DST Project Infrastructure/ Facility

Government of India
Ministry of Science and Technology
Department of Science and Technology

Science for Equity Empowerment and Development (SEED) Division

"SCIENCE TECHNOLOGY AND INNOVATIONS (STI) HUBS FOR DEVELOPMENT OF SCHEDULED CASTE (SC) AND SCHEDULED TRIBE COMMUNITIES (ST)"

Project Title: "Innovative ICT Enabled Co-Working Community Center Design for Rural Development".

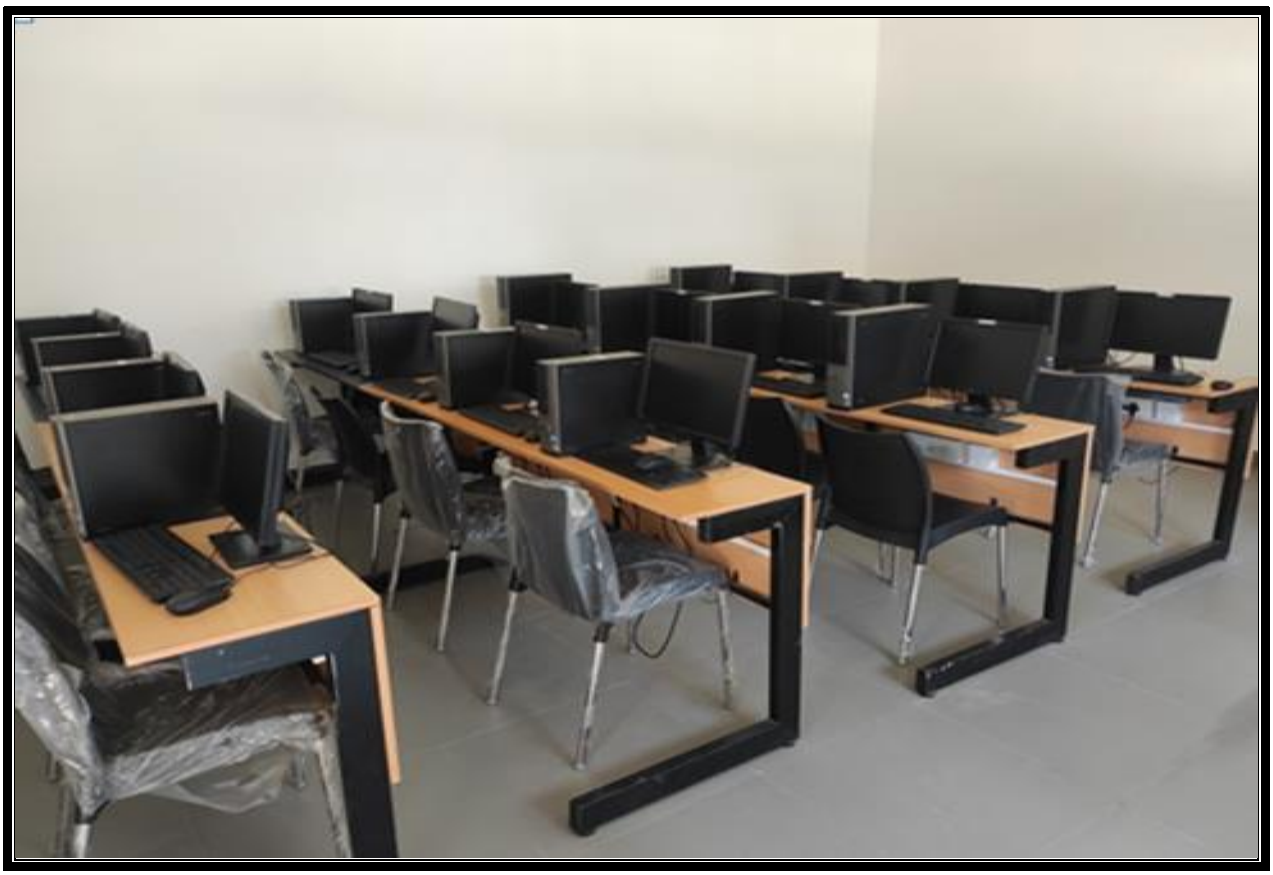
List of Equipment's

Sewing Machines		
SI No.	**Material Name**	**Ordered Quantity**
1	JUKI Industrial Sewing Machine (DDL8100E)	5
2	JUKI Household Sewing Machine(HZL 353ZR-A)	25
3	JUKI Button stitch Mechanical Machine	1
4	Silver Star Iron Box (ES 300)	4
IOT kits		
1	myDAQ Hardware – 10 units bundle	01
2	Analog Discovery 2 - 5 units bundle (Muko:Go)	01
3	Scope Probes - Accessory	01
4	BNC Adapter - Accessory for Analog Discovery - 5 units bundle	01
5	Power Supply - Analog Discovery Accessory - 5 units bundle	01
6	ELVIS III, Hardware Only, International	02
7	ELVIS III Cables and Probes	03
8	myRIO-1900 hardware: Incl WIFI & MSP Connect- 10 units bundle	01
9	Stratom CAN Adapter for myRIO	01
10	Stratom X-HUB Adapter for myRIO	01
11	Starter Addon kit	01
12	Mechatronics Addon kit	01
13	Embedded Addon kit	01
14	Comm Sys Teaching Bundle, 2x USRP-2900, Cables, Courseware	01
15	Antennas: Vert400 Vertical Antenna (144 MHz, 400 MHz, 1200 MHz) Triband	04
16	Breadboard, connectors and wires	01
17	IoT Based Advanced Device Control	4
18	IoT Based Building Management Suite	1
	CNC Machines	
1	1390 CNC Laser Cutting Machine 100W	01
2	PCB Milling Machine (Drilling and Router)	01
3	DEBOT Make Mooz – 2 plus (3D + Laser + CNC)	01
	Service kits	
1	DEWALT DCD996P2 18V 13mm Premium Cardless Hammer Drill Machine Driver with Brushless Motor with XR Li-ion 2X5.0 Ah Battery	01
2	DEWALT DW871 2200 watt 355mm (14inch) Corded Electric Heavy Duty Chop Saw With Wheel	01
3	Bosch GSB 500 W 500RE Corded – Electric Drill Tool Set (Blue), 10mm	01
4	Bench Vise – Stanley Light Duty Bench Vise	02
5	Portable Plasma Cutter	01
6	Flir Thermal Cameras TG 165 Model	02

Community Center

Through this project we will provide a technology enabled community space which is accessible to the locals of the region. This facility that we intend to create will be internet enabled 24*7 and access cards will be issued to the targeted beneficiaries. This technology enabled community center will ensure sustainable **rural livelihood promotion** in tune to the particular societal requirements – room for cold storage, community-based skill development through online / offline mentoring, room for developing prototypes – translation of **idea to products**. Thus, the Community center will be a facility for the villagers to become **technologically self-sufficient** and solve the local problems using the tools available in the **Maker's Space**.

Computer Skill development Training Center



Learning modules:

- **Phase-1**

Started with Basics of computer and Operating computer using GUI based operating system. Like: What is computer, input and output device, Hardware and software, connecting keyboard, mouse, monitor and printer. Followed by about OS, viewing files, folder, creating and renaming etc,.

- **Phase 2**

In this phase continues with usage of M.S. Office like M.S. Word, M.S. Excel, M.S. Power point, Opening and closing document, Text correction, spell check and printing. The beneficiaries improved day by day in the computer skills development program.

- **Phase-3**

In third week of training beneficiaries learnt about using of spreadsheet like Basic of spreadsheet, manipulation of cells, formulas and functions, editing of spreadsheet.

- **Phase-4**

In this phase the basics of computer network, concept of internet, connecting to internet and search engines and the part of communications and collaboration like Getting an email account, sending-receiving email and documentation were trained to the beneficiaries. Also for presentation in Power point and presenting their training summary.

Advance Sewing Machine Training Center

Learning modules:

- **Phase 1**

All beneficiaries very enthusiastically participated in the training program.

Machine Operations like:

- How to use / handle carefully the sewing machine
- Different parts of machine and their functions.
- Proper maintenance and Oiling
- Stitching Techniques

- **Phase 2**

The beneficiaries started using machines by practicing different stitching techniques.

- Dress Measurements
- Calculations and Drafting Patterns
- Method to Fold the Fabric for Patterns
- Terms used in Tailoring.

- **Phase 3**

Beneficiaries stitched different types:

- Salwar kameez (Chudidhar)
- Gents/ Ladies Shirt
- Uniform

Household Sewing Machine

Specifications:

Model No *:* Juki HZL-353ZR-A **Qty: 25**

1. The Juki HZL-355ZW-A compact mechanical sewing machine will become your indispensable assistant. This simple & easy to use machine adjusts to your work and the nature of the material, its boasts a powerful motor that allows you to sew at 750 stitches per minute and work with heavy fabrics.
2. Juki HZL-355 ZW-A has a set of 26 Built-In Sewing Patterns and an Automatic One Step Buttonhole function. The HZL-355ZW-A is also equipped with a LED backlight that illuminates the work area and reduced eye fatigue.

Additional Features

Free Arm Sewing

The auxiliary bed slides off for the free arm sewing of collars, cuffs and other awkward sewing jobs. Also standard accessory parts can be neatly stored in the Auxiliary Box.

Drop Feed

You can lower the feed dog for sewing buttons or free-motion quilting by simply moving the lever.

White LED Light

Brightens the needle entry area. The LED Light will not heat up even during long operations.

Industrial Sewing Machine

Specifications:

Model No : **JUKI DDL8100E** Qty: 5

- Application: Medium-weight
- Max. sewing speed: 5,500 Stitches per Minute
- Lift of the presser foot by hand: 5.5mm
- Needle (at the time of delivery): DB×1 (#14) #9~#18 / 134 (Nm90)
- Lubrication: Automatic, Weight of the machine head: 28kg
- Lubricating oil: JUKI New Defrix Oil No.1 (equivalent to ISO VG7

- Max. stitch length: 5mm
- Needle bar stroke: 30.7mm
- Lift of the presser foot: 13mm
- Feed dog: 4-row (3-row)
- Hook: Automatic-lubricating full-rotary hook

Additional Features

Outstanding responsiveness to the materials being sewn

By thoroughly investigating and modifying the sewing mechanisms in order to achieve low-tension sewing, this Juki DDL-8700 industrial sewing machine flexibly responds to various kinds of materials and produces beautiful seams of consistent quality.

Easy to mantain

Enhanced maintainability is ensured by the improved machine head, such as incorporation of an eccentric pin that is used to adjust the feed dog. In addition, the machine is provided with a mounting seat for attachment to improve workability while replacing the attachment and increasing the durability of the machine bed surface.

Easy to operate

By providing a presser foot with a higher lift (13mm), a light-touch stitch dial, a throat plate with marker grooves that can be used as guide for seam allowance, and other easy-to-operate functions, the burden on the operator is lightened, and productivity is further increased.

Button stitch Mechanical Machine

Specifications:

Model No :	JUKI Botton Stitch Mechanical machine **Qty: 1**
Max. Sewing Speed	1,500 Stitches per Minute
Number of Stitches	8, 16 and 32 stitches
Needle	TQx1 (#16) #14~20
Feed Length (crosswise feed)	2.5~6.5mm
Feed Length (lengthwise feed)	0~6.5mm
Applicable Button :	Round-shaped Flat Button (2-holed, 4-holed) Shank button, Wrapped-around button, Snap, Label, Metal Button, Stay Button (exclusive attachments have to be used)
Button Size	ø10~28mm
Thickness of Button	.1.8~3.5mm (options max. 5mm)
Needle Bar Stroke	48.6mm
Lift of the Presser Foot	9mm
Lubrication	By an Oiler
Lubricating oil	JUKI New Defrix Oil No.1 (equivalent to ISO VG7)
Weight of the machine head	24kg

Additional Feature

SPEEDY SEWING

The machine sews buttons with an optimum number of stitches; 8, 16 or 32, according to the sewing conditions.

THREAD-FRAY-PREVENTION ON/OFF CHANGEOVER MECHANISM

The machine is provided as standard with a "thread-fray-prevention On/Off changeover mechanism to help produce beautiful seams with added durability.

CNC Laser Cutting Machine

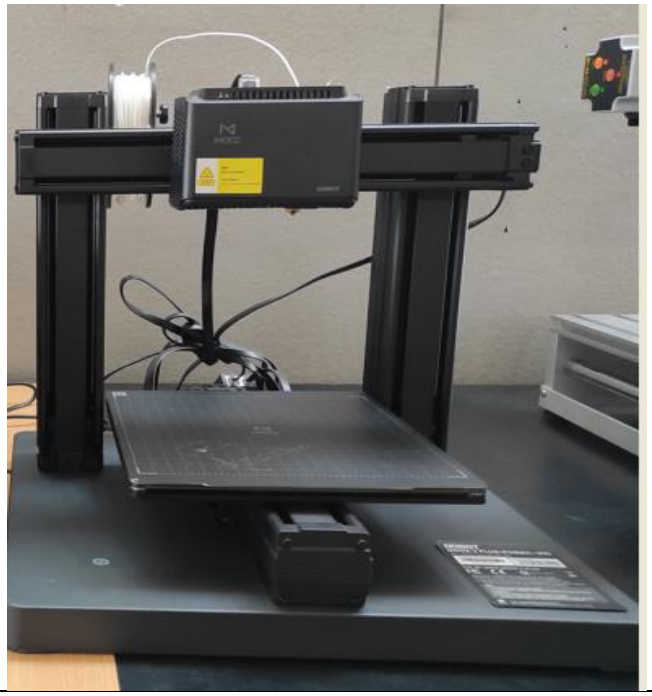
Specifications:

Model No :	**ZY1390-100W Qty: *1***
Working table/Area	Blade Working Table+ Honey comb Table/1300*900mm
Laser head/ Interface	Single Laser Head/ DSP offline(with USB,TC/IP)
Laser tube & type	Reci W2 90-100W & CO2 Sealed Laser Tube,10.6μm
Cooling mode/ temperature	Water cooling and Protection System /0-45°C
Control main board/ software	Ruida 6442S/ Ruida Laser work V8
Focus lens & Reflecting mirror	Φ20mm f=63.5mm(option 50.8mm) Φ 25mm
X&Y axis guide/ trimming belt/motor &driver	CSK Linear Guide way/ Fulo belt / Lead shine stepping motor and driver
Water chiller/ Air regulator	S&A Industrial chiller CW5200 / Air compressor
Operating voltage / Exhaust fan	AC110V±10% 50HZ/550W blower
Min character/ Machine weight:	Chinese 3*3mm / English 1*1mm / 300kg
File format supported/ Operating humidity	BMP,HPGL,PLT,DST,DXF,NC & AI ETC / 5%-95%
Compatible software/Cutting speed	CorelDraw/AutoCAD/Photoshop/0-25000mm/min
Resetting accuracy/ Gross power	±0.05mm / <2000W
Optional accessories	Rotary attachment, Air filter, Red Dot Design, CCD

Additional Feature

- INDUSTRIAL CO2 LASER: Whether professional engraver or inspired DIYer, this 100W laser engraver and cutter will allow you to bring your ideas to life with greater speed and precision, cutting up to 2/5" through plywood or acrylic; the advanced features of its intuitive Ruida control panel and bundled Windows-compatible editions of RD Works v8 and Corel Laser will let you create and recreate even your most intricate designs perfectly
- SAFE & EASY OPERATION: A digital laser power supply provides sure and easily monitored operation for your DC tube's expected 8000 hour life; password & key protection prevents unauthorized use; the wide viewing cover includes tinted eye protection with an interlock that automatically cuts power when opened; a built-in air assist quickly blows away smoke, dust, and sparks to protect your laser lenses and reflective mirrors; and a large capacity bin collects any debris as you work
- FAST & FULLY ADJUSTABLE: This CO2 laser system plywood or acrylic at up to 23.6 inches per second (600 mm/s) with pinpoint accuracy; its Ruida panel works with most third-party graphic software, easily receiving files via Ethernet or USB; and locking caster wheels allow you to easily move and secure your laser cutter whenever needed

DEBOT Printer (3D + Laser + CNC)



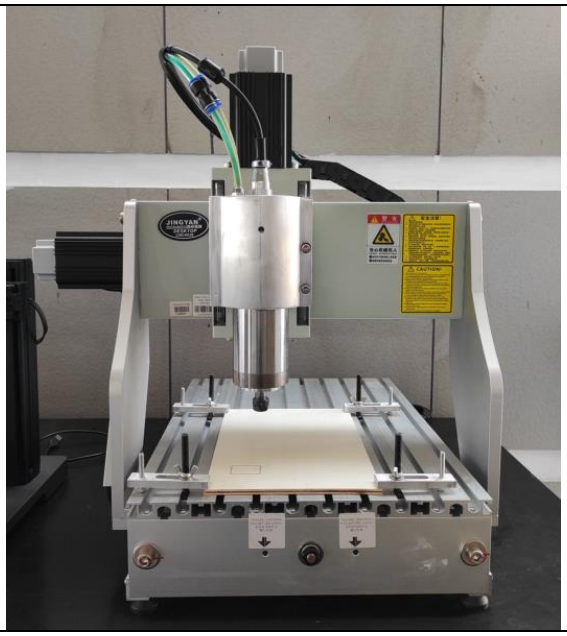
Specifications:

Model No :	DEBOT Make Mooz – 2 plus (3D + Laser + CNC) **Qty: 1**
Type	DIY
Engraving Accuracy	0.02mm
Frame material	Aluminum
Nozzle quantity	Single
Nozzle diameter	0.4mm
Nozzle temperature	Room temperature to 260 degree
Layer thickness	0.05-0.3mm
Print speed	10 - 80mm/s
Supporting material	ABS,PC,PLA
Material diameter	1.75mm
Language	English
Voltage	110-240V

Additional Feature

- Dual-Z Axis version, more stable, precise printing
- Support CNC and laser engraving
- Support online and offline printing
- LCD touch screen, operation clearer and convenient
- The LCD touchscreen support display coordinates of current X, Y, Z-axis, and the execution progress of the current file
- It can show the current CNC spindle speed, the more display wait for you to discover
- Support most of the universal 3D printing software, Cura 14.07, Repetier-Host, etc.
- With the controller panel, movable touch screen, easy to use controller, start creating by one click
- Laser power: 0.5W

CNC - PCB Milling Machine (Drilling and Router)



Specifications:

Model No :	PCB Milling Machine (Drilling and Router) **Qty: 1**
Brand Name	JINGYAN
Positioning accuracy	0.05mm
Power supply	Input 220V-240VAC(50/60Hz) or 100-120VAC
Voltage / Weight (KG)	220/ 45kg Including Package
Carving Code	G code/.nc/.ncc/.tab/,txt
System requirements	WIN-XP or WIN-7/8/10 (32) operating system
No. of Spindles / Revolution Speed	Single / 0-24000rpm/min
Communication Interface	Parallel Port(Nach3 Control)
Feed rate	3500mm/min
Collect type	ER11(equipped with 3.175 and 6mm collect)
Acceptable material thickness	<= 100mm
Driving core	XYZ:TBI 1605 ball screws
Sliding core	XYZ: Diameter 16*16*12mm
Limit switch	XYZ: 2limt switch per axis
Max. working stroke	XYZ=200*300*100mm
Frame material	6061 aluminum aloy

Additional Feature

The 3020-800W CNC engraving machines make it fast and easy to engrave or scribe a wide variety of materials. Spindle speed can be varied between 0 to 24000 rpm for engraving a wide variety of materials, including wood, urethane foam, plastic, acrylic, and light materials such as brass and aluminum

IoT kits

myDAQ Hardware:

Specification:

Number of channels	2 differential or 1 stereo audio input
ADC resolution	16 bits
Maximum sampling rate	200 kS/s
Timing accuracy	100 ppm of sample rate
Timing resolution	10 ns Range
Analog input	±10 V, ±2 V, DC-coupled/ DC to 400 kHz/ Screw terminals``
Audio input	±2 V, AC-coupled Passband (-3 dB)/3.5 mm stereo jack
Audio input	1.5 Hz to 400 kHz Connector type
Input type (audio input)	Line-in or microphone
Microphone excitation (audio input)	5.25 V through 10 k

myDAQ Student Data Acquisition Devices feature eight commonly used plug-and-play computer-based lab instruments based on Lab-VIEW, including a digital multimeter (DMM), oscilloscope, and function generator. Students can access all the ready-to-run software instruments to perform experiments and exercises with the Bode analyzer, arbitrary waveform generator, dynamic signal analyzer (fast Fourier transform), digital input, and digital output. These affordable devices allow for real engineering and, when combined with Lab-VIEW and NI Multisim software, give students the power to prototype systems and analyze circuits outside traditional lectures and labs

myRIO-1900 hardware

The myRIO-1900 provides analog input (AI), analog output (AO), digital input and output (DIO), audio, and power output in a compact embedded device. The myRIO-1900 connects to a host computer over USB and wireless 802.11b,g,n.

The myRIO-1900 is a tool you can use to teach and implement multiple design concepts with one reconfigurable I/O (RIO) device. Featuring I/O on both sides of the device in the form of MXP and MSP connectors, it includes 10 analog inputs, six analog outputs, 40 digital I/O lines, WiFi, LEDs, a push button, an onboard accelerometer, a Xilinx FPGA, and a dual-core ARM Cortex-A9 processor. You can program the myRIO-1900 with Lab-VIEW or C. This WiFi-enabled version allows for fast and easy integration into remote embedded applications. With its onboard devices, seamless software experience, and library of courseware and tutorials, the myRIO-1900 provides an affordable tool that helps students and educators complete real engineering projects in one semester

ELVIS III, Hardware

Engineering Laboratory Virtual Instrumentation Suite

(ELVIS) III is an engineering laboratory device developed for project-based learning that combines instrumentation and embedded design with a web-driven experience to create an active learning environment in the lab and studio and flipped classrooms, delivering a greater understanding of engineering fundamentals and system design.

ELVIS III addresses engineering curriculum by integrating project-based learning, teamwork, and design with course-specific application boards and labs developed by experts from education and industry.

ELVIS III enables educators to scale to future multidisciplinary applications, driving student employability.

Moku:Go

Moku:Go combines a compact hardware design with intuitive software to provide test essentials and tools for complex applications — all in a single device. From audio and power electronics to analog and digital design, use Moku:Go to explore and test concepts with flexibility and ease.

With seamless access to 10+ instruments, from an Oscilloscope to a PID Controller, Moku:Go has the right equipment for your application. The easy-to-use GUI for Windows and macOS helps simplify design, debug, and data collection. Tackle more advanced applications with the ability to implement custom FPGA code, API support, and specialized instruments like the Lock-in Amplifier and Laser Lock Box, previously unavailable in this device class.

With Moku:Go, no need to compromise between number of benchtop instruments and number of capabilities. Moku:Go provides the right tool for the job at a fraction of the cost. If you're a validation or test engineer, you can use Moku:Go for troubleshooting new designs at your bench, or take advantage of its portability to easily gather critical data in remote or nontraditional settings.

Addon kit – Starter, Mechatronics & Embedded

The ELVIS Mechatronics Device is an add-on application board that replaces the default prototyping board on the NI ELVIS. It provides educators with the preconfigured hardware, systems, and labs needed to conduct project-based experiments covering sensor, actuator, and component integration concepts found in mechatronics courses.

The ELVIS Electronics Device is an add-on application board that replaces the default prototyping board on the NI ELVIS. It provides educators with all the components, systems, and labs needed to conduct project-based experiments in various electronics courses including power electronics, digital electronics, circuits, and measurements.