



THE REVOLUTIONARY GOVERNMENT OF ZANZIBAR

ZANZIBAR e-GOVERNMENT AGENCY

**Government Hardware and Software
Specification**

Version.1.1

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1. INTRODUCTION

Zanzibar e-Government Agency is a public institution established by the eGovernment Act No. 12 of 2019. The Agency is mandated to Coordinate, Oversee and Promote e-Government initiatives and Enforce e-Government related Policies, Laws, Regulations, Standards and Guidelines in Public Institutions. Among the objects of the establishment of e-government is to develop and administer the implementation of ICT policies, rules, standards and guidelines in the public services.

The e-government Act empowers the Agency to: -

- to coordinate automation of e-Government administration processes and the provision of Government services through the utilisation of ICT
- to ensure accessibility of the government services countrywide in an affordable, effective and efficient manner through the appropriate use of ICT
- to promote the use of ICT in the public services
- give effect to policy directives and other decisions made by the Government in relation to ICT in the public service

Therefore, the Agency has prepared hardware and software specifications guides to be adhered to by public institutions. Public institutions shall comply with the specifications at the time of preparing requirements for hardware and software.

2. SPECIFICATIONS

2.1. Hardware Specifications

2.1.1. Laptop Computer

a) Directors and Managers

Features	Minimum Specifications
Processor	Intel R Core TM i7
Memo	RAM - Minimum 8 GB or 16GB
Display	Screen Size: 13" or above. Preferred Laptop/ Tablet Model. Touchscreen: Yes
Operating Systems	-Windows 10 (64bit) or later -Linux -Mac
Internal Storage	SSD – 512GB or HDD - 1TB
Communications/ Wireless support	LAN: 10/100/1000 Ethernet NIC WLAN: 802.11ac Wireless LAN Bluetooth: Yes USB 3.0 Connectivity Mobile Broadband Module (recommended)
Input Device:	Keyboard: Illuminated Backlit, spill-resistant keyboard with drain. Webcam: Yes
Supplemental Items	Thickness: 11-15mm Docking connector Stereo headphone/ microphone combo CD/DVD, R/RW Drive: Internal or External CDs for Drivers Mouse
Power	Primary Battery: 6-cell or above long-life battery. Secondary Battery: 6-cell or above long-life Battery
Minimum Warranty of 12 months	

b) Technical Directors/Managers and Technical Staffs

Features	Specification
Processor	Intel R Core TM i7 or above
Memo	RAM - Minimum 16GB or 32GB
Display	Screen Size: 13" or above. Preferred Laptop/ Tablet Model. Touchscreen: Option
Operating Systems	-Windows 10 (64bit) or later -Linux

Internal Storage	HDD – 1TB or SSD 512GB or above
Communications/ Wireless Support	LAN: 10/100/ 1000 Ethernet NIC or latest WLAN: 802.11ac Wireless LAN or latest Bluetooth: Yes USB 3.0 Connectivity Mobile Broadband Module recommendation
Input Device:	Keyboard: Illuminated Backlit, spill-resistant keyboard with drain. Webcam: Yes
Supplemental Items	Graphics Card Brand NVIDIA Stereo headphone/ microphone combo CD/DVD, R/ RW Drive: Internal or External CDs for Drivers Mouse
Power	Primary Battery: 6-cell long life battery or above.
Minimum Warranty of 12 months	

c) Non-Technical Staffs

Features	Specification
Processor	Intel R Core TM i7
Memory	RAM - Minimum 8 GB
Display	Screen Size: 14" or above.
Operating Systems	Windows 10 (64bit)
Internal Storage	HDD - 500 GB or 1TB
Communications/ Wireless Support	LAN: 10/100/1000 Ethernet NIC or latest WLAN: 802.11ac Wireless LAN or latest Bluetooth: Yes USB 3.0 Connectivity; 2 Slots or more. Mobile Broadband Module (recommended)
Input Device:	Keyboard: Illuminated Backlit, spill-resistant keyboard with drain. Webcam: Yes
Supplemental Items	Graphics Card - Brand NVIDIA (128 MB or better business class) Stereo headphone/ microphone combo CD/DVD, R/RW Drive: Internal or External CDs for Driver: s Mouse
Power	Primary Battery: 6-cell long life battery or above.
Minimum Warranty of 12months	

2.1.2. Desktop Computers

a) Technical Staffs

Features	Specification
Processor	Intel R Core TM i7 or above
Processor Speed	At least 3.0GHZ
Memo	RAM at Least 16GB or above
Display	HDMI or DVI support
Operating Systems	-Supports Windows 10 or above (64bit). -Supports Linux
Hard Drive	1TB or Above
Video Card	Intel© Integrated Graphic
Monitor LCD	27" Monitor flat panel LCD
Ports	At least 6 USB 2.0 or 3.0 standard serial port, 1 parallel port, 1, 1 VGA Port, Audio in out,
Keyboard	USB standard Keyboard
Point in Device	USB Optical scroll mouse
Connectivity	Integrated Gigabit Ethernet, 802.11b/ g/ n Wireless Interface
Others	Built in Speakers
CD/DVD, R/RW Combo Drive	Internal
Minimum Warranty of 12months	

b) Non-Technical Staffs

Features	Specification
Processor	Intel R Core TM i5
Memory	RAM at Least 8GB
Display	HDMI or DVI support
Operating Systems	-Supports Windows 10 above (64bit). -Supports Linux
Hard Drive	500GB or 1TB
Video Card	Intel® integrated Graphic
Monitor	24" Monitor or above
Ports	At least 6 USB 2.0 or 3.0 standard serial port, 1 parallel port, VGA Port, Audio in out,
Keyboard	USB standard Keyboard
Point in Device	USB Optical scroll mouse

Connectivity	Integrated Gigabit Ethernet, 802.11b/ g/ n Wireless Interface	
Others	Built in	speakers
Minimum Warranty of 12months		

2.1.2.1. Tablet Devices

Features	Specifications
Processor	299GHz, 24GHz, 17GHz
Dsplay	146" (3699mm)
Man Camera - Resoluton	130 MP + 60 MP
Resolution (Man Display)	2960 1848 (WQGA+)
Display	16M
	Colour Depth (Man Display)
	Technology (Man Display) SUPER AMOLED
Memory	RAM Sze (GB) 12
	ROM Sze (GB) 256
	Eternal Memory Support Micro SD (Up to 1TB)
Network Barrier	2G GSM GSM850, GSM900, DCS1800, PCS1900
	3G UMTS B1(2100), B2(1900), B4(AWS), B5(850), B8(900)
	4G FDD LTE B1 (2100MHz), B2 (1900MHz), B3 (1800MHz), B4 (AWS), B5 (850MHz), B7 (2600MHz), B8 (900MHz), B12 (700MHz), B13 (700MHz), B17 (700MHz), B20 (800MHz), B25 (1900MHz), B26 (850MHz), B28 (700MHz), B32(1500MHz), B66 (AWS-3)
Connected	USB person USB 32 Gen 1
	W-F® 80211 a/b/g/n/ac/a 24G+5GHz+6GHz, HE160, MMO, 1024-QAM
	Bluetooth® person Bluetooth® 52
	PC Sync Smart Switch (PC person)
Battery	internet Usage Time (LTE) (Hours) Up to 8
	Battery Capacity (mAh, Typical) 11200
Audio and video	Audio Playing Format MP3, M4A, 3GA, AAC, OGG, OGA, WA, AMR, AWB, FLAC, MD, MD, MF, MMF, MY, RTTTL, RT, OTA
	video Playing Format MP4, M4, 3GP, 3G2, A, FL, MK, WEBM

video Playing Resolution UHD 8K (7680 4320) @60fps
Minimum Warranty of 12months

2.1.2.2. iPad Devices

Features	Specifications
IPAD Models	IPad 11 pro or Above
Capacity	256GB or Above
Size	9.74inches -7.02 inches Or Above
Communications	Wi-Fi + Cellular Bluetooth 5.0 technology, GSM/EDGE (850, 900,1800,1900 MHz)
Display	11-12inches, 2388 by 1668 pixel resolution at 264 , wide color display (P3), True tone display, Fingerprint-resistant or Above
Chip	8-core CPU Or Above
Operating System	IPad 15 Or Above
Mail Attachment Support	.jpg, .tiff, .gif (images); .doc and .docx (Microsoft Word); .htm and .html (web pages); .key (Keynote); .numbers (Numbers); .pages (Pages); .pdf (Preview and Adobe Acrobat); .ppt and .pptx (Microsoft PowerPoint); .txt (text); .rtf (rich text format); .vcf (contact information); .xls and .xlsx (Microsoft Excel); .zip; .ics; .usdz (USDZ Universal)
Display Support	Supports one external display with up to 6K resolution at 60Hz, support VGA, HDMI, DVI Or Above
Charging and Expansion	Thunderbolt / USB 4 port with support for:
	Charging
	DisplayPort
	Thunderbolt 3 (up to 40Gb/s)
	USB 4 (up to 40Gb/s)
Power and Battery	USB 3.1 Gen 2 (up to 10Gb/s) Or Above
	Built-in 28.65-watt-hour rechargeable lithium-polymer battery
	Up to 10 hours of surfing the web on Wi-Fi or watching video
	Charging via power adapter or USB-C to computer system
	Wi-Fi + Cellular models
	Up to 9 hours of surfing the web using cellular data network
Or Above	
Minimum Warranty of 12months	

2.1.3. UPS

Features	Specification
Output Power	1KVA or above
Nominal Output Voltage	230v
Efficiency at Full Load	at least 97%
Output Frequency	50 60Hz auto-sensing
Synchronization Range	±3HZ
Other output Voltages	220, 240
Output Voltage Note	Configurable for 220, 230 or 240 nominal output voltage

2.1.4. Server

Features	Minimum Specification
Processor Speed	latest generation intel processor, 6 cores @2.3Ghz, Must support Hyper Threading
Memo RAM	16GB
Expansion Slots	PCIe 3.0
Internal Storage Capacity	Supported drivers: 8 SFF hot-plug drive model with Universal Media Bay Configuration: Hot plug SFF SAS/ SATA hot plug SFF Hard Disk Drive: 2 x 600GB Hot Plug SPF HDD
Network Controller	Embedded 4x1GbE Network Adapter
Storage controller	Embedded SATA Controller, (1) Smart Array with cache memory; RAID Controllers with RAID 0 1 1+0 5 50 6 60 1
Display Graphics	17" TFT Flat Panel LCD, same brand as CPU
Interfaces	1 Serial
	1 Pointing Device Mouse
	1 VGA Graphics Adapter
	1 Keyboard
	1 External SCSI
	Dual Port PCI-X 1000T Gigabit Server Adapter embedded
	Four USB 3.0 one internal
Form Factor	Rack Mountable 2U
Support software, and configuration utilities	Include Server managements manufacturers packs

Power Supply Unit	2 Redundant 500 W Power supply
	Input: 220 - 240 VAC
Operation System	No need for pre-installed operating system but the servers should support major OS including UNIX LINUX MS Windows.
Security Management	Remote Access Management Engine, Insight Control, UEFI System Utilities Support with Enterprise license Chassis intrusion detection option, configurable for PCI DSS compliance, Advanced Encryption Standard (AES) and Triple Data Encryption Standard (3DES) on browser, Bezel. Locking kit, Tamper-free updates components digitally signed and verified Secure Recovery - recover critical firmware to known good state on detection of compromised firmware, Ability to rollback firmware.
Optical drive type	SATA DVD-RW
Fans	Redundant hot- 1u system fans
Warranty	3/3/3 years of parts, labor, onsite support with next business day response
Other Features	Multi-port connectivity, Standard Rail Kit, Cable manager

2.1.5. Firewall Devices

Features	Specification
Physical interfaces	Ethernet ports — at least two (2) 1 Ge ports of RJ 45 1/0 Ports - 2 x USB 2.0, 1x Micro-USB , 1x COM RJ 45 1 HDMI
Power Supply	Connectivity modules (optional) — SFP Transceivers
Layer 2 Supports	Supports for VLAN configurations. Zone segmentation
Layer 3 features	Static Routing and Dynamic Routing (OSPF, BGP, RIP etc) Network Address translation (NAT), DHCP, IP Address and Gateways configurations. Traffic Load balancing
Security	Access Rules and NAT rules, Threat protection capability IPS capability Optional
Performance	High Firewall throughput Concurrent Connections — At least 1,000,000 New Connections Per second — At least 20,000 IPsec VPN throughput — At least 1,000Mbps

	SSI, Concurrent Connections — At least 5,000
Warrant and Support	3 years warrant and support for hardware and supporting license software

2.1.6. Wireless Access Points

No.	Feature Description	Minimum Specification
1	Modules	Provides full-spectrum scanning for, wIPS for comprehensive detection and mitigation of over the network attacks, Clean Air technology detecting devices causing network interference, rogue device detection, context (location) awareness, and radio resource management (RRM) solutions Provides full scanning of all 2.4- and 5-GHz channels while the Access Point is serving data clients on the integrated radios
2	802.11n version 2.0 (and related) capabilities	4x4 MIMO with three spatial streams Maximal ratio combining (MRC) 802.11n and 802.11ac/g beamforming 20- and 40-MHz channels PHY data rates up to 450 Mbps (40 MHz with 5 GHz) Packet aggregation: A-MPDU (Tx/Rx), A-MSDU (Tx/Rx) 802.11k dynamic frequency selection (DFS)Cyclic shift diversity (CSD) support
3	802.11ac Wave 1 capabilities	4x4 MIMO with three spatial streams, MRC 802.11ac beamforming, 20-, 40-, and 80-MHz channels, PHY data rates up to 1.3 Gbps (80 MHz with 5 GHz) Packet • aggregation: A-MPDU (Tx/Rx), • A-MSDU, (Tx/Rx), 802.11 DFS, CSD support
4	Data rates supported	802.11ac: 6, 9, 12, 18, 24, 36, 48, and 54 Mbps 802.11g: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54 Mbps 802.11n on 2.4 GHz: 6.5 to 216.7 Mbps depending on GI and MCS
5	Integrated antenna	2.4 GHz, gain 4 dBi, internal omni, horizontal beamwidth 360 ° 5 GHz, gain 4 dBi, internal omni, horizontal beamwidth 360 °
6	External antenna Must be included	Omni, Gains up to 6 dBi (2.4 GHz and 5 GHz)
7	Built-in/ Included Interfaces	10/ 100/ I/O BASE-T autosensing (RJ-45) Management console port RJ-45
8	Dimensions	Access point (without mounting bracket): 8.7 x 8.7 x 2.11 in. (22.1 x 22.1 x 5.4 cm)

9	Operating Environment	Non-operating (storage) temperature: -22 ° to 158 ° F (30 ° to 70 ° C) Non-operating (storage) altitude test: 25 ° C, 15,000 ft. Operating temperature: -4 ° to 122 ° F (-20 ° to 50 ° C) Operating humidity: 10% to 90% (noncondensing) Operating altitude test: 40 °C, 9843 ft
10	Indicators	Status LED indicates boot loader status, association status, operating status, boot loader warnings, boot loader errors
	System Memory	512 MB DRAM or above 64 MB flash or above
11	Warranty	Limited lifetime hardware warranty
12	Compatibility	Must be compatible with Supplied WLAN controllers
13	Compliance / Standards	UL 60950-1, CAN/CSA-C22.2 No. 60950-1, UL 2043 IEC 60950-1, EN 60950-1, EN 50155, Class III equipment
14	Security	802.11i, Wi-Fi Protected Access 2 (WPA2), WPA 802.11i Advanced Encryption Standard (AES) Advanced Encryption Standards (AES), Temporal Key Integrity Protocol TRIP
15	Extensible Authentication Protocol (EAP) types:	EAP-Transport Layer Security (TLS) EAP-Tunneled TLS (TTLS) or Microsoft Challenge Handshake Authentication Protocol Version 2 (MSCHAPv2) Protected EAP (PEAP) v0 or EAP-MSCHAPv2 EAP-Flexible Authentication via Secure Tunneling (EAP-FAST) PEAP VI or EAP-Generic Token Card (GTC) EAP-Subscriber Identity Module SIM

2.1.7. Edge Routers

Features	Specification
Performance	Switching Capacity at least 1.92Tb/s
	Per-slot switching capacity : 480 Gb/s
Physical Specifications	Dimensions (W X H X D) - (17.45 x 8.71 x 24.5) in (44.3 x 22.1 x 62.2), Weight fully loaded 1301b / 59 kg Weight unloaded 521bs 23.6 k
Routing Engine	2 x 16 MB NOR flash storage, 64GB of DDR4 RAM 2 X 50GB SSI), Number Of Cores — Six (6)
Redundancy Components	Power Supplies, Fans, Routing Engines RE

Resiliency	Redundant RES, Unified ISSU, Nonstop active Routing (NSR) Fast restoration Operation, Administration, (OAM) and Maintenance
Routing Protocols	BGP, GRE, MPLS, OSPF & OSPFv3
Features/ Functionalities	Firewall protection, DHCP support, NAT support VPN support, IPv6 support, High Availability Quality of Service (QoS), MPLS VPN, Virtual Chassis technology, IPv4 support Virtual Routing and Forwarding, VRF
Inline Services	GRE reassembly NAT, Flow monitoring, Video monitoring Lawful intercept, Mirroring
Security	Firewall filters/ ACLs, DDoS—control plane DDoS—Flow spec, Stateless filters L2-L4, Stateful services
Service Card Supported Services	Deep packet inspection, CGNAT, Flow monitoring Traffic load balancing, IPsec, Stateful firewall, I-ITTP header manipulation
System Virtualization	Enhanced SLA and queuing, Logical systems Virtual router/ switch, Path Computation Element Protocol (PCEP), OpenConfig, YANG data modelling

2.1.8. Biometric Devices

Features	Specifications
General Features	Support the latest version of Android
	Support multiple connect options for communicating with the Base Station e Ethernet, POE capacity, USB, GPRS, W-F (802.11 b/g/n) and Mobile Broadband 3G/4G;
	Supports Fingerprint, RF card, PIN and Facial;
	Backup battery that can stay for more than 6 hours;
	Provide APIs with lifetime license and Software Development Kit (SDK) to enable communication with the web server
	Higher capacity for managing multiple users and entry
	Customized sign-in and sign-out buttons on the biometric device
ram	at least 4GB
storage	HDD at least 8GB
Display	7inch color screen
Processor	At least Quad core 1.5 GHz
Fingerprint Sensor	500pp optical sensor;
Grayscale	256 levels
Sensing Area	52 x 203 mm
Platen size	20, 33 mm (0.8" x 1.3") or Optical scanning area 244 mm x 163 mm

Matching Speed	At least template matching speed (fingerprints per second): 3000
Identification speed	Less 05 sec
Operating Temperature	0 - 45 Degree Celsius
Image Capture Surface	15—18(mm)
False Acceptance Rate	1%
False Rejection Rate	1%

2.1.9. CCTV CAMERA

Features	Specifications
Standard Features	H.264 video compression
	3independent local video output(VGA,MAIN and AUX video/audio out)
	Audio input
	Alarm inputs/4 alarm outputs
	Up to 32 simultaneous users with multi-user level management
	Pentaplex operation enables simultaneous recording, live view, Playback, back-up and network operations
	Watermark video
	Advanced motion detection and video analytics
	Easy backup to USB and optical drives
	Support up to 8 SATA hard disk drives
	High reliability with redundant recording
	Support NTP(Network Time Protocol)and SADP(Search Activated Device Protocol)
Advance Features	Advanced motion detection and video analylics,including private mask,tampering and video loss alerts.
	Pre/Post-recording of alarm and motion detected events.
	PTI controls with preset,patrol and pattern settings.
	Full system logging including opeariton,alarm and defined events.
	Support input from front control panel,mouse,IR remote and Keyboard operation.

2.1.10. Photocopy Black/White

Feature	Minimum Requirements
Main	
Memory	3 GB
Processor	1.75GHz Dual Core Processor
Control panel	Standard: 10.1" TFT LCD WSVGA Colour Touch panel
Hard Drive	320GB ,1TB Optional
Interface Connection	1000Base-T/100Base-TX/10Base-T, Wireless LAN (IEEE 802.11 b/g/n), usb 2.0, usb 3.0
Paper Supply Capacity	4,200 sheets ,100-sheet Multi-purpose tray x1 550sheet cassette x 2, 1,500-sheet Paper Deck x 2 Maximum: 7,700 sheets
Supported media sizes	Standard size: A3, A4, A4R, A5*1, A5R, A6R*2, B4, B5, B5R Custom size: 100.0 x 148.0 mm to 297.0 x 487.7 mm Free size: 100.0 x 148.0 mm to 297.0 x 487.7 mm
Power Source	220-240V, 50/60Hz, 10A
COPIER:	
Copy Speed	up to 80 ppm (A4), up to 40 ppm (A3)
Resolution	600 X 600
Zoom	50 – 400%
Multiple Copies	Up to 9,999 copies
Duplexing	Standard
Resolution	600dpi
Main Unit Dimensions (W x D x H)	485 x 450 x 481
PRINTING:	
Speed	20 print per minute/up to 80 ppm (A4), up to 40 ppm (A3)
Printing Resolution	1200x1200
Direct Print	Supported file types: PDF, EPS, TIFF/JPEG, and XPS
Printing from Mobile and cloud	Yes
SCANNER:	
Bundle driver	Network twin
Resolution	600dpi
Software	Yes
Warranty	1 year

2.1.11. Laser jet Printer

Features	Specification
Print Quality	1200 x 1200 d i
Print Speed and through put	U to 45 m black
Print technology	Laser black
Memo	80MB or hi her, expandable
Memo slots	2 x100- in DDR DIMM
Processor Speed	At least 540Mhz
First page out	Less than 8 sec
Languages	PCL 5e,PCL 6 Postscript 3 emulation
Media Capacity	100 multipurpose tray 500-sheet input trays
1 manual feeding tray including envelopes, labels, transparencies and special media Output tray up to 300 sheets	
Media Sizes	Letter,legal,executive,A4and A3
Media types	Plain paper Envelopes Transparencies Copier bond 60 to 200 m2
Duplex printing	Automatic standard
Connectivity	IEEE- 1284 compliant bi-directional parallel port and/or Universal Serial Bus USB Gigabit Ethernet
RJ 45 Ethernet port	
Hard disk	20Gb
Duty cycle	200,000 per month
Network	Yes Standard
Compatibility	Smart switch printer Languages sensing
Software	Drivers for windows server 2012/2016 Windows 10 Macintosh Linux

2.1.12. Color Laser Jet Printer

Features	Specification
Print speed, black best quality mode	31m
Print speed, black normal quality mode	31 m
First a e out black	As fast as 10 sec
First a e out color	As fast as 10 sec
Monthly duty cycle	U to 100,000 pages
Print resolution, black	U to 600 x 600 dpi
Print resolution, color	U to 600 x 600 dpi
Ink cartridges	4 (1 each black, cyan, magenta, yellow) all reinstalled
Paper trays , minimum	3
Memo	256MB
Duplex Printing	Automatic
Processor speed	At least 533MHz
Print languages, standard	PCL 6 PCL 5c postscript level 3 emulation
Maximum Input capacity	U to 1100 sheets
Connectivity	Hi h Speed USB 2.0 Gigabit Ethernet
Two enhanced input /output EIO slots	
Gigabit Ethernet Print Server	
Compatible operating systems	Macintosh, Windows 10 Windows Server 2012 2016 32 64 bit) Linux.
Software included	Print drivers and installation software on CD-ROM PCL6, PostScript Level 3 emulation

2.1.13. Production Scanner

Features	Specification
Recommended Daily Volume	Unlimited
Throughput Speeds	Up to 200 pages per minute/ 800 images per minute (Throughput speeds may vary depending on your choice of driver, application software, operating system and PC.) 200 dpi landscape, letter-size document
Scanning Technology	Dual Tricolor Plus CCD; Grayscale output bit depth is 256 levels (8-bit); Color capture bit depth is 40-bit (10 bits per red, green, blue and black channels); Color output bit depth is 24bit
Optical resolution	300 dpi
Illumination	Dual Xenon lamps per side, mercury free
Output resolution	Black and white: 200/240/300/400 dpi; Color/ grayscale: 100 150 200 240 300 dpi
Maximum Document Size	305 mm x 863 mm 12 in. x 34 in.
Minimum Document Size	64 mm x 64 mm 2.5 in. x 2.5 in.
Paper Thickness and Weight	With standard feeder: 45 g/m ² (12 lb) bond to 200 g/m ² (110lb) index; With ultra-lightweight feeder: 25 g/m ² (7 lb) rice paper to 75 m ² 20 lb bond
Feeder	500-sheet
Multi-feed Detection	Multi-feed detection with ultrasonic technology; three ultrasonic sensors that can work together or independently
Connectivity	IEEE- 1394 (FireWire) interface, 6-pin connector; IEEE-1394 card and cable included
Interface Support	TWAIN and ISIS Drivers (included) KODAK Capture Software
Color Touch Screen Control	Operator control via color LCD touch screen
Ergonomic Height Adjustment	Integrated height adjustment span of 25 cm (10 in.) for seated or standing operation
Imaging Features	Perfect Page Scanning, i Thresholding, auto crop, aggressive crop; deskew, image rotation, electronic color dropout, dual stream scanning, halftone removal, noise removal, zone processing, toggle patch, automatic color detection, automatic orientation
On-board Compression	CCITT Group IV, JPEG or uncompressed output
File Format Outputs	JPEG (for color and grayscale images); TIFF for black and white images
Image Address	Multi-level indexing/ batching ca abilities

Patch Readers	Four permanently mounted patch readers that can work together or independently
Imprinting	Front pre-scan or rear post-scan imprinting; optional hi-res imprinter available
Electrical Requirements	100-130 VAC, 50/60 Hz, 7 A; 200-240 VAC, 50 60 Hz, 3.5 A
Minimum PC Configuration	Pentium 4 2.4 GHz processor with 512 MB RAM
Supported Operating Systems	Windows 10 (32 and 64 bit), Macintosh, Linux

2.1.14. Aggregation Services Router Specification

- i. IGB DRAM, but supports maximum 4GB DRAM
- ii. 8 slots, (Each embedded module has 8 optical ports with IGE interface)
- iii. Rack height: 6RU
- iv. Up to IOOG bps throughput
- v. Redundant AC and DC Power Supply
- vi. Redundant route processors and ESPs
- vii. Supports Multiprotocol Label Switching (MPLS) network infrastructure

2.1.15. Departmental Scanner

Features	Specification
Recommended Daily Volume	U to 9,000 pages per day
Throughput Speeds	Up to 45 pages per minute/ 90 images per minute *(200 dpi, landscape, letter size, black and white/ gray scale color
Scanning Technology	dual CCD Grayscale output bit depth is 256 levels (8bit) Color capture bit depth is 48 bits (16 x 3) Color output bit depth is 24 bits 8 x 3
Output resolution	75, 100, 150, 200, 240, 300, 400, 600 and 1200 dpi
Maximum Document Size	297 mm x 863 mm 11.7 in. x 34 in.
Minimum Document Size	64 mm x 89 mm 2.5 in. x 3.5 in.
Paper Thickness and Weight	34-413 m ² 9-110 lb. paper
Feeder	Up to 150 sheets of 60 g/m ² (16 lb.) paper

Multi-feed Detection	With' ultrasonic technology
Connectivity	USB 2.0, Gigabit Ethernet
Bundled Software	TWAIN, ISIS, SANE and Windows Imaging Architecture Drivers, KODAK Capture Desktop Software and Smart Touch
Imaging Features	Perfect Page Scanning; Thresholding; adaptive threshold processing; deskew; auto crop; relative cropping; aggressive cropping; electronic color dropout; dual stream scanning; interactive color, brightness and contrast adjustment; automatic orientation, automatic color detection, background color smoothing
File Format Outputs	Single and multi-page TIFF, JPEG, RTF, PDF, searchable PDF
Accessories	KODAK Imaging Guide Wiper Accessory Optional A4 black imaging background accessory
Electrical Requirements	100-240 V (International); 50/60 Hz; universal power supply included
Recommended PC Configuration	For documents up to 356 mm (14 in.) long at 400 dpi: Dual core, 3.2 GHz processor, 2GB RAM; For documents up to 660 mm (26 in.) long at 400 dpi: Dual Core, 3.2 GHz processor, 2 CAB RAM; For longer documents/ higher resolutions: Dual core, 3.2 GHz processor, 4 GB RAM
Supported Operating Systems	Windows 10 (32 and 64 bit), Macintosh, Linux

2.1.16. Fax

Features	Specification
Modem Speed	U to 33.6Kb s
Fax Resolution	U to 200 x 400d i
Compression Modes	MH, MR, MMR
Memory Capacity	U to 512 pages
One-Touch Dial	30 dials
Speed Dial One Touch + Coded dials	U to 130 dials
Group Dials Destinations	Max. 129 dials Max. 129 destinations
Sequential Broadcast	Max. 140 destinations
Receive Mode	Fax only, Manual, Answering, Fax / Tel Auto switch

Memo Backup	Yes, 5 minutes
FAX Features	Fax Forwarding, Dual Access, Remote Reception, PC Fax (TX only), DRPD, ECM, Auto Redial, Fax Activity Reports, Fax Activity Result Reports, Fax Activity Management Reports

2.1.17. Monitor

FEATURES	MINIMUM REQUIREMENTS
Display	39.7” IPS, W-LED,5120x2160pixels
Viewing Angle	178 /178
Brightness	300 cd/m2
Static contrast	1000:1
Dynamic contrast	3000000:1
Speakers	2x9w

2.1.18. Workgroup Scanner

Features	Specification
Recommended Daily Volume	Up to 3,000 pages per day
Scanning Technology	Single CCD; i1220 Plus: Dual CCD; Grayscale output bit depth is 256 levels (8 bits); Color capture bit depth is 48 bits (16 x 3); Color output bit depth is 24 bits 8 x 3
Throughput Speeds (portrait, letter size)	Bitonal/grayscale: Up to 45 pages per minute at 200 dpi Color: Up to 30 pages per minute at 200 dpi and 300 dpi (Throughput speeds may vary depending on your choice of driver, application software, *operating system and PC.
Optical resolution	600 d i 1200 d i A4 flatbed accessory
Illumination	Dual fluorescent cold cathode
Output resolution	75, 100, 150, 200, 240, 300, 400, 600 and 1200 d i
Max./ Min. Document Size	215 mm x 863 mm (8.5 in. x 34 in.)/ 50 mm x 63.5 mm 2 in. x 2.5 in.
Paper Thickness and Weight	34-413 g/m ² (9-110 lb.) paper; ID card thickness: u to 1.25 mm 0.05 in.
Feeder	Up to 75 sheets of 75 g/m ² (20 lb.) paper Handles small documents, such as ID cards, embossed cards and insurance cards

Multi-feed Detection	With ultrasonic technology
Connectivity	USB 2.0 cable included
Bundled Software	TWAIN, ISIS, WIA Drivers; KODAK Capture Desktop Software, Smart Touch; Nuance ScanSoft PaperPort and OmniPage.
Imaging Features	Perfect Page Scanning; iThresholding; adaptive threshold processing; deskew; autcrop; relative cropping; aggressive cropping; electronic color dropout; dual stream scanning; interactive color, brightness and contrast adjustment; automatic orientation; automatic color detection; background color smoothing; image edge fill; image merge; content based blank page detection; streak filtering ; image hole fill; sharpness filter
File Format Outputs	Single and multi-page TIFF, JPEG, RTF, BMP, PDF, searchable PDF
Recommended PC Configuration	For documents up to 660 mm (26 in.) long at 400 dpi: Duo Core Processor with 2 GHz or equivalent and 2 GB RAM For longer documents/ higher resolutions: Duo Core Processor or equivalent with 2 GHz and 4 GB RAM. Note: for optimal performance when using a PC running the Windows 7 operating system, at least 3 GB RAM is recommended.
Supported Operating Systems	Windows 10 (32 and 64 bit) Macintosh Linux

2.1.19. PBX

Features	Specification
PBX Capacity	1 or 3 Outside CO Line, 8 Extensions, Nonexpandable
Power Supply	220VAC or 1 IOVAC 50Hz
Max. Consumption	20W
Cross-tone Lose	> 70dB
Temperature	0 45 c
Humidity	10%— 95 %/0
Intercom Ringing	7SVAC 50Hz
External MOH	input 600 Q,out ut 0.25-1V
Inside Feed Voltage	48VDC,20 30mA
CO Port Voltage	Lc 60VDC
Re lar Phone	Lc 1000m cable length
Toll Restrict Level	6

DISA	12Sec.,1-Level, channel
000 Phone opener	4-Jan
Conference Part	3 art
Extension Number	3-Di it only 100-999
Power Fail Port	2
Operator	2
Flash Time	300-2000ms
PSTN Access	Dial O out

2.1.20. IP Phone

Features	Specification
Protocols and Standards	SIP RFC3261 , TCP/IP/UDP RTP/RTCP, HYPP/HITPS ARP/RARP, ICMP, DNS (A record, SRV, NAPTR), DHCP PPPoE, TELNET, TFTP, NTP, STUN SIMPLE TR-069 802. Ix
Network Interfaces	Dual switched 10/ 100Mbps ports Integrated POE (Power-over-Ethernet)
Graphic Display	128 x 40 graphical LCD display
Feature Keys	2 line keys with dual-color LED and 1 SIP account 3 XML programmable context sensitive soft keys 5 navigation/ menu/ volume keys 8 dedicated function keys for Hold, Transfer, Conference, Volume, Headset, Mute, Speakerphone, Send / Redial
Voice Codec	Support for G.723.1, G.729A/B, G.71 lu/a, G.726-32, G.722 (wide-band), iLBC, in-band and out-of-band DTMF (in audio, RFC2833, SIP INFO)
Telephony Features	Hold Transfer Forward 3-way conference Call park Pickup Shared-call-appearance (SCA) / Bridged-line-appearance (BLA) Downloadable phone book (XML,
	LDAP, up to 500 items) Call waiting Call log (up to 200 records) Off-hook auto dial Auto answer Click-to-dial Flexible dial plan Hot desking Personalized music ringtones Server redundancy Fail-over
HD Audio	Yes, HD handset with support for wideband audio
Headset Jack	RJ9 headset jack
Base Stand	Yes, 2 angle positions available
Wall Mountable	Yes
QoS	Layer 2 (802. IQ, 802. Ip) Layer 3 (ToS, DiffServ, MPLS) QoS

Security	User and administrator level passwords MD5 and MD5-sess based authentication AES encrypted configuration file SRTP TLS 802. Ix media access control
Multi-language	English, German, Italian, French, Spanish, Portuguese, Russian, Croatian, simplified and traditional Chinese, Korean, Japanese etc.
Upgrades and Provisioning	Firmware upgrade via TFTP/HTTP/HTTPS Mass provisioning using TR-069 or AES encrypted XML configuration file
Power & Green Energy Efficiency	Universal power adapter: Input: 100-240VAC 50-60Hz*, Output: 800mA Integrated Power-over Ethernet (802.3af) Max power consumption: 2.5W (power adapter) or 3W (POE)
Physical	Dimensions: 186mm (W) x 210mm (L) x 81 mm (D) Unit Weight: 0.7kg Package weight: 1.0kg
Temperature and Humidity	32-104°F / 0-40 °C 10-90% (non-condensing)
Compliance	FCC Part 15 (CFR 47) Class B EN55022 Class B EN55024 EN61000-3-2 EN61000-3-3 EN 60950-1 AS/NZS CISPR 22 Class B AS/NZS CISPR 24 RoHS UL 60950 (power adapter)

2.1.21. Display Screen

Feature	Minimum Requirements
LCD MODULE	
VIEWABLE IMAGE SIZE (DIAGONAL)	85.6"/2,174.3mm
Active screen area (W*H)	1,895.04 x 1,065.95 mm

Panel Technology	IPS
Native Resolution	3,840 x 2,160
Brightness (Typical with AG glass)	350 cd/m ²
Contrast Ratio (Typical)	1,200:1 (Native Contrast)
Viewing Angle	178 Horizontal / 178 vertical (at CR>10)
Colour	Over 1.07 billion
Response Time (Typical)	12ms (G to G)
Backlight	Direct LED Backlight
CONNECTIVITY	
Input terminals Digital Analogue Audio	HDMI * 3 VGA mini D-sub 15-pin *1 Digital: HDMI *3, Analogue: 3.5 mm Stereo mini jack *1
Output terminals Audio	Optical: SPDIF *1, Analogue: 3.5 mm Stereo mini jack *1
External Control RS 232C	D-Sub 9 pin *1
External Control Ethernet	RJ-45 10BASE-T/100BASE-TX*1
USB HUB USB2.0	USB Type A*6(Front x 2, Side x 3, Bottom x 1), USB type B x 2 (Side port (for touch))
Expansion slots	Open pluggable specification (NEC/ intel OPS Standard) *1
Speaker Output (internal)	12 W +12 W
Front Camera	M912HD pan tilt zoom1080p usb 12x lens ptz video camera conference
POWER	
Power requirement	6.2 A @ 100 – 120V, 2.5 @ 220 – 240 V
Power Consumption (typical)	365 W
Power Consumption (network standby mode)	2 W
Power Consumption (standby mode)	< 0.5 W
PHYSICAL SPECIFICATIONS	6.2 A @ 100 – 120V, 2.5 @ 220 – 240 V
Bezel width	71.2kg
Dimension (with wall mount: W x H x D)	95.5kg
Dimension (with wall mount: W x H x D)	800 x 600 mm (M8, 4 holes)

Packaging dimensions (W x H x D)	Landscape
Net weight (without wall mount)	17.7mm (bottom: 45.7 mm)
Net weight (without wall mount)	1,957.1 x 1,159.8 x 113.8 mm
Gross weight (with box)	1,957.1 x 1,159.8 x 86.8 mm
Mounting interface	2,211 x 1,370 x 280 mm
Supported orientation	67.3kg
Power Consumption (typical)	365 W
Power Consumption (network standby mode)	2 W
Power Consumption (standby mode)	< 0.5 W
PHYSICAL SPECIFICATIONS	6.2 A @ 100 – 120V, 2.5 @ 220 – 240 V
Bezel width	71.2kg
Dimension (with wall mount: W x H x D)	95.5kg
Dimension (with wall mount: W x H x D)	800 x 600 mm (M8, 4 holes)
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Gross weight (with box)	1,957.1 x 1,159.8 x 86.8 mm
Mounting interface	2,211 x 1,370 x 280 mm
Supported orientation	67.3kg

2.1.22. Projector

Feature	Minimum Requirements
Display System	3LCD System
Resolution	1080p (1920 x 1080) FHD

Brightness	5000 Light/Colour
HDtv	1080p, 1080i, 720p
Interface	LAN, HDMI, VGA, audio in/out, USB
HDMI CABLE	30 METRE LONG
Power Supply	240V
Universal Ceiling Mount	Universal
Management Software	Yes
Warranty	1Year
Display System	3LCD System
Resolution	1080p (1920 x 1080) FHD

2.2. Software Specifications

2.2.1. Generic Applications

a. Office Software

S/no	Software	Software Item	Details
1.	Word Processors, Spreadsheets, Presentation	Microsoft Office LibreOffice (Linux)	MS Word, MS Excel, MS PowerPoint, MS Access, MS Publisher
2.	Internet Browser	Microsoft Internet Explorer 7.0 Microsoft Edge Firefox Mozilla Chrome Opera Safari	Including all security Patches
4.	PDF Document	Adobe Reader	Latest stable version.
5.	Virus Protection	Anti-virus software available in the market	Latest stable version.
6.	Media and design tools	Adobe Creative cloud	Latest stable version

b. ICT Management

ICT Management software enables the capabilities to support the administration and upkeep of a public institution's technology assets, including the hardware, software, infrastructure network, licenses and service components that comprise those assets.

S/ No	Software Type	Software Item	Details
1.	Incident Management		The system should allow to send or provide notifications
2.	Problem Management		The system should allow to log all problems
3.	Configuration Management	Rancid	The system should allow configuration identification
			The system should allow configuration change control The system should allow configuration status accounting The system should allow configuration audits
4.	Change Management		The system should be able to track all changes done.
5.	Release Management		The system should allow scheduling and control the movement of release
6.	Service Level Management		The system should be able to track the commitment between service provider and client.
7.	Monitoring	Solar Winds Nagios Zabbix eSight Cacti	The system should be able to monitor all ICT assets of the institution.
8.	Security Management	Radius, TACACS+ QRadar Security Onion	The system should be able to ensure availability, integrity and confidentiality of institutional information.

2.2.2. Operating Systems

Software Type	Software Item	Details
Operating System	Unix/Linux Microsoft Windows 10 MacOS	(Ubuntu, CentOS, Suse, Linux Mint) (64bit)

3. GLOSSARY

Technical Staffs

These are personnel that perform activities related to computer programming, Designing, Simulations, Computer Modelling and all other related activities that requires high-end computer processing resource requirements.

Non-technical Staffs

These are personnel that perform basic computer operations that does not require high-end computer processing resources.