Prayas Centre Name Pilani Innovation and Entrepreneurship Development Society, BITS Pilani

City Pilani

State RAJASTHAN

Fablab Page Link : www.pieds-bitspilani.org/fablab

Equipment available at PIEDS BITS Pilani DST PRAYAS Shala

Section	Electronic/Prototyping Facility	
Sr. No.	Equipment Name	Equipment detail
1	Dual Extruder 3D printer 1	Brand - Ultimaker Model -S5 Pro Bundle Specification - Build volume 330mm x 240mm x 300mm Assembled dimensions W 495 x D 585 x H 780 mm Print technology Fused Deposition Modeling (FDM) Compatible filament diameter 2.85 mm Weight 29.1 kg (64.2 lbs) Maximum power output 500 W Material Support- ABS,PLA,PETG,NYLON,SUPPORT MATERIAL Multicoolor. Operational area –Product development, Manufacturing, End-use parts, Architecture, Education, Rapid Prototyping Link of the user manual - https://support.makerbot.com/s/article/1667410778241
2	3D Printer 2	Brand - Formlabs Model -Form 4 Specification - Build volume 20.0 × 12.5 × 21.0 cm Assembled dimensions 39.8 × 36.7 × 55.4 cm Print technology Masked Stereolithography (MSLA) Resign Compatible-white v5,black,flexible,clear ,clear cast. Weight 29.1 kg (64.2 lbs) Maximum power output 50/60 Hz 480 W Operational area –Product development, Manufacturing, End-use parts,

		Architecture, Education, Rapid Prototyping. Link of the user manual - https://support.formlabs.com/s/article/Quick-Start-Guide-Form-4?language=en_US
3	3D Scanner	Brand - Shinning 3D Model - Einscan Pro 2X 2020 Specification - Working Distance: 400mm Operational area – AR/VR research, Product Development, Reverse Engineering Link of the user manual - https://www.tomega.lv/wp-content/uploads/2023/05/Shining-3D-Einscan-PRO-2X-2020-Product-info.pdf
4	Laser Cutting	Brand - SIL Model - Accucut 1212 Specification - ● Working Area: 1200x1200mm ● Laser Type: Co2 DC Glass Laser Tube ● Power Option: Glass Tube – 100 Watt Operational area – Product Development, Manufacturing, Product Development Link of the user manual - https://silasers.com/wp-content/uploads/2022/12/Laser-Solutions-for-Media-1.pdf
5	PCB Prototyping: Milling	Brand - Roland Model - Modela MDX50 Specification - Feed rate XY: 0.3in to 141.7 in/min Z: 0.3 to 118.1 in/min. • Spindle rotation speed: 4500 to 15000 rpm • Mechanical resolution: 0.01 mm/sec Operational area – PCB Prototyping, General Milling Link of the user manual - https://downloadcenter.rolanddg.com/contents/manuals/MDX-50_USE_EN_R5.pdf
6	Multi Spectral camera	Brand - Mica Sense Model - Rededge P Specification - Power Input: 5.5 / 7.0 / 10W (standby, average, peak) • Sensor Resolution: 1456 x 1088 (1.6 MP per MS band), 2464 x 2056 (5.1 MP panchromatic band) • Spectral Bands: Blue (475nm ±32nm), Green (560nm ±27nm), Red (668nm ±14nm), Red Edge (717nm ±12nm), NIR (842nm ±57nm) • RGB Color Output: 5.1 MP (global shutter, aligned with all bands) Operational area – Learning Link of the user manual https://support.micasense.com/hc/en-us/articles/4410824602903-RedEdge-P-Integration-Guide
7	AR/VR Kit x2	Brand - HTC Vive Model - Vive Pro 2 Specification - • Dual RGB low persistence LCD • Resolution: 2448 × 2448 pixels per eye (4896 x 2448 pixels combined) • Refresh Rate: 90/120 Hz (only 90Hz supported via VIVE Wireless Adapter)

		• Field of view: Up to 120 degrees (horizontal) Operational area – AR/VR Research, Learning Link of the user manual - https://manuals.coolblue.nl/eb/htc-vive-pro-2-full-kit.pdf
8	Compute Board 1	Brand - NVIDIA Model - Jetson Orin AGX Specification - • AI Performance: 275 TOPS (INT8) • GPU: 2048-core NVIDIA Ampere architecture GPU with 64 Tensor Cores • Max GPU Freq: 1.3 GHz • CPU: 12-core Arm Cortex-A78AE v8.2 64-bit CPU 3MB L2 + 6MB L3 • CPU Max Freq: 2.2 GHz Operational area – Robotics Development, Learning and Machine Learning Link of the user manual https://www.nvidia.com/content/dam/en-zz/Solutions/gtcf21/jetson-orin/nvidia-jetson-agx-orin-technical-brief.pdf
9	Compute Board 2	Brand - NVIDIA Model - Jetson NX Specification - • AI Performance: 21 TOPS • GPU: 384-core NVIDIA VoltaTM GPU with 48 Tensor Cores • CPU: 6-core NVIDIA Carmel ARM®v8.2 64-bit CPU • 6MB L2 + 4MB L3 • Memory: 8 GB 128-bit LPDDR4x 51.2GB/s • Storage: 16 GB eMMC 5.1 • Power: 10 W|15 W Operational area – Robotics Development, Learning and Machine Learning Link of the user manual https://developer.download.nvidia.com/assets/embedded/secure/tools/files/jetpack-sdks/jetpack-4.4-ga/Jetson_Xavier_NX_Developer_Kit_User_Guide.pdf?__token__=exp=1758707979~hmac=9bbd1766fff51b3a243516dd810d9723ff8085be2d94a761458543a424c5fdf9&t=eyJscyI6ImdzZW8iLCJsc2QiOiJodHRwczovL3d3dy5nb29nbGUuY29tLyJ9
10	Microcontroller 1	Brand - Beagle Bone Model - Beagle Bone AI Board Specification - • Dual Arm® Cortex®-A15 microprocessor subsystem • 2 C66x floating-point VLIW DSPs • 2.5MB of on-chip L3 RAM • 2x dual Arm® Cortex®-M4 co-processors • 4x Embedded Vision Engines (EVEs) • 2x dual-core Programmable Real-Time Unit and Industrial Communication SubSystem (PRU-ICSS) • 2D-graphics accelerator (BB2D) subsystem Operational area – Robotics Development, Learning and Machine Learning Link of the user manual https://docs.beagleboard.org/beaglebone-ai.pdf
11	Microcontroller 2	Brand - Beagle Bone Model - Rev 3 Specification -

		• Processor: AM335x 1GHz ARM Cortex-A8 • SDRAM Memory: 512MB DDR3 RAM • Onboard Flash: 4GB 8-bit eMMC on-board flash storage Operational area – Robotics Development, Learning, IoT Development Link of the user manual https://docs.beagleboard.org/beaglebone-black.pdf
12	Microcontroller 3	Brand - STMicroelectronics Model - IOT discovery kit Specification - • Processor: AM335x 1GHz ARM Cortex-A8 • SDRAM Memory: 512MB DDR3 RAM • Onboard Flash: 4GB 8-bit eMMC on-board flash storage Operational area – Robotics Development, Learning, IoT Development Link of the user manual https://www.st.com/resource/en/user_manual/um2839-discovery-kit-for-iot-node-with-stm32u5-series-stmicroelectronics.pdf
14	IoT Builder Kit 1	Brand - Raspberry Model - Raspberry PI IOT Builder kit Specification - Operational area - Robotics Development, Learning, IoT Development Link of the user manual
15	IoT Builder Kit 2	Brand - Arduino Model - Arduino Opla IOT Kit Specification - Operational area - Robotics Development, Learning, IoT Development Link of the user manual https://docs.arduino.cc/tutorials/mkr-iot-carrier/mkr-iot-carrier-01-technical-reference/
16	IoT Builder Kit 3	Brand - Microsoft Model - Microsoft IOT Grove kit Specification - Operational area - Robotics Development, Learning, IoT Development Link of the user manual https://mm.digikey.com/Volume0/opasdata/d220001/medias/docus/958/110060482_Web.pdf
17	IoT Builder Kit 5	Brand - STMicroelectronics Model - MKSBOX1V1 Specification - Operational area - Robotics Development, Learning, IoT Development Link of the user manual - https://www.st.com/resource/en/data_brief/steval-mksbox1v1.pdf
18	Iot Prototyping Kit	Brand - NXP Model - Rapid Iot Prototyping Kit Specification - • Wireless Connectivity Multiprotocol MCUs KW41Z: Kinetis® KW41Z-2.4 GHz Dual Mode: Bluetooth® Low Energy and 802.15.4 Wireless Radio Microcontroller (MCU) based on Arm® Cortex®-M0+ Core • Sensors: Barometric Pressure 15 to 150 kPa MPL3115A2: Absolute Digital Pressure Sensor (20 to 110 kPa) • Accelerometers: FXOS8700CQ: Digital Motion Sensor - 3D Accelerometer (±2g/±4g/±8g) + 3D Magnetometer Operational area - Robotics Development, Learning, IoT Development

		Link of the user manual - https://www.nxp.com/webapp/Download?colCode=SLN-RPK-NODE-SDK-API-RM
19	Multisensor Kit	Brand - STMicroelectronics Model - STEVAL-BFA001V2B Specification - • Kit content: Sensor node • Communication adapter board • STLINK-V3MINI programming and debugging interface • Cables and connector Operational area - FPGA Development, Learning and Educational, IoT Development Link of the user manual https://www.st.com/resource/en/user_manual/um2566-getting-started-with-the-stm32cube-function-pack-for-multisensor-nodes-with-signal-processing-to-enable-predictive-maintenance-stmicroelectronics.pdf
20	FPGA Board 1	Brand - AMD Model - Xllinx Zynq Ultra scale : KCU105-G Specification - • Dual 256Mb quad serial peripheral interface flash memory (dual, quad, SPI) • 20 GTH transceivers (five quads), PCI express endpoint connectivity, two SFP+ connectors • Ethernet PHY SGMII interface with RJ45 connector, dual USB to UART bridge with micro-B USB connector • HDMI codec with HDMI connector, I2C bus, status LEDs, user I/O, power on/off slide switch SW1 Operational area - FPGA Development, Learning and Educational Link of the user manual https://www.xilinx.com/support/documents/boards_and_kits/kcu105/ug917-kcu105-eval-bd.pdf
21	FPGA Board 2	Brand - AMD Model - KRIA KV 260 FPGA Specification - • Vision Ready: Multi-camera Support: Up to 8 interfaces • 3 MIPI sensor interfaces, USB cameras • Built-in ISP component (OnSemi) • HDMI, DisplayPort outputs • Flexible Connectivity: 1 Gb Ethernet Operational area - FPGA Development, Learning and Educational Link of the user manual https://docs.amd.com/r/en-US/ug1089-kv260-starter-kit
22	Microcontroller 5	Brand - Raspberry Model - RPI PI PICO Specification - Operational area - Robotics Development, Learning, IoT Development Link of the user manual https://datasheets.raspberrypi.com/pico/getting-started-with-pico.pdf
23	Microcontroller 6	Brand - Arduino Model - Arduino Mega 2560 Specification - Operational area - Robotics Development, Learning, IoT Development Link of the user manual

		https://docs.arduino.cc/resources/datasheets/A000067-datasheet.pdf
24	ESD Workstation	Brand - Alkon Model - AWS 12060SP Specification - Operational area - General Electronics Link of the user manual
25	Soldering/Rework Station	Brand - Weller Model - WXD2020 Specification - • Channels: 2 • Mains voltage: 230 V, 50 Hz • Power consumption: 200 W Operational area - General Electronics Link of the user manual https://www.weller-tools.com/sites/default/files/products/documents/WEL_WX_Units_Manual.pdf
26	Spot welding	Brand - Semco Model - HWN 738AL Specification - • Welding Thickness Range: 0.05 to 0.3 mm • Power: 3.6 kW Operational area - Link of the user manual: https://5.imimg.com/data5/SELLER/Doc/2022/7/DM/CA/WG/44644363/lithium-ion-spot-welding-machine.pdf

Section	Metalworking Facility	
Sr. No.	Equipment Name	Equipment detail
1	Portable Welding Machine	Brand - Ador Model - Champ Arc 201 Specification - • Supply Voltage, Phase, Frequency: 240 V +10 %, -15 %, 1 Phase, 50 / 60 Hz • Welding Current Range: 15 – 200 Amps Dc Operational area - Link of the user manual- https://www.adorwelding.com/wp-content/uploads/2023/09/Ador-AI-Leaflets_CHAMP-ARC-201.pdf

Section	Power Tool	
Sr. No.	Equipment Name	Equipment detail
1	Rotary Tool Kit	Brand -Dremel Model -4000-6/50 Specification -Amperage: 1.6 • Cord Length (ft.): 6 • Speed: 5,000 to 35,000 RPM Operational area –Finishing, Roughing ,Surfacing Link of the user manual - https://www.farnell.com/datasheets/3098172.pdf

2	Hand Drill MachineX2	Brand - Bosch Model -GSB 600 RE KIT Specification -Rated input power: 750W • No-load speed: 0-3250 rpm Operational area –Finishing, Roughing ,Surfacing, Hammering. Link of the user manual -
3	Cordless DrillX2	Brand - Bosch Model -GSB180 Li Specification • No-load speed (1st gear / 2nd gear): 0 – 500 / 0 – 1,900 rpm • Battery voltage: 18.0 V • Max. impact rate: 27,000 bpm • Chuck capacity, min./max: 1.5 / 13 mm Operational area- –Finishing, Roughing ,Surfacing, Hammering, cutting. Link of the user manual -https://manuals.plus/bosch/180-li-cordless-drill-driver-manual
4	Jig saw	Brand - Bosch Model -GST 680 Specification -● Rated input power: 450 W ● Stroke rate at no load: 800-3100 spm Operational area- –Finishing, Roughing ,Surfacing, Hammering,cutting Link of the user manual - https://www.scribd.com/document/294451865/Bosch-pst-680E-user-manual
5	Hot Air Gun	Brand - Bosch Model -GHG 180 Specification ● Rated input power: 1800 W ● Working temperature: 60 – 550 °C ● Heat-up time: 1 Sec Operational area- –General Purpose.Heating. Link of the user manual -https://media.vn.bosch-pt.com/binary/ocsmedia/optimized/full/o372109v21_160992A739_202110.pdf
6	Table saw	Brand - Bosch Model -GTS 254 Specification • Rated input power: 1800W. • Saw blade diameter: 254 mm • Table size: 555 x 555 mm Operational area- –General Purpose.cutting. Link of the user manual -
7	Blower	Brand - Bosch Model -GBL 620 Specification ● Maximum Rotational Speed: 1500 RPM ● Voltage: 12 Volts Operational area- –General Purpose.Heating. Link of the user manual -
8	Cordless Screwdriver	Brand - Bosch Model -GSR 120 Li Specification ● Maximum Rotational Speed: 1500 RPM ● Voltage: 12 Volts

		Operational area- –General Purpose,drilling, boring, screw.
		Link of the user manual -
9	Vacuum Cleaner	Brand - Bosch Model -GAS 15 PS Specification ● Container volume, net: 10 l ● Container volume, gross: 15 l ● Max. airflow rate (turbine): 53 l/sec ● Max. vacuum pressure (turbine): 270 m bar Operational area- –Cleaning. Link of the user manual
10	Random Orbit Sander	Brand - Bosch Model -GEX 125 Specification ● Rated input power: 250W ● Sanding pad diameter: 125 mm ● Oscillating circuit diameter: 2.5 mm Operational area- Sanding, surfacing Link of the user manual
11	Cordless Vacuum Cleaner with starter kit	Brand - Bosch Model -GAS 18 V Li Specification ● Battery voltage: 18.0 V ● Filter surface area: 55 cm2 ● Max. airflow rate (turbine): 10 l/s Operational area- Cleaning. Link of the user manual
12	Hot Glue Gun	Brand - Stanley Model- 6-GR20 Specification-N/A Operational area- Adhesion. Link of the user manual - https://www.stanley.eu/uploads/emg_master/SEA/catalog/stanley-one-tool-company-catalogue-s.pdf
13	Drill bit set	Brand -BOSCH Model-2 608 587 018 Specification-N/A Operational area - Drilling,Boring,Cutting Link of the user manual

Section	Supply & measuring equipment	
Sr. No.	Equipment Name	Equipment detail
1	Spectrum analyser	Brand - GW Instek Model - GSP- 8380TG Specification - • Frequency Range: 9kHz ~ 3.8GHz • RBW: 1Hz ~ 1MHz in 1-3-5-10 steps • VBW: 10Hz ~ 3MHz in 1-3-5-10 steps • Sensitivity: -160dBm/Hz Typical @PreAmp On Operational area - Link of the user manual - https://www.gwinstek.com/en-global/products/downloadSeriesDownNew/23750/2372
2	Digital Oscilloscope	Brand - Rigol Model - DS1074Z-S-Plus Specification - • Bandwidth: 70 MHz. • 4 analog + 16 digital channels. • Real-time sample rate: up to 1 GSa/s. • Memory depth: 12 Mpts. Operational area - Link of the user manual - https://www.manualpdf.in/rigol/ds1074z-s-plus/manual
3	IC Tester	Brand - Metravi Model - DICT-2040 Specification - • Auxiliary Power Supply: 220V AC 50Hz • 40 Pin capability Operational area - Link of the user manual https://metravi.com/wp-content/uploads/2020/08/Metravi-DICT-2040-Digital-IC-Tester-Catalogue.pdf

Section	Hand tools		
Sr. No.	Equipment Name	Sr. No.	Equipment Name
1	Bosch Hand Tool Kit	9	Stanley-16pcs screwdriver set
2	Stanley C-Clamp	10	Stanley- 6pcs precision screwdriver set
3	Stanley -Snap Off Knife	11	Stanley- Max steel snip cutter
4	Stanley-PVC Pipe cutter	12	Stanley-Hot Glue Gun
5	Black Decker-Tool Kit 126peices	13	Black Decker-Small file set
6	John Bhandari-Big file set	14	Stanley-Chisel set
7	Stanley-Punch set	15	Jet-Bench wise
8	Jet-Baby wise		

Section	Measuring Instruments
Sr. No.	Equipment Name
1	Digital Multimeter Fluke 15B+ MAX
2	Digital Ammeter Fluke 325
3	Digital Vernier Caliper Insize
4	Micrometer Insize

5	Steel Rule 300mm Insize	
6	Steel Rule 600mm Insize	
7	Degree Protector Insize	
8	Inside Caliper Insize	
9	Outside caliper Insize	
10	Engineering square Insize	
11	Meter Tape 30m	
12	Measuring Tape 3M Stanley	
13	Measuring Tape 5M Stanley	
14	Spirit level Stanley	