTION
LAYER HEIGHT	0.20 mm	Vertical resolution per layer.
WALL THICKNESS	1.2 mm (~3 walls)	Number of perimeter walls.
INFILL DENSITY	15-35 %	Internal structure fill percentage.
PRINTING SPEED	~60 mm/s (standard)	Linear print speed of nozzle.
NOZZLE TEMPERATURE	210-220 °C (PLA)	Extruder temperature.
BED TEMPERATURE	60 °C (PLA)	Heated bed temperature.
COOLING FAN SPEED	100 %	Improves surface finish and overhangs.
SUPPORTS	Disabled	Optional for overhangs.
ADHESION TYPE	None	No special adhesion; PEI textured plate.

CREATED BY
RULOBOT TEAM 08/06/2025

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DOCUMENT NAME
RULOBOT_ASSEMBLY

EVENT
WRO SINGAPORE INTERNATIONAL FINAL

TITLE

MATERIAL

PLA

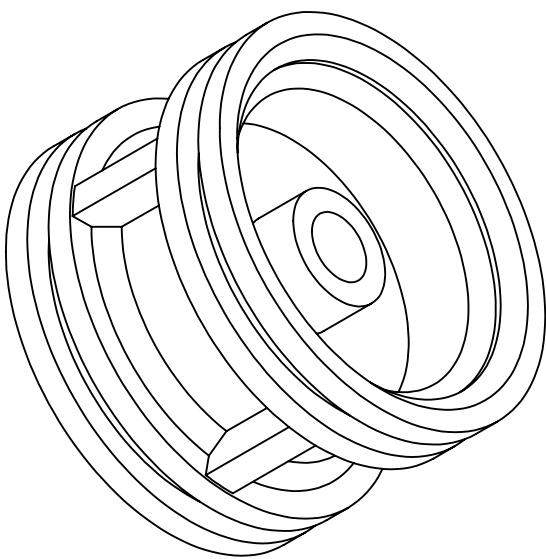
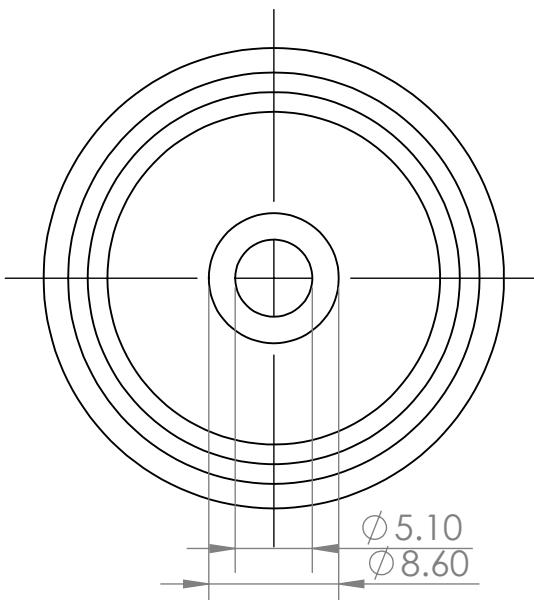
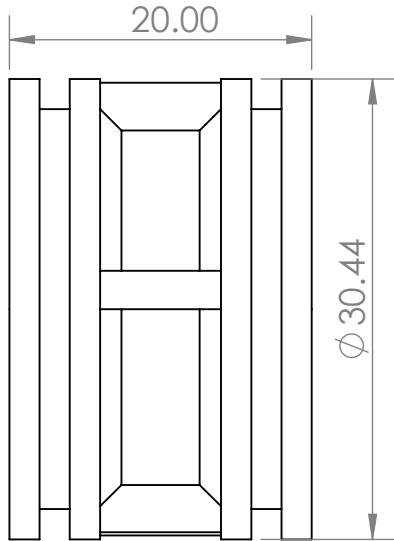
REV DATE OF ISSUE SHEET
REV1 08/12/2025 1

MANUFACTURING TECHNOLOGY

FDM 3D PRINTING



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3D PRINTING PARAMETERS		
PARAMETER	TYPICAL VALUE	DESCRIPTION
LAYER HEIGHT	0.20 mm	Vertical resolution per layer.
WALL THICKNESS	1.2 mm (~3 walls)	Number of perimeter walls.
INFILL DENSITY	15-35 %	Internal structure fill percentage.
PRINTING SPEED	~60 mm/s (standard)	Linear print speed of nozzle.
NOZZLE TEMPERATURE	210-220 °C (PLA)	Extruder temperature.
BED TEMPERATURE	60 °C (PLA)	Heated bed temperature.
COOLING FAN SPEED	100 %	Improves surface finish and overhangs.
SUPPORTS	Enabled	Optional for overhangs.
ADHESION TYPE	None	No special adhesion; PEI textured plate.

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WRO SINGAPORE INTERNATIONAL FINAL

MATERIAL

PLA

TITLE

REV

DATE OF ISSUE

SHEET

REV1

08/12/2025

1

Front_Wheel_Hub

MANUFACTURING TECHNOLOGY

FDM 3D PRINTING



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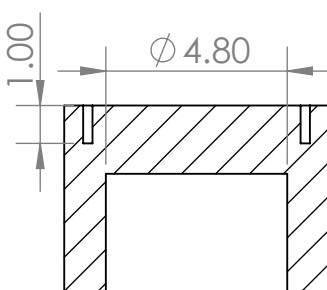
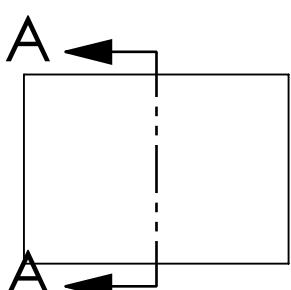
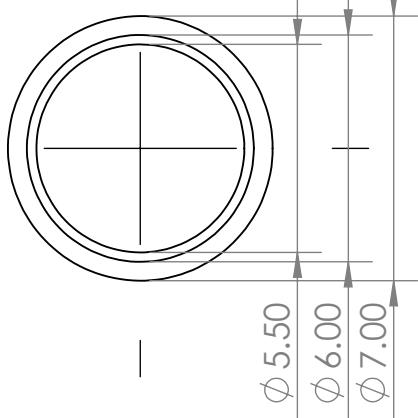
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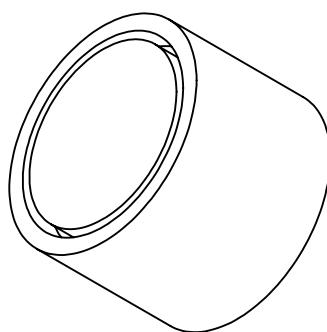
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SECCIÓN A-A



3D PRINTING PARAMETERS

PARAMETER	TYPICAL VALUE	DESCRIPTION
LAYER HEIGHT	0.20 mm	Vertical resolution per layer.
WALL THICKNESS	1.2 mm (\approx 3 walls)	Number of perimeter walls.
INFILL DENSITY	15-35 %	Internal structure fill percentage.
PRINTING SPEED	\sim 60 mm/s (standard)	Linear print speed of nozzle.
NOZZLE TEMPERATURE	210-220 °C (PLA)	Extruder temperature.
BED TEMPERATURE	60 °C (PLA)	Heated bed temperature.
COOLING FAN SPEED	100 %	Improves surface finish and overhangs.
SUPPORTS	Disabled	Optional for overhangs.
ADHESION TYPE	None	No special adhesion; PEI textured plate.

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EVENT

WRO SINGAPORE INTERNATIONAL FINAL

MATERIAL

PLA

TITLE

Stopper

MANUFACTURING TECHNOLOGY

FDM 3D PRINTING



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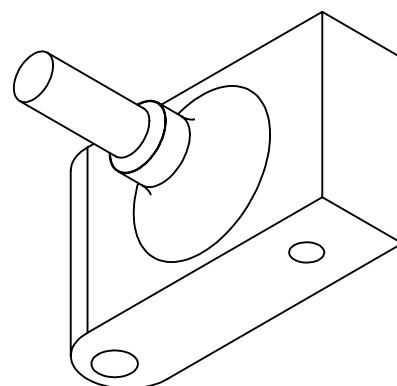
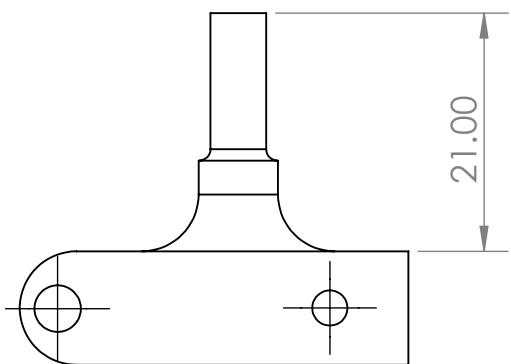
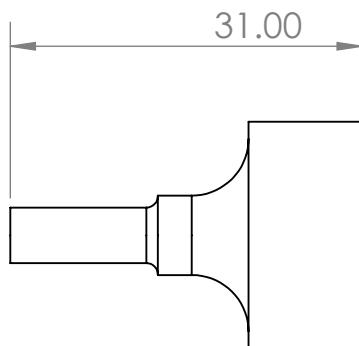
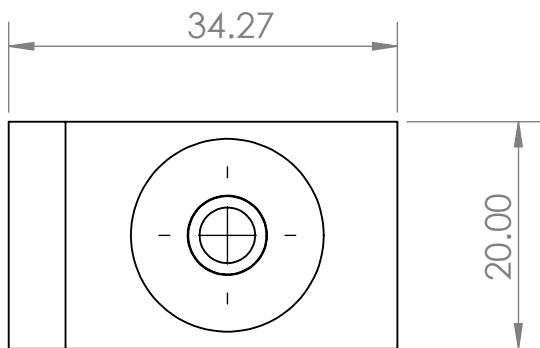
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3D PRINTING PARAMETERS		
PARAMETER	TYPICAL VALUE	DESCRIPTION
LAYER HEIGHT	0.20 mm	Vertical resolution per layer.
WALL THICKNESS	1.2 mm (=3 walls)	Number of perimeter walls.
INFILL DENSITY	15-35 %	Internal structure fill percentage.
PRINTING SPEED	~60 mm/s (standard)	Linear print speed of nozzle.
NOZZLE TEMPERATURE	260 °C (ABS)	Extruder temperature.
BED TEMPERATURE	100 °C (ABS)	Heated bed temperature.
COOLING FAN SPEED	0-10 %	Low cooling to reduce warping; keep chamber warm/closed.
SUPPORTS	Enabled	Use as needed for overhangs/bridges.
ADHESION TYPE	Brim	Improves bed adhesion on PEI textured plate.

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RULOBOT_ASSEMBLY

EVENT
WRO SINGAPORE INTERNATIONAL FINAL

MATERIAL
PLA

TITLE

REV DATE OF ISSUE SHEET
REV1 08/12/2025 1

Drive_Wheel_Support

MANUFACTURING TECHNOLOGY

FDM 3D PRINTING



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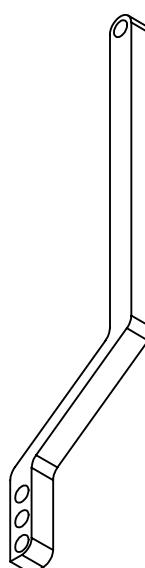
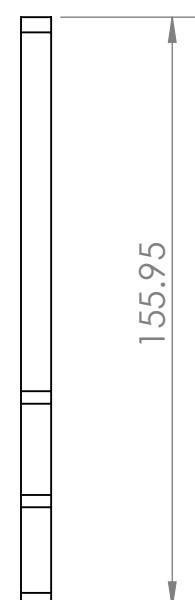
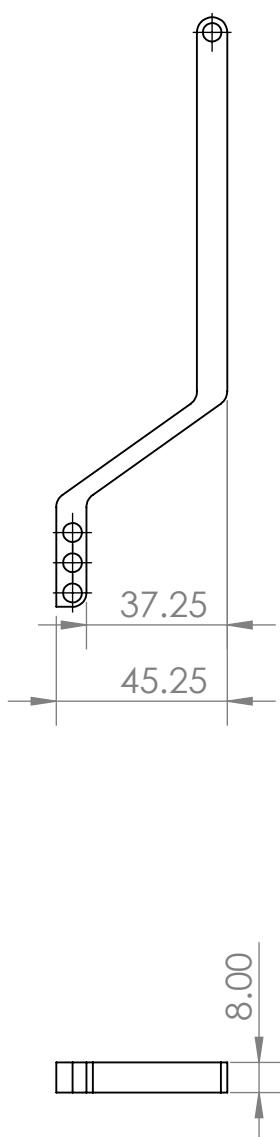
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3D PRINTING PARAMETERS		
PARAMETER	TYPICAL VALUE	DESCRIPTION
LAYER HEIGHT	0.20 mm	Vertical resolution per layer.
WALL THICKNESS	1.2 mm (~3 walls)	Number of perimeter walls.
INFILL DENSITY	15-35 %	Internal structure fill percentage.
PRINTING SPEED	~60 mm/s (standard)	Linear print speed of nozzle.
NOZZLE TEMPERATURE	210-220 °C (PLA)	Extruder temperature.
BED TEMPERATURE	60 °C (PLA)	Heated bed temperature.
COOLING FAN SPEED	100 %	Improves surface finish and overhangs.
SUPPORTS	Disabled	Optional for overhangs.
ADHESION TYPE	None	No special adhesion; PEI textured plate.

CREATED BY

RULOBOT TEAM 08/06/2025

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EVENT

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MATERIAL

PLA

TITLE

RULOBOT_ASSEMBLY

REV

DATE OF ISSUE

SHEET

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08/12/2025

1

Camera_stick

MANUFACTURING TECHNOLOGY

FDM 3D PRINTING



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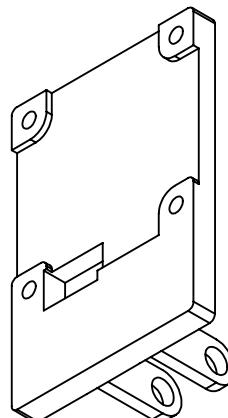
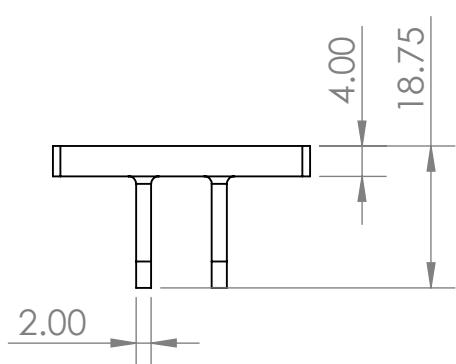
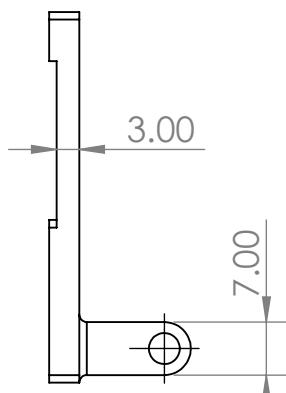
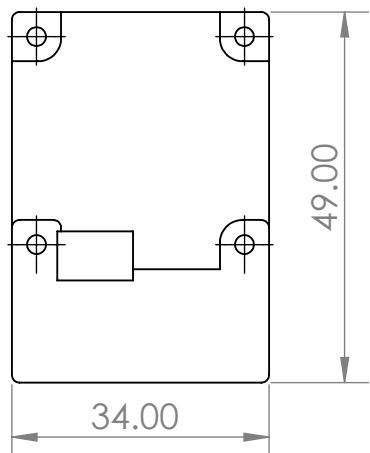
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3D PRINTING PARAMETERS		
PARAMETER	TYPICAL VALUE	DESCRIPTION
LAYER HEIGHT	0.20 mm	Vertical resolution per layer.
WALL THICKNESS	1.2 mm (~3 walls)	Number of perimeter walls.
INFILL DENSITY	15-35 %	Internal structure fill percentage.
PRINTING SPEED	~60 mm/s (standard)	Linear print speed of nozzle.
NOZZLE TEMPERATURE	210-220 °C (PLA)	Extruder temperature.
BED TEMPERATURE	60 °C (PLA)	Heated bed temperature.
COOLING FAN SPEED	100 %	Improves surface finish and overhangs.
SUPPORTS	Enabled	Optional for overhangs.
ADHESION TYPE	None	No special adhesion; PEI textured plate.

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WILMER DE JESÚS REYES 08/12/2025

DOCUMENT NAME
RULOBOT_ASSEMBLY

EVENT
WRO SINGAPORE INTERNATIONAL FINAL

TITLE

MATERIAL

PLA

Camera_Rotating_Mount

REV DATE OF ISSUE SHEET
REV1 08/12/2025 1

MANUFACTURING TECHNOLOGY

FDM 3D PRINTING



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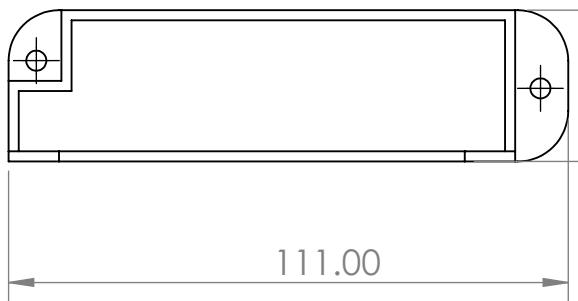
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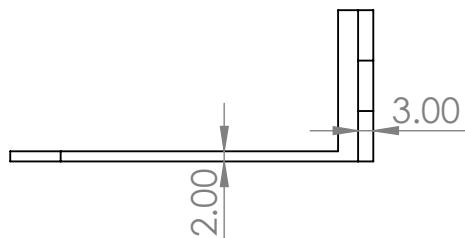
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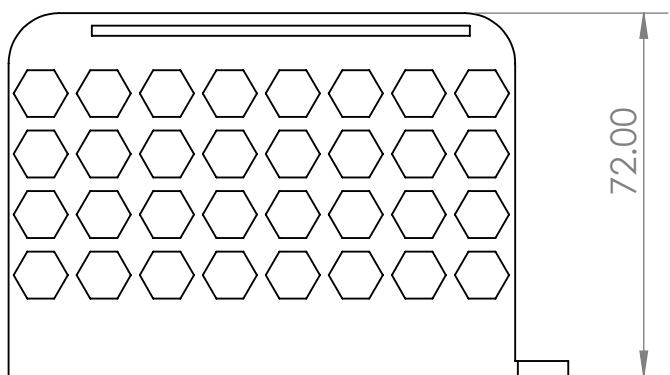
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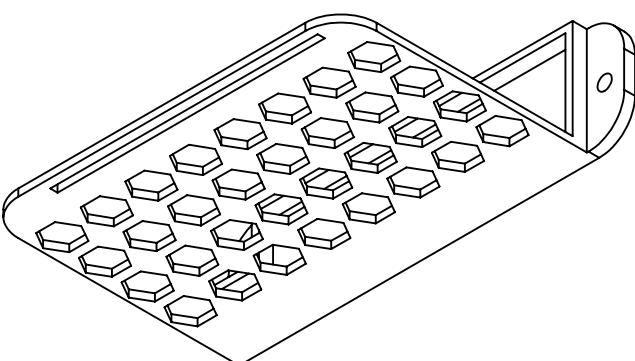


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3D PRINTING PARAMETERS		
PARAMETER	TYPICAL VALUE	DESCRIPTION
LAYER HEIGHT	0.20 mm	Vertical resolution per layer.
WALL THICKNESS	1.2 mm (~3 walls)	Number of perimeter walls.
INFILL DENSITY	15-35 %	Internal structure fill percentage.
PRINTING SPEED	~60 mm/s (standard)	Linear print speed of nozzle.
NOZZLE TEMPERATURE	210-220 °C (PLA)	Extruder temperature.
BED TEMPERATURE	60 °C (PLA)	Heated bed temperature.
COOLING FAN SPEED	100 %	Improves surface finish and overhangs.
SUPPORTS	Enabled	Optional for overhangs.
ADHESION TYPE	None	No special adhesion; PEI textured plate.

CREATED BY
RULOBOT TEAM 08/06/2025APPROVED BY
WILMER DE JESÚS REYES 08/12/2025DOCUMENT NAME
RULOBOT_ASSEMBLYEVENT
WRO SINGAPORE INTERNATIONAL FINAL

TITLE

MATERIAL
PLA

REV

DATE OF ISSUE

SHEET

REV1

08/12/2025

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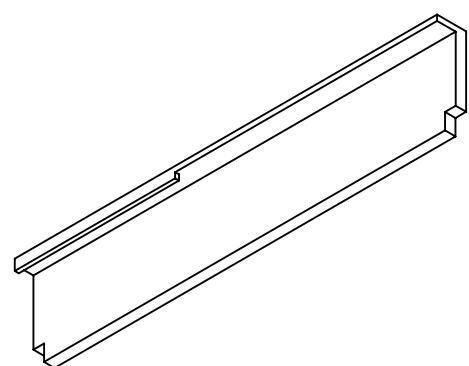
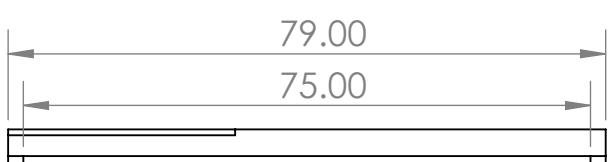
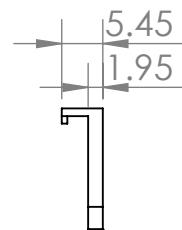
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3D PRINTING PARAMETERS

PARAMETER	TYPICAL VALUE	DESCRIPTION
LAYER HEIGHT	0.20 mm	Vertical resolution per layer.
WALL THICKNESS	1.2 mm (=3 walls)	Number of perimeter walls.
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CREATED BY

RULOBOT TEAM 08/06/2025

APPROVED BY

WILMER DE JESÚS REYES 08/12/2025

EVENT

WRO SINGAPORE INTERNATIONAL FINAL

MATERIAL

PLA

TITLE

Raspberry_Pi_holder

MANUFACTURING TECHNOLOGY

FDM 3D PRINTING



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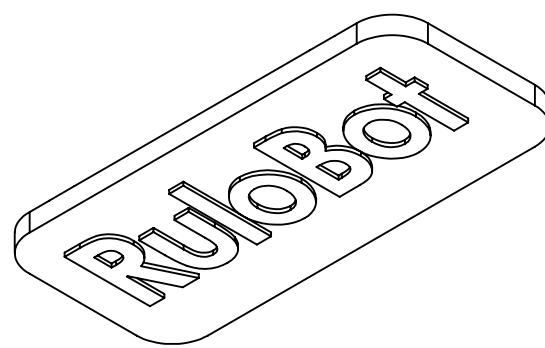
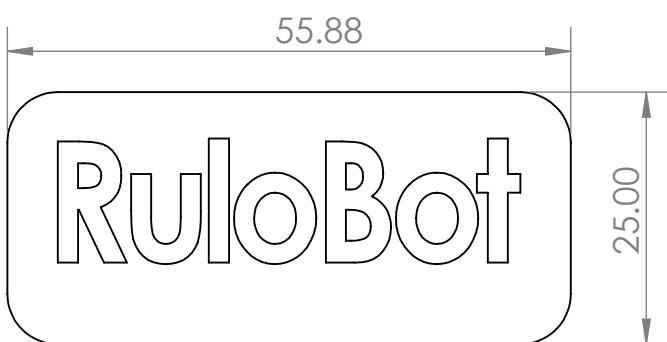
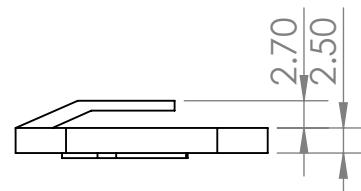
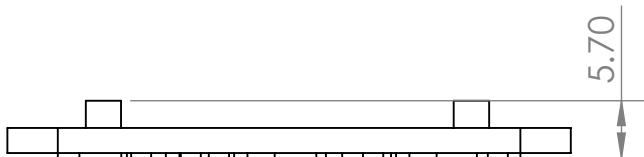
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Label_Plate

3D PRINTING PARAMETERS			CREATED BY		APPROVED BY	
PARAMETER	TYPICAL VALUE	DESCRIPTION	RULOBOT TEAM	08/06/2025	WILMER DE JESÚS REYES	08/12/2025
LAYER HEIGHT	0.20 mm	Vertical resolution per layer.			EVENT	
WALL THICKNESS	1.2 mm (~3 walls)	Number of perimeter walls.			WRO SINGAPORE INTERNATIONAL FINAL	
INFILL DENSITY	15-35 %	Internal structure fill percentage.			MATERIAL	
PRINTING SPEED	~60 mm/s (standard)	Linear print speed of nozzle.			PLA	
NOZZLE TEMPERATURE	210-220 °C (PLA)	Extruder temperature.			REV	DATE OF ISSUE
BED TEMPERATURE	60 °C (PLA)	Heated bed temperature.			REV1	08/12/2025
COOLING FAN SPEED	100 %	Improves surface finish and overhangs.			SHEET	1
SUPPORTS	Disabled	Optional for overhangs.	MANUFACTURING TECHNOLOGY			
ADHESION TYPE	None	No special adhesion; PEI textured plate.	FDM 3D PRINTING			