

## **TECHNICAL SPECIFICATION OF FID SYSTEM**

### **SCOPE OF WORK, GENERAL & QUALITATIVE REQUIREMENTS**

#### **D. GENERAL**

23. The offered equipment by the bidder shall be compact, fully solid state, highly reliable and shall use latest state of the art technology.
24. The design and selection of the offered equipment by the bidder shall be consistent with the requirements of long term trouble free operation with highest degree of reliability and maintainability.
25. All offered equipment by the bidder shall be manufactured to continuously operate safely without undue heating, vibration, wear, corrosion, electromagnetic interference or any similar problems.
26. The offered equipment by the bidder shall be designed for continuous operation (24-hours a day and 365-days a year). The design life of the equipment shall be a minimum of SEVEN YEARS.
27. This life shall be achievable through normal and regular maintenance.
28. All types of spares and spare modules of the offered equipment for the FIDS shall be readily available with the bidder during life-time of the equipment, for maintenance, repairs and up keep of the equipment during warranty & CAMC period, if applicable.
29. The Bidder shall undertake and ensure implementation of its offered solution and shall keep its in view the safety and protection of personnel, during normal operation and maintenance or during malfunctioning of any equipment or its sub-component. This shall be ensured as an integrated feature of design, manufacture and installation of offered equipment by bidder.
30. The bidder shall ensure adequate protection to be included for ensuring safety of personnel from any possible hazards, including EMI radiation, high voltages, etc.
31. The bidder shall furnish the details of EMI and Safety Standards met by his equipment and built-in safety features.
32. The offered equipment shall be constructed on a modular basis, using plug-in type units and components to the extent possible. Parts subject to failure, wear, corrosion or other deteriorations or requiring occasional inspection, adjustment or replacement shall be made accessible and capable of convenient inspection and removal.
33. Input and output termination cables in offered equipment shall be properly labelled to permit ready identification of the incoming/outgoing wiring.
34. All interconnecting cables in offered equipment shall also be appropriately labelled to facilitate convenient interconnection and minimize chances of incorrect connection.

35. All connecting cables required to inter-connect the equipment shall be supplied by the bidder as a part of the offered system. All cables shall be fully assembled, connector pre-terminated and factory tested at the time of supply as part of overall system check.

36. Contractor shall be responsible for upgradation of existing FIDS System.

**37. Licenses**

All Hardware system/component and Software supplied by bidder shall be licensed, as applicable, in favour of Airports Authority of India and valid for lifetime of the offered system.

**38. Mains Power Supply**

38.1 Complete offered equipment shall operate with an un-interrupted AC power 230 Volts ( $\pm 10\%$ ) single phase 50 Hz  $\pm 5\%$ . Reliable over & under voltage and over current protection circuits shall be provided in the power supply units of offered solution. The power supply units in complete offered solution shall be self-protecting, and shall protect connected equipment against conducted interference, noise, voltage dips and surges & impulses.

38.2 Mains Power Supplies used in offered solution/equipment shall be rugged enough to withstand variation in mains voltage and frequency over a long period of time so that the failures in the equipment due to power supply are minimized.

**39. Installation Standards**

16.7 Installation shall be carried out by technically well qualified and certified personnel as per the requirements.

16.8 Contractors shall not outsource any part of the contract to any other vendor/third party contractor without prior permission of AAI.

16.9 Liability, if anything, arising out of such third party contracts to any other vendor by contractor shall be to the contractor's account.

16.10 AAI shall not be liable on behalf of contractor to any other third party contractor/ Government of India/State/Regulatory Authorities.

16.11 Any liabilities arising out of such third party contracts by contractor or its men working at site shall be only to contractor's account and shall be deducted out of its running bills.

16.12 Contractor shall submit Police Verification Certificates and obtain necessary Airport Entry Permits, for allowing its men to work at AAI restricted premises.

**40. Quality Assurance Standards**

The contractor shall use Quality Assurance procedure compliant with Quality Assurance in system design, development, manufacturing, and installation and servicing- ISO 9001 Quality Management and Assurance Standards Part 3 – ISO 9001 Application and Development, Supply and Maintenance of software.

#### **41. Reliability**

To ensure high availability and high reliability, the offered equipment design by the bidder and its OEM partner shall employ the most suitable engineering techniques, materials and dependable components, field proven design and rigorous inspection during manufacturing to ensure a very high MTBO (Mean Time between Outage) and MTBF (Mean Time between Failure) of equipment.

#### **42. Environmental Conditions**

The offered equipment shall be capable of maintaining its guaranteed performance when operating continuously for 24 hours a day and 365 days a year without any deviation in quality or degradation of system performance and all the parameter detailed in these specifications shall be guaranteed over the following environmental conditions:

i) Indoor Equipment:

Operating Temperature: 0 degree to + 40 degree Centigrade.

Relative Humidity: 80% up to 35 degree centigrade.

ii) Outdoor Equipment:

Operating Temperature: -10 degree to + 50 degree Centigrade.

Relative Humidity: 90% up to 35 degree centigrade

ii) Storage Temperature: -10 to + 70 degree Centigrade

#### **E. SCOPE OF WORK**

xxxvii. Scope of work is briefly but not exhaustively described in succeeding paragraphs. The bidder has to quote considering the following scope of work to meet general, qualitative and technical requirements of tender as per this Section and mentioned in design criteria.

xxxviii. The bidder firm shall provide the following systems at specified Airports.

<b>S. No.</b>	<b>System</b>	<b>Requirement</b>
1	Flight Information Display System	Design, Supply, Installation, Testing and commissioning of Flight Information Display

	(FIDS)	System for complete terminal building.
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xxxix. The scope of Flight Information Display System comprises of:

- i. Design and Supply of all required hardware such as Display with controller, Servers, Data Entry Terminal, Network equipment, Equipment Rack, KVM Switch, UPS, Data & Power cabling etc. and all required software such as Application, Antivirus, AFAS etc. including their upgrades, their installation, testing & commissioning
- iii) The upgrades for the supplied Application, Antivirus, Control and Management Software and firmware shall be supplied and installed by the Bidder and without any legal implication to AAI, during the complete period of contract i.e. guarantee/ warranty and defects liability period and comprehensive AMC period. Report of upgradation of software of each site shall be submitted to Engineer in Charge periodically (every six months), failing which, necessary deduction, as finalised by Engineer in Charge, shall be done and it will be binding on firm.
- iv) The required communication media (Fibre Optic and other cables) including their lengths and interface equipment shall be determined based on the locations of the different type of equipment (display, switches, client terminal etc.) and shall be supplied by the bidder firm. Requisite termination s and integration of FO cables with the main system shall be done by the bidder firm.
- v) The supply and laying of various types of cables shall be made after the survey of the routes and ascertaining of the exact cable length (s) requirements at site.
- vi) The laying of the outdoor cables shall be in accordance with the standard industry practice.
- vii) The offered system shall be complete with all equipment and accessories including connectors, patch cords, other networking accessories, mounting, and fixing hardware, plugs, sockets, etc.
- viii) supply and fixing of Adaptors, Connectors, Patch Cords, Mounting/ Fixing hardware, Electrical Switches/ Sockets inside the racks and other accessories required for completion of work is deemed to be included in the scope of Bidder firm. This also includes cable channel/ Tray to be installed by the bidder firm within Equipment Room/ Control room as per requirement.
- ix) Testing of system components shall be done as per original equipment manufacturers specifications and guidelines.
- x) The entire work has to be executed with total responsibility by bidder firm. All necessary technical completeness shall be ensured by the bidder firm at the time of quoting/ completion of works.

- xi) Bidder shall be responsible to conduct Site Acceptance Test (SAT), and to supply detailed documentation including as-built drawing in hard, soft copy at all the Airport.
- xii) The bidder firm may undertake survey at specified airports at its own cost to understand the scope and intricacies involved in carrying out the work as per scope of tender.

## F. GENERAL & QUALITATIVE REQUIREMENTS

The bidder has to fill **General & Qualitative** compliance statement in the table given below:

- ii) For stating **compliance**: Write “C” in the third column below.

S. No.	Description	Statement of compliance
(1)	(2)	(3)
	<b>FLIGHT INFORMATION DISPLAY SYSTEM</b>	
<b>1.</b>	<b>GENERAL REQUIREMENTS</b>	
1.1	The offered equipment by the bidder shall be compact, fully solid state, highly reliable and shall use latest state of the art technology.	
1.2	The offered equipment by the bidder shall be designed for continuous operation (24-hours a day and 365-days a year). <b>The design life of the equipment shall be a minimum of SEVEN YEARS.</b> This life shall be achievable through normal and regular maintenance during the period of Warranty and Comprehensive AMC.	
1.3	All offered equipment by the bidder shall be manufactured to continuously operate safely without undue heating, vibration, wear, corrosion, electromagnetic interference or any similar problems	
1.4	Equipment with better specifications shall be accepted.  <b>Note: - Original Equipment Manufacturer (OEM) of Servers-FIDS, Server-AFAS/IVRS, Server-NTP, Switches, Workstations, LED Display Monitors, LED Display Boards, UPS, etc. shall be ISO firms &amp; the offered products must be certified for Safety/ Emission of International standards such as BIS/CE/EN/UL. Etc.</b>  All types of spares and spare modules of the offered equipment for the FIDS shall be readily available with the bidder and its OEM partner during life time of the equipment for maintenance, repairs and up keep of the equipment during warranty and post-warranty Annual Maintenance Contract.	

1.5	The bidder shall undertake and ensure successful implementation of the offered solution, keeping in view the safety and protection of personnel during normal operation and maintenance or during malfunctioning of any equipment or its sub component. This shall be ensured as an integrated feature of design, manufacture and installation by the offered equipment bidder.	
1.6	The bidder shall ensure that offered equipment has adequate protection to be included for ensuring safety of personnel from any possible hazards, including EMI radiation, high voltages, etc.	
1.7	The offered equipment shall be constructed on a modular basis, using plug-in type units and components to the extent possible. Parts subject to failure, wear, corrosion or other deteriorations or requiring occasional inspection, adjustment or replacement shall be made accessible and capable of convenient inspection and removal.	
1.8	Input/output termination cables in offered equipment shall be properly labelled to permit ready identification of the incoming/outgoing wiring.	
1.9	All interconnecting cables in offered equipment shall also be appropriately labelled to facilitate convenient interconnection and minimize chances of incorrect connection.	
1.10	All cables required to interconnect the equipment shall be supplied by the bidder as a part of solution.	
1.11	All cables shall be fully assembled, connector pre-terminated and factory tested at the time of supply as part of overall system check.	
1.12	<b>Licenses:</b> All Hardware and Software component supplied by bidder shall be licensed in favour of Airports Authority of India and valid for the lifetime of FIDS.	
<b>2.</b>	<b>QUALITATIVE REQUIREMENTS</b>	
2.1	The Flight Information Display System (FIDS) shall be installed at Airports for display of Passenger Information, Flight Information, Baggage Belt Information, Check In-Counter/Boarding Gate Information, Multimedia Advertisement, Weather Information, etc.	
2.2	The Flight Information Display System (FIDS) shall primarily consist of following sub-systems:	
i.	<b>Flight Information Display System</b> – To provide visual display of Airport's Flight Schedule & Status, Gate, Baggage Belt information, etc. on LED Display Board, 40"/42"/55" LED Display Monitor, etc. through FIDS Application Software and Database on Hot/Standby Servers and Data Entry Application on Client Workstation, Administrative Application for Control and Monitoring of various devices, Page Design Application on Server/Workstation, etc.	
ii.	<b>Automatic Flight Announcement System (AFAS)</b> – To provide & integration with Airport Public Address System for Zonal Announcements of information, through Automatic Flight Announcement Software module	

	and necessary hardware interfaces.	
iii.	<b>Interactive Voice Response System (IVRS), if required</b> – To cater to Automatic Flight Status enquiries through Telephone (PSTN) and Mobile Phones.	
iv.	<b>Web Server, if required</b> - WEB module for providing interface for Station FID System Data to centralized system for providing Flight Information through Intranet/ Internet.	
2.3	System <b>architecture</b> shall be <b>open</b> for future expansion. AAI should be able to integrate additional standard LED/TFT Displays and Client terminals with the FIDS Server to access, control and display the flight information without need of any extra licenses, OEM approvals, etc.	
2.4	The FIDS Software, drivers & modules shall support minimum up to 128 displays locations, 16 Data Entry Terminals, 12 zones announcement, 32 clustered displays, 08 Monitoring & Administrative terminals, third party OEM FIDS software, 03 make OEM displays i.e. FIDS shall be scalable and expandable pre-wired (hardware & software) to add standard client PC/Laptop and Standard Display Monitors to expand the system as and when desired by AAI.	
2.5	<b>Weather Interface</b> allows the airport to display weather information for the different destinations providing an additional service for the passengers.	
<b>3.</b>	<b>SYSTEM HARDWARE CONFIGURATION</b>	
3.1	Servers, Display Monitors, Switch/routers and other components shall be of high end <b>Common Off-the-Shelf (COTS) hardware</b> as per preferred makes list.	
3.2	Re-engineered COTS hardware shall not be permitted/accepted. If such goods are found to be supplied at any stage, then it shall be the supplier's responsibility to provide appropriate replacement without any additional cost to AAI.	
3.3	FID System shall be provided with two servers configured to operate in <b>Automatic Failover</b> configuration without any need of any manual intervention. During change over there shall be no loss of database transaction.	
3.4	After change-over except for administrator user, other users need not to know which server is in use or connect to get requisite functions/ functionalities.	
3.5	System shall provide audio-visual alarm for Error, Failure and Changeover of FIDS main or standby server, to system administrator or a designated client terminal automatically.	
3.6	After restoration of faulty server, recovery assistant/agent shall recover the data back in to the faulty server, restart all application/ modules and keep itself ready for automatic and manual hot change over function.	

3.7	System shall allow manual & automatic change over from main server to the standby server and vice versa.	
3.8	System shall have facility to recover inconsistent system/FIDS database from the other healthy & active server.	
3.9	FIDS shall be provided with client-server architecture with latest version of UNIX or LINUX or Microsoft Window Server as operating system of Server/Cluster server, and Windows or Linux as operating system of client terminals.	
3.10	Hardware Keys, dongles, Terminators, converters, interface conversion, connector, power cables, etc. shall be provided with the system as per the system requirement. Details of all such devices used for the FID System shall be provided to AAI.	



## **SYSTEM DESIGN & TECHNICAL REQUIREMENTS**

### **GENERAL GUIDELINES:**

1. **“TECHNICAL SPECIFICATION” OF EACH ITEM SHALL BE THE PRIMARY CRITERIA FOR TECHNICAL EVALUATION** HOWEVER, BIDDER HAS TO ENDORSE AGAINST ALL “TECHNICAL FEATURES” OF SYSTEM AND EQUIPMENT MARKING AS “COMPLIANCE” AS A TOKEN OF CONFIRMATION OF FEATURES OFFERED.
2. THE SPECIFICATIONS DETAILED HEREUNDER ARE THE MINIMUM REQUIREMENTS. BIDDERS MAY OFFER SYSTEM/ EQUIPMENT/ ACCESSORIES/ SOFTWARE/ NETWORK EQUIPMENT/ CABLING OF BETTER SPECIFICATIONS.
3. THE BIDDER HAS TO FILL “TECHNICAL COMPLIANCE ALONG WITH FEATURES STATEMENT” AS PER DIRECTION GIVEN BELOW:
  - ii) FOR STATING **COMPLIANCE**: WRITE “**C**” IN THE THIRD COLUMN OF STATEMENT.
  - iii) AGAINST EACH COMPLIANCE STATEMENT, WRITE SPECIFIC PARA AND PAGE OF SUPPORTING TECHNICAL DOCUMENTATION (FROM WHICH THE STATED COMPLIANCE COULD BE VERIFIED IN FOURTH COLUMN OF STATEMENT).
  - iv) **SPECIFICATIONS OF THE EQUIPMENT BETTER THAN THOSE MENTIONED IN “TECHNICAL REQUIREMENTS ALONG WITH FEATURES” SHALL BE ACCEPTED.**

### **1. TECHNICAL SPECIFICATION/PARAMETERS FOR FIDS EQUIPMENTS**

Sl.No.	Description	Statement of Compliance	Reference page & para no. of supporting document (Write N/A, if Not Applicable)
(1)	(2)	(3)	(4)
I.	<b>FLIGHT INFORMATION DISPLAY SYSTEM</b>		
1.	<b>DISPLAY DEVICES</b>		
1.1	<b>GENERAL FEATURES:</b>		
	i. System shall be capable of supporting various display devices including but not limited to TFT, LCD, LED Display Board, Intelligent Monitor, etc.		
	ii. Display clustering: System shall be capable of		

	installing grid of multiple displays for spreading one page of information on multiple displays. The grid composition shall be user configurable.		
	iii. Devices shall be capable of displaying the information in Portrait and Landscape mode. This shall be user configurable.		
	iv. The display client software shall be able to handle various graphic formats including MPEG 2/4, MP4, JPEG, video clips, etc.		
	v. The displays shall have LED's to indicate operational status and network connectivity for easy maintenance.		
	vi. All the displays shall have IR Remote, controlling basic display functions such as Brightness, Contrast, Colour Control, etc.		
	vii. The display shall not have any controls within the reach of the public/or such controls shall be suitably covered to avoid possible tampering.		
	viii. Display controller shall be capable of remote monitoring of the displayed content/ information from the central server & any work station in the network.		
	ix. It shall be possible to reset, restart and reboot the intelligent controller & display monitor remotely on the network.		
	x. It shall be possible to put the display in standby mode (soft power off) from the remote (network: server/workstation) or shall have a remote control to switch the display on or off in a go.		
	xi. Display monitor shall be provided with cabinet suitable for industrial/professional 24x7 use with arrangement for Wall and Ceiling Mount installation with provision for Swivel movement.		
	xii. Display Monitor cabinet shall be designed for uniform heat dissipation/removal and shall have mechanism to remove heat from the cabinet. Heat removal mechanism shall automatically start functioning when temperatures reach certain threshold levels.		
	xiii. Suitable wall/ceiling/pedestal mounting shall be provided for Display Monitors in single or clustered configuration.		
<b>2.</b>	<b>FIDS APPLICATION SOFTWARE</b>		
	<b>TECHNICAL FEATURES:</b>		
<b>2.1</b>	<b>GENERAL FEATURES</b>		
	a) Application software shall meet requirements specified in this tender document. Software shall be supplied with license for the complete site without having any consideration for the number of clients, display, etc.		

	b) FIDS application shall include appropriate tools and interfaces for control, configuration, administration and maintenance of FIDS server and FIDS Database.		
	c) FIDS software shall have Standard Graphic User Interface for all modules and shall be fully menu driven. All software tools, configuration windows shall be windows based and menu driven.		
	d) The FIDS software shall be an open application using industry standard interfaces/protocols.		
	e) The FIDS software shall be able to handle proprietary as well as standard interface protocols.		
	f) FIDS Application Software shall have HTML/. devices.		
	g) Necessary Software tools shall be provided by the bidder for System Administration, Maintenance, Monitoring and User/Client Operations, which shall monitor all connected devices and report status of the systems and all display devices.		
	h) Grouping of Display Devices in different areas of the terminal building shall be possible. The system administrator shall configure these groups. Assignment of relevant flight data to be displayed on different groups shall be possible.		
	i) The updated flight information shall be displayed on field display devices (Display Boards, Monitors, etc.) in real time.		
	j) The FIDS displays shall access the flight information database using standard web browsers (such as internet explorer, Firefox, safari, etc.).		
	k) In case of network outage, the client shall show the last updated information for a configurable period of time. Thereafter, display shall display a predefined page selected by user.		
2.2	<b>RDBMS AND FIDS DATABASE</b>		
	a) The FIDS Application Software shall be designed to work with industry standard RDBMS System like MS SQL, Oracle, MySQL, etc. The FIDS Application Software and the RDBMS shall be installed on the FIDS Servers.		
	b) The RDBMS shall be supplied with necessary number of client access license.		
	c) The Flight Information Database shall be maintained on the Main/Hot standby servers.		
	d) FIDS shall comply to push and pull data with AODB on XML/HTML; SITA/ARINC PREFANS/FANS ACARS based network, ICAO AFTN network, CUTE system, BHS and NTP Server for time synchronization		
	e) FIDS RDBMS shall maintain lookup tables for Airlines/Airports as per standard IATA Codes.		

	f) Transaction Log Tables and Archived Transaction Log shall be maintained on RDBMS Server for all transactions. The Transaction Log Tables records shall be moved to Achieved Log Tables based on administrator configurable time parameters.		
	g) RDBMS shall implement record level locking, to enable updating of a flight record from only one Server or a Workstation at a time. Suitable WAIT message shall be displayed to other users trying to access the same record.		
	h) The database architecture shall be based on the following standards:		
	1. The flight schedule shall be stored in a seasonal flight table where every flight record contains the flight frequency, validity period, etc.		
	2. Each record shall be presented in ICAO and IATA standard Airport/Airline/Flight Number codes and formats.		
	3. Each record shall handle not less than eight exceptions on the schedule, e.g., for public holidays.		
	4. A flight record shall handle at least four VIAs.		
	5. A flight record shall handle at least six code share flight numbers.		
	6. The seasonal flight schedule shall be expanded into an actual flight table where every flight is one record. The time window for the expansion shall be configurable.		
	7. Actual flights which are operated shall be stored in an archive table for statistics and reports. The record shall be deleted from the actual flight table according to configurable time parameters.		
	8. The flight records in the actual and archive flight table shall have a departure and arrival log; a join to a rotation between the arrival and departure log shall be possible.		
	9. The flights origin, destination, VIAs, airline, codes shares, etc. shall be represented by the appropriate ICAO and IATA codes to be linked to lookup tables.		
	10. All flights shall be distinct by flight nature according to IATA flight nature. The flight nature shall be stored in a lookup table and linked by the nature code to the flight record.		
	11. The flight record shall be expandable to any field required by the airport. Information about the flight shall come from interfaces not limited to SITA, TEXT, AFTN, Flight Schedule, AODB and Docking System as made available at airport.		

	12.The design of FIDS Database and Application Software shall enable the user to retrieve reports and statistics for historical and actual flights.		
	13.Administrative terminals, Client Terminals and Data entry terminals shall access the database using standard web browsers (such as internet explorer, Firefox, safari, etc.) for functions/ processes:		
	I. Updating the flight information database; II. Accessing the flight information database; III. Configuration and administration of the FID System, Database;		
	i) Bidder shall supply all necessary protocols (ICDs - Interconnect Control Documents), details of database structures with detailed inter-dependencies, communication protocols of the system at site to enable integration of FIDS in future with various other third party automation technologies.		
	j) The FIDS RDBMS shall maintain a <b>MASTER FLIGHT TABLE (MFT)</b> based on defined periodicity.		
	k) <b>ACTUAL FLIGHT TABLE (AFT)</b> : From the flight database, the system shall automatically generate Actual Flight Table containing flights in chronological order for a user defined time interval (time interval in multiple of Hours shall be configurable/predefined by user). The AFT shall be generated automatically by the system on continuous bases. Updating of the AFT shall also be on continuous basis. The left over flights of the previous intervals (configurable) and their status shall not be changed and shall be added on top of the new AFT automatically.		
	l) Each flight in the actual flight table shall have a traffic type flag not limited to the following		
	a. Operational		
	b. Cancelled		
	c. Diverted		
	d. Re-routed		
	e. Non-operational.		
	f. Suspended		
	g. Planning		
	m) The current flights in the AFT shall be displayed on the display devices automatically as per the configuration of the display (by the operator through Software) without any manual intervention of the operator.		
	n) It shall be possible to manually update any data field		

	of the Flight Information Data for all the flights in the AFT for the current day by the operator, and then transmit for displaying on the configured display devices.		
	o) System shall permit insertion and deletion of the flights from the AFT. System shall allow editing the database and updating the same from client terminal with appropriate access authorizations.		
	<b>p) EDITING FLIGHT FOR A DAY:</b> FIDS shall be provided with Software Tool to query the Database for a list of flights for any specific day of the week for editing. Operator shall have appropriate software interface for editing and modification of these flights.		
	q) Data entry on user forms/pages shall be validated for possible logical errors and accordingly pop-up shall be presented to user indicating warning along with the help options.		
2.3	<b>DISPLAY CONFIGURATION TOOL</b>		
	i. It shall be possible to schedule such designed templates to the display devices based on programmed template and timed sequence.		
	ii. All the parameters in the display configuration tools shall be user configurable.		
	iii. Provision shall be available to configure number of displays into groups to display same set of information's.		
	iv. The Display Configuration tool shall be primarily used to define the entire Video display network in terms of groups. The display shall be grouped on the bases of area (such as arrival, departure, etc.), flight types (domestic, international, etc.), flight operation (arriving, departing flight, etc.), language, gate type, baggage display, check in counter, etc. Once groups are made, each group will display the same set of messages in a synchronized manner.		
	v. For example, the Arrival Hall may be required to be split into two groups, namely those that display arrival messages in English and those that display arrival messages in Hindi. Once this is done using the Display Configuration Editor, these display monitors will automatically display arrival messages as per configured language option.		
2.4	<b>INDIAN LANGUAGE DICTIONARY</b>		
	i. The Indian Language Dictionary shall be created and maintained for all flight information fields.		
	ii. The Dictionary shall be accessed during flight information display to provide automatic translation from English to Hindi and one local Indian language as per site requirement so that Flight Information		

	entered in English by the operator is automatically translated into Hindi and any other Indian language script, by the use of this dictionary.		
	iii. The dictionary shall be editable and it shall have feature for addition and/or deletion of more words of Hindi and Local Indian Language.		
2.5	<b>BAGGAGE CLAIM SOFTWARE MODULE</b>		
	FIDS software shall have Baggage Claim module, with the following features:		
	i. Assignment of Baggage Belt Number to a flight.		
	ii. On changing of flight status to “ARRIVED”, the assigned Baggage Claim information shall be displayed on the respective Baggage Claim Display Monitor and Directory Display Monitor.		
	iii. The data entry from Client Workstation for First Bag and Last Bag shall be processed with timestamp, updated in database and displayed on Baggage Claim Display Monitor.		
	iv. Directory listing of baggage claim facility information shall be available for Directory Display Monitor.		
	v. FIDS shall have provision for interfacing with other automatic baggage handling system for updating FID database of the system.		
	vi. The Baggage Claim Software Module shall be operated from Client Workstation by authorized user.		
2.6	<b>BOARDING GATE DISPLAY MODULE</b>		
	FIDS software shall have Boarding Gate Display Module with following features:		
	i. Assignment of Gate Number to a Boarding Flight		
	ii. Next Flight Number to be displayed for Boarding		
	iii. Boarding information shall be possible through CUTE System		
	iv. The Boarding Gate Display Module shall be operated from Client Workstation by authorized user.		
2.7	<b>PAGE/TEMPLATE DESIGN TOOL</b>		
	i. <b>Page/Template Design Tool</b> shall be provided for designing Screen Layout for display devices by choosing position of data (Header, Footer, Flight records, Airline Logo, Time of the Day, Free-form messages, Ticker/Scroll messages with flight data, etc.), fonts, text attributes (Regular, Bold, Italics), colour (Foreground, Background), background image, scrolling (direction, speed), etc.		
	ii. Page design tool shall be a standard OEM product using GUI (Graphical User Interface).		

	iii. Page design tool shall work from the FIDS server and client terminal connected to the FIDS network.		
	iv. The access to this module shall be protected by passwords, and controlled by access level assigned by system administrator.		
	v. The design tool shall have easy to use Tool bars, Menus, Buttons, etc. and shall include Search for help on various functions/ capability of the system.		
	vi. The page design tool shall have ability to manage graphics, true type fonts, video clips, and multimedia advertising. It shall permit use of animation and graphics for displaying flight information and free-form information pages.		
	vii. It shall have provision to use different images of common graphic formats as backgrounds for screen templates.		
	viii. The page design tool shall support selection and display of multiple language fonts.		
	ix. Page design tool shall be provided with predefined screen layouts (template) with the system, and shall also have capability for designing new page templates. Any number of such custom made screens shall be stored and displayed on a specified date and time.		
	x. Page design tool shall allow user to define page format and design each page combining fixed and dynamic information.		
	xi. The software shall also permit creation of free-form pages wherein any special message or information of the general type can be entered for selective display on the intelligent display devices.		
	xii. The Page Design Tool shall be user programmable. Display configuration shall be done to the extent of user to create and edit display script for one or many displays, display clocks, blank screens.		
	xiii. Only System administrator shall be allowed to publish newly designed pages.		
	xiv. It shall permit preview of any designed page.		
	xv. The design tool shall allow the user to construct a display layout including graphics, true type fonts, video clips to a selection of flight data.		
	xvi. The tool shall have common features used in other design tools, like:		
	a) Horizontal, Vertical Grid alignment		
	b) Snap to grid function		
	c) Copy style function		
	d) Different layers, bring to front, send to back, etc.		



	e) Tickers		
	f) Page carousels.		
	h) Advanced table functions for summary displays		
	xvii. It shall be possible to place the Airline logo(s) (Image files in standard graphics format) on screen at User configurable/selectable specific positions using the page design tool.		
	xviii. The system shall display free text information in a scrolling line at selectable position in the display devices (TFT- LCD/LED, etc.). This feature shall be user selectable and user configurable.		
	xix. The module shall allow creating pages for displaying on TV using full screen and also in scalable window. The page shall be selectable in the aspect ratio of 4:3, 16:9, 21:9 and free form.		
2.8	<b>SECURITY</b>		
	i. Multi-level password security shall be incorporated for addition, deletion, modification and update of the database for individual users. This shall be configurable by the user.		
	ii. Access to Server Operating System, Database and FIDS Application Software shall be restricted as per user authorization matrix, with access passwords.		
	iii. All the Systems shall be protected by individual user Ids and passwords.		
	iv. The following access level shall be provided:		
	a) <b>System administrator or System Manager:</b> System-wide access to flight records and main schedule for all airlines.		
	b) <b>Users:</b> Assigned with necessary access rights to create, modify, delete and add flight data for a specific airline or multiple airlines (as assigned) from a client work station		
	v. The system shall maintain transaction log for every event occurring in the system. A transaction shall be time and user stamped. The log file shall be maintained & archived for auditing.		
	vi. The access rights to view, add, delete and update flight data shall be controlled on data field level.		
	vii. Dedicated processes monitor the smooth operation of the system. Errors of individual processes or any event in the system can be configured to generate a message to be stored in the system log files. The access to these log files is provided via the system console. Each system message to be stored in the log files can be individually copied.		

2.9	<b>DEVICE MONITORING AND CONTROL</b>		
	i. This module shall enable user to view status of displays/device connected to it and shall have access to the devices.		
	ii. System shall monitor all the devices connected in the network and report status of system and display devices.		
	iii. The modules shall be accessible from main system and also from remote PC connected to the FIDS network.		
	iv. The access to this module shall be protected by passwords and controlled by access level assigned by system administrator.		
	v. Maintenance Utility shall be able to run from any PC/Client connected to the FIDS network.		
	vi. The module shall remotely monitor health of each device connected in the system through SNMP and view online status of the display devices.		
	vii. The module shall allow the user to remotely view the display content (i.e. currently displayed) of the LED/LCD display monitor.		
	viii. Maintenance shall also enable to remotely view the content transmitted to the LED Line Display Board/LED Display Board.		
	ix. Maintenance utility shall enable to remotely control display devices i.e. switch off, reboot, set device out of service, etc.		
	x. Licensed Remote Desktop Tool like Netviewer, Gotoassist, Logmein, Webex, Showmypc, shall be provided for remote access of Clients, Display Controllers, etc.		
2.10	<b>REAL TIME CLOCK FOR DISPLAY DEVICES</b>		
	i. The page design tool shall fix the clock to be shown in digital form at any selectable position on the screen. The clock shall have some of the attributes as for text items such as colour and size.		
	ii. Clock's display shall be selectable for display and no display, as per user requirement.		
	iii. The clock shall automatically get synchronized with the database server clock/NTP server. Software provision shall be made in the display controller to force automatic periodic synchronization, as well as manual synchronization as and when required by the user.		
2.11	<b>AUTOMATIC FLIGHT ANNOUNCEMENT SYSTEM (AFAS) MODULE</b>		
	i. This software module shall scan the flight information		

	database for valid announcements, construct announcements, convert announcement text into voice format/audio signals and send to the appropriate zone of the PA system for announcing. It shall translate the flight information in to voice format for automatic announcement on the existing PA system of the Airport.		
	ii. The system shall construct announcements, convert in to voice and send to the appropriate zone for announcing on the PA System.		
	iii. The system shall select zone of the PA system and send zone selection signals to the PA system for effecting the announcement in the selected zone.		
	iv. To construct voice for announcement, the system shall have the following technology:		
	<b>A.</b> Text-to-speech engine to automatically synthesize flight information into a voice for announcement. The text to speech engine shall have:		
	a) The voice broadcast shall provision for male and female voice;		
	b) Different accents.		
	c) User shall have option to listen synthesized voice output		
	d) The above feature shall be user selectable.		
	<b>OR</b> <b>B.</b> Pre-recorded voice library for constructing announcements. Pre-recorded library shall include available list of 2048 airports, 2048 airlines, 4096 flight numbers and combination of existing flight route details up to 10240 in all three languages (Local, Hindi, and English) in male and female voices. The system shall allow updating of pre-recorded library and new voice file shall be added to the library.		
	v. This system shall translate flight information's into an audio file to be scheduled for announcement over Existing PA systems at the airport.		
	vi. The system shall be interfaced with the existing Public Address system. Audio output from this system shall be made available as input for the PA system.		
	vii. The System shall be built around proven technology such as IVR technology.		

	ix. The system shall build words and sentences from an in built Voice Library as per match with the database.		
	x. The system shall allow for creating new announcements and updating of Voice Library of pre-recorded announcements.		
	xi. Multilingual announcement shall be possible i.e. Hindi, English and one of the Indian Language as per the requirement of the airport		
	xii. The system shall provide for the following predefined announcements but not limited to:		
	a) Arrival, Arrival Delay, Arrival Cancellation		
	b) Departure, Departure Delay, Departure Cancellation.		
	c) Check In Call		
	d) Boarding Call, Final Call		
	e) Baggage in hall		
	f) General announcements.		
	xiii. Operator shall have control over the following parameters but not limited to:		
	a) Voice generation Technology i.e. Text to speech engine or pre-recorded voice library.		
	b) Accent, male/female voice in text to speech engine		
	c) Time of announcement,		
	d) Time between announcements,		
	e) Frequency,		
	f) Repetition rate of announcement		
	g) Male/female voice in case of synthesized		
	h) There shall be a provision of fixed announcements to be repeated at regular intervals.		
	i) The System shall be able to select zones for announcement		
	j) The system shall permit to perform flight announcement manually by the operator/user.		
	k) Complete announcement script in all three languages (Local, Hindi, and English) shall be provided well in advance to AAI for approval, before recording.		
2.12	<b>INTEGRATION WITH OTHER SYSTEMS</b>		
	The system shall be capable of integrating with the other		

	systems such as:		
	a) Airport Operational Database (AODB)		
	b) Departure Control System (DCS)		
	c) Baggage Handling System (BHS)		
	d) CUTE System		
	Integration with other technology/system involved in Airport operation shall be brought out by the supplier as per tender conditions.		
2.13	<b>PUBLIC SUMMARY DISPLAYS</b>		
	<b>a) CODE SHARE HANDLING</b>		
	i) The carrier (master) shall be displayed in first line. The carrier is displayed in one row and all code shared are displayed in rotation (alternatively) in a second row in alphabetic order.		
	<b>b) FREE TEXT, PAGING</b>		
	i) All public displays shall have a free text line for important information.		
	ii) The free text line shall be displayed on demand (selectable by user) in the last row of the public display.		
	<b>c) DISPLAY CLUSTERING</b>		
	i) If a display in a cluster of displays fails, the system shall detect the failure and migrate the data to the next display device. i.e. if the 2nd display in a cluster of 3 fails the more relevant information of the second display shall move to the 3rd display until the 2nd display is back to operation.		
	ii) A carousel e.g. between different languages and flight information pages shall be synchronized		
	iii) The cluster shall always display the same type of information.		
	The flight which was previously displayed in the last row shall be displayed in the first row of the following display in a cluster of displays		
	<b>A. ARRIVAL SUMMARY</b>		
	The display shall contain the following:		
	i) Airline logo		
	ii) Scheduled time of arrival		

	iii) Estimated time of arrival		
	iv) Flight number		
	v) Origin, via		
	vi) Remark *		
	<b>B. DEPARTURE SUMMARY WITH GATE INFORMATION</b>		
	The display shall display the following information:		
	i) Airline logo		
	ii) Scheduled time of departure		
	iii) Estimated time of departure		
	iv) Flight number		
	v) Destination, via		
	vi) Gate number		
	<b>C. REMARKS FIELD SHALL DISPLAY FROM THE FOLLOWING</b>		
	<b>i) ARRIVAL FLIGHTS</b>		
	a) On-time		
	b) Expected hh:mm		
	c) Delayed hh:mm		
	d) Landed hh:mm		
	e) Arrived hh:mm		
	e) Arrived hh:mm		
	g) Diverted		
	<b>ii) DEPARTURE FLIGHTS</b>		
	a) On-time;		
	b) Delayed hh:mm;		
	c) Departed hh:mm;		
	d) Cancelled;		
	e) Next Info hh:mm;		
	f) Gate Open;		
	g) Boarding;		
	h) Final Call;		

	i) Gate Closed;		
	<b>D. LOCATION RELATED DISPLAYS (CHECK-IN COUNTER, BOARDING GATE, BELT)</b>		
	a) The display shall show flight information only if the resource is active.		
	b) The operator shall be able to open the display on demand, if allocation time is exceeded due to delays. The operator shall be able to close the display at any time.		
	c) If a control device is used at location it shall be password protected. According to the allocation plan, only the current flight shall be displayed.		
	<b>d) CHECK IN COUNTER DISPLAYS</b>		
	i) The check-in counter display shall switch between common check-in, and dedicated check-in.		
	ii) In case the desk is allocated to more than one flight the display shall show information of all those flights allocated to the check in.		
	iii) The common check-in counter layout shall show airline or Ground Handler Logo, Class, and four free configurable Remarks.		
	iv) According to the allocation, the layout shall display the IATA Colour code.		
	v) The counter display shall show flight number and logo of the airline, as well as code share information, destination, Via, Passenger Class.		
	vi) Free text remark shall be made available as per the operator request.		
	<b>e) BAGGAGE CLAIM AREA</b>		
	i) The display will show up to 5 flights only if the flight is on blocks and allocated to the resource.		
	ii) Airline Logo, Airline, Code shares, Origin, Scheduled time of arrival, and First & Last Bag Time are to be displayed.		
	iii) The layout shall change automatically according to the number of flights to be displayed to achieve the maximum character size and legibility from distance.		
	iv) The flight shall disappear from the display after a configurable period of time or after the manual input "last bag" + 'x' minutes. The parameter 'x' shall be		

	user configurable.		
	vi) <b>BAGGAGE SUMMARY WITH BELT INFORMATION:</b>		
	The display shall contain the following:		
	a) Belt number:		
	b) Airline logo		
	c) Origin, via		
	d) Flight Number		
2.14	<b>CLIENT SYSTEM</b>		
	FIDS Application Software and its component for access control and configuration of FIDS database as per the requirements specified in the tender.		
	The client application shall have standard web browser based/HTML interface to the FIDS server.		
	Touch Screen Client Application shall have design to utilize the touchscreen interface for easy data entry by on-screen keypads.		
	Any additional software plug in/ module, if required for access, control, configuration and administration of the FIDs, shall be supplied for use at an airport site irrespective of number of client/terminals at that site.		
<b>3.</b>	<b>TRAINING &amp; DOCUMENTATION</b>		
	The bidder firm along with OEM partner firm shall provide following types of training as detailed below:		
3.1	<b>MAINTENANCE AND SYSTEM ADMINISTRATIVE TRAINING</b>		
	Maintenance and system administration training of minimum <b>THREE</b> trainees nominated by AAI, for <b>FIVE</b> working days at site. The training shall be designed and structured so that on successful completion of the training the participants shall be able to perform:		
	a. Basics of DBMS used.		
	b. System Administration of DBMS used.		
	c. Icon based and command line interface.		
	d. System setting up and Configuration of offered system from Scratch.		
	e. Adding, deleting, restricting of users to system		



	f. Adding of new displays, third party displays, user terminals & other components of the system		
	g. Interconnecting of system functional subcomponents		
	h. CCA/LRU replacement techniques		
	i. CCA/LRU level maintenance.		
	j. Preventive maintenance of the system		
	k. Basics of icon based or command line commands used		
	l. Configuration, optimization and alignment of the system with the help of the documents and software supplied along with the equipment/system.		
	m. Fault isolation up to Module/LRU level using diagnostic tools and general purpose test equipment		
	n. Taking corrective action by replacing the faulty Module/LRU and restoring the equipment for normal operation,		
	o. Installation procedures for system hardware & software, configuration recovery, reloading of software drivers/modules of operating system and application software.		
	p. Performing full, differential, restricted backups and restoration to partitions as required.		
3.2	<b>OPERATIONAL TRAINING</b>		
	On the Job Operational Training shall be provided for THREE working days to one batch of SIX to EIGHT Trainees nominated by AAI from AAI, Airlines and other stake holders. The training shall be designed and structured so that on successful completion of the training the participants shall be able to perform:		
	a. Basics of icon based commands used.		
	b. Understanding system is functional or not.		
	c. Basic fault/fault log monitoring.		
	d. Logging into the system.		
	e. Issue commands to display different shows.		
	f. Predicting restrictions of users to system.		
	g. Using of new displays, third party displays, user terminals & other components of the system		
	h. Using map depicting Interconnection of system fun		
	i. Call logging for Preventive maintenance.		
	j. Assisting System admin in Configuration, optimization and alignment of the system.		

	k. Assisting in Fault isolation up to Module/LRU level		
	l. Assisting in corrective action and restoring the equipment for normal operation,		
	m. Changing of different predetermined layouts, etc.		
	The bidder and OEM firm shall identify the prerequisite for the trainees for each of the training program. Complete training syllabus shall be submitted by the bidder in consultation with OEM to AAI before training.		
3.3	<b>DOCUMENTATION</b>		
	Two set each of soft copy and hard copy of Installation, Operations including theory of operation, Technical Manual, Maintenance manual; Troubleshooting of the system, procedure for loading of the system and application software, etc. shall be supplied at <b>site</b> . The Operation, Technical and Maintenance manual will cover:-		
	a. General technical description and theory of operation		
	b. Block diagram description up to LRU level		
	c. Component level lay out diagram with signal flows		
	d. Preventive maintenance		
	e. Fault analysis and repair		
	f. Detail circuit diagrams/schematic diagrams		
	g. Part list & component list with part number		
	h. Installation procedures for software, configuration recovery, reloading of software drivers/modules of operating system and application software.		
	i. Technical & operational manuals		
	j. Schematic/signal flow/block diagrams		
	k. Maintenance manuals		
	l. Maintenance and System Administrative procedures.		
	m. Operational Training.		
	n. Technical documents required for maintenance and fault finding for each module of the offered equipment shall be provided.		
	o. Integration with other systems: To enable integration of offered system, interface control document for the systems shall be provided.		

<b>4.</b>	<b>FIDS SERVER</b>		
	<b>To work as Main &amp; Standby (Set of 2 Servers)</b>		
<b>4.1</b>	<b>TECHNICAL SPECIFICATIONS:</b>		
i.	CPU: 64-bit high performance, 6/8 Core Intel/AMD CPU operating at 2 GHz or more with 12 MB Cache or more		
ii.	Memory: 8 GB of DDR RAM or more/better expandable up to 32 GB		
iii.	Chassis: Rack Mount type		
iv.	SAS 10K/SATA 7200 rpm hot-swappable Hard Disk in RAID 5 or better configuration having usable space of 320 GB or more.		
v.	Hot Swappable redundant power supply.		
<b>4.2</b>	<b>TECHNICAL FEATURES:</b>		
i.	NIC - Dual Integrated 10/100/1000 Mbps ports.		
ii.	DVD- RW Drive		
iii.	USB Optical Mouse with scroll, Keyboard shared through KVM switch, USB 2.0 or higher Ports and other Ports as required		
iv.	Other PCB/Modules/hardware as per system requirements.		
v.	OS: UNIX/LINUX/Microsoft Windows Server licensed (Latest version).		
vi.	Licensed Antivirus with update subscription valid till warranty and AMC period.		
<b>5.</b>	<b>AFAS &amp; IVRS SERVER</b>		
<b>5.1</b>	<b>TECHNICAL SPECIFICATIONS:</b>		
i.	CPU: Intel i7/AMD or better CPU operating at 2 GHz or more with 8MB Cache or more		
ii.	RAM: 4GB or more		
iii.	7200 rpm Hard Disk having usable space of 500 GB or more		
iv.	To be mounted in rack.		
<b>5.2</b>	<b>TECHNICAL FEATURES:</b>		
i.	NIC – 2 Nos. of 10/100/1000 Mbps ports		

ii.	At least 2 x PCI express I/O slots, suitable slot for 3rd party cards as required.		
iii.	USB 2.0 or higher port: At least 4 USB ports (2 in the front).		
iv.	DVD RW Drive		
v.	OS: UNIX/LINUX/Microsoft Windows Licensed Operating System		
vi.	Licensed Antivirus client version valid for Warranty & AMC Period.		
vii.	<b>In addition to the above, the Server for AFAS shall be equipped with:</b>  PA Interface: Professional Two Channel On-board Sound Card with Digital I/O for AFAS Application with Zone Selection facility for at least 8 Zones.  IVRS Interface: Four port telephone card and one port GSM modem		
<b>6.</b>	<b>CLIENT TERMINAL</b>		
	Client Terminals shall be used to access FIDS Application Software User Interface for viewing and updating the Flight Information Database.		
<b>6.1</b>	<b>TECHNICAL SPECIFICATIONS:</b>		
i.	CPU: Intel i7/AMD or better CPU operating at 2.4 GHz or more with 8MB Cache or more		
ii.	RAM: 8GB or more		
iii.	Motherboard Chipset: OEM Motherboard		
iv.	SAS/SATA 7200 rpm Hard Disk having usable space of 500 GB or more		
<b>6.2</b>	<b>TECHNICAL FEATURES:</b>		
i.	NIC – Gigabit Ethernet port		
ii.	At least 2 x PCI express I/O slots		
iii.	USB 2.0 or higher port: At least 4 USB ports (2 in the front).		
iv.	DVD RW Drive		
v.	USB optical Mouse with scroll and Keyboard		
vi.	23"/21" LCD/LED or better monitor.		

vii.	OS: UNIX/LINUX/Windows Licensed, latest version		
viii.	Licensed Antivirus valid for client version for Warranty & AMC Period.		
ix.	<b>Standard Computer table made of combination of steel/MS material along with top shelf of standard material &amp; size from reputed manufacturer such as Godrej/ Durion etc. as approved by Engineer in charge shall be supplied by the contractor with each Workstation/Client Terminal at equipment room</b>		
<b>7.</b>	<b>DISPLAY DEVICES</b>		
<b>7.1</b>	<b>GENERAL FEATURES:</b>		
i.	Devices shall be capable of displaying the information in Portrait and Landscape mode. This shall be user configurable.		
ii.	All the displays shall have IR Remote, controlling basic display functions such as Brightness, Contrast, Colour Control, etc.		
iii.	It shall be possible to put the display in standby mode (soft power off) from the remote (network: server/workstation) or shall have a remote control to switch the display on or off in a go.		
iv.	Display monitor shall be provided with cabinet suitable for industrial/professional 24x7 use with arrangement for Wall and Ceiling Mount installation with provision for Swivel movement.		
v.	Suitable wall/ceiling/pedestal mounting of Stainless Steel (SS) shall be provided for Display Monitors in single or clustered configuration, the design of SS mounting to be approved by Engineer in charge.		
<b>7.2</b>	<b>FIDS LED DISPLAY BOARD</b>		
	<b>True Colour LED Display Board For Outdoor Installation</b>		
<b>7.2.1</b>	<b>TECHNICAL SPECIFICATIONS:</b>		
i.	<b>Display Area:</b> For 3X2 m Board shall be 2.88mX1.92m and For 1.5 m X 1m Board shall be 1.44mX0.96m. Pixel:		

	<b>Pixel Pitch:</b> <b>For 3x2 m2 Board:</b> 10mm and <b>For 1.5X1 m2 Board:</b> 5mm For arrival & Departure both at-least one 3*2 LED board is mandatory.		
ii.	<b>Pixel density:</b> For 10mm pixel pitch it shall be 10000 dot/m2 and For 5mm pixel pitch it shall be 40000 dot/m2.		
iii.	<b>Pixel Configuration:</b> For 3X2 m2 Board shall be 1R,1G,1B and For 1.5X1 m2 Board: SMD LED with 3 IN 1 (RGB)		
iv.	LED make: Avago, Cree, Nischia, Osram [RoHS compliant and Lead (Pb) Free]		
v.	Brightness: $\geq 4000 \text{ cd/ m}^2$		
vi.	Contrast Ratio: 3000:1		
<b>7.2.2</b>	<b>TECHNICAL FEATURES:</b>		
i.	Optimal viewing distance: 10 – 50 MTRS.		
ii.	Optimal Viewing Angle: 100° (H), 40° (V)		
iii.	Grey Scale/Colours:256/16 Million Colours		
iv.	Processing: 16 bit/color		
v.	Interface: TCP/IP LAN RJ45		
vi.	Weather Protection: IP65 (Front) IP54 (Rear)		
vii.	Ambient Light Sensor		
viii.	Max. Power Consumption: $\leq 1000\text{W/m}^2$		
ix.	<b>Construction material:</b> Stainless Steel Cabinet SS grade 304		

<b>7.3</b>	<b>FIDS LED DISPLAY MONITORS</b>		
i.	<b>Technical Features:</b>		
ii.	Each Display monitor shall consist of:		
iii.	Professional Grade LED Monitor		
iv.	Suitable for 24x7 operation		
v.	Inbuilt Pluggable Intelligent Controller within OEM cabinet of Monitor.  No external/ attached controller will be accepted.		
<b>7.3.1</b>	<b>FIDS LED DISPLAY MONITORS: 40/42/55"</b>		
i.	<b>TECHNICAL SPECIFICATIONS:</b>		
ii.	Back Light: LED		
iii.	Aspect Ratio: 16:9		
iv.	Resolution: Full HD or better.		
v.	Brightness:  <b><u>For 55"</u></b> : 700 cd/m2 or better  <b><u>For 40/42/43"</u></b> : 450 cd/m2 or better		
vi.	Contrast (Native) Ratio: 2400:1 without IPS; 1100:1 along with IPS		
vii.	Viewing angle: (Horizontal/vertical): 176° or more		
<b>7.3.2</b>	<b>TECHNICAL FEATURES:</b>		
i.	Ambient Light Sensor		
ii.	Video Input Ports:		
iii.	Digital Ports: HDMI or DVI-D; USB		
iv.	Front Glass with Anti-Glare and Hard coating		
v.	<b>Display Monitor for outdoor side</b> installation no external cabinet to be installed over composite monitor. It shall be OEM Cabinet and inherent part of Monitor & protect from dust, sunlight, etc.		
vi.	Displays shall be CE, FCC certified, UL Listed.		
<b>7.4</b>	<b>INTELLIGENT CONTROLLER (for 40/42/55" Displays)</b>		
<b>7.4.1</b>	<b>TECHNICAL SPECIFICATIONS:</b>		
i.	Processor: Intel/AMD 1.5 GHz or better, FSB 400 MHz		

ii.	RAM: 2 GB or more		
iii.	Flash Hard Disk: 32 GB or more		
iv.	Keyboard and mouse connectivity		
v.	LAN/Network: Integrated 10/100/1000 Base T NIC with RJ 45 connector		
vi.	Wi-Fi connectivity supporting 802.11 a/b g/n		
<b>7.4.2</b>	<b>TECHNICAL FEATURES:</b>		
i.	USB 3.0/2.0 Port: 2 Nos.		
ii.	Graphic Card shall be having specifications to meet the requirement of supporting Display/Monitor.		
iii.	Software: Windows or Linux base Embedded Operating system and associated software as required.		
iv.	Display controller shall be capable of remote monitoring of the displayed content/ information from the central server & any work station in the network.		
v.	It shall be possible to reset, restart and reboot the built-in intelligent controller & display monitor remotely on the network.		

<b>8</b>	<b>NETWORK TIME PROTOCOL (NTP) SERVER</b>		
<b>8.1</b>	<b>TECHNICAL SPECIFICATIONS:</b>		
i.	GPS/GLONASS satellite supported L1/L2/L5 Frequency band, Rack Mount Type, NTP SERVER to maintain and display IP based NTP time across the network containing L2/L3 switches shall be supplied by the bidder. NTP server shall act as a master clock with accuracy better than 50 ms in the network to which other clients shall interconnect over the network using NTP client software on Windows or Linux OS and synchronize periodically. It shall provide diagnostic and status ports/ indications for automatic/ manual intervention.		
ii.	The GPS NTP Server shall be equipped with two independent network interfaces (10/100/1000 Mbps Ports).		
iii.	<b>TECHNICAL FEATURES:</b>		
iv.	NTP Server shall support all the required networking protocols.		
v.	SNMP v3 support for status and configuration and SNMP Trap messages.		



vi.	The GPS NTP Server shall be supplied and configured by bidder, with a GPS Antenna/Converter Unit and standard RG58 coaxial cable, as per site requirement.		
9.	<b>FID Control Kiosk for Departure/ Arrival /Security Hall</b>		
9.1	<p><b>Manufacturer/OEM shall enclose copy of certification of ISO to ensure consistent product quality and meeting all regulatory norms.</b></p> <p>The console shall be built to withstand life span of at-least 10 years on normal use, wear and tear.</p>		
	<p>1. Kiosk shall have provision to accommodate upto one 21" to 23" touch screen, one metallic keyboard with track pad, Kiosk shall have sufficient space to accomodate the CPU, UPS &amp; PDU (power distribution unit for powering all equipment with two spare 6A Power ports) and shall be accessible through rear door. The entire design shall be modular; consisting of interchangeable and replaceable parts. Touch/Non-Touch screen shall have separate door for the accessibility/maintenance and all locks shall feature 2 point locking arrangement. Design shall be extremely rugged to ensure a minimum life of 10 years for structural stability, moving and non-moving parts. The kiosk must be IP22 compliant to ensure rodent proof enclosure. Kiosk shall have PU wrist support for user comfort. Kiosk shall have feature of flush mounted metallic keyboard tray, in idle condition the tray shall remain flushed to the front fascia of the kiosk through "Child proof Clip Locking" and shall be accessed as and when required. Valid certificate to be submitted along with the bid.</p> <p>2. The structure shall be made up of minimum 2 mm thick heavy-duty vertical and horizontal profiles. These profiles shall be accurately inserted and welded over minimum 10 mm thick solid base. Outer shell, including all hinged and non-hinged parts shall be made up of minimum 1.5 mm thick sheet.</p> <p>3. All the sheet metal parts must be finished with a durable anti-bacterial powder coating (with added silver ions) to reduce formation of bacterial colonies on the front surface.</p>		

	<p>4. The Base shall have concealed provision of grouting to the floor with anchor fasteners.</p> <p>5. Touch/Non-Touch Screen shall be accessible from Rear doors with hinges. All doors to have Foam Gasket to protect the equipment from dust particles. Doors shall have 2-Point Lockable system and shall have common keys for hassle-free maintenance.</p> <p>6. Modularity is to ensure replaceability in an unlikely case of damage. The rigidity and strength must not be compromised despite the modular feature of structure.</p> <p>7. Light Leaks, sharp edges and corners shall be deemed un-acceptable. Front Edge of the keyboard shall have moulded polyurethane edge for ergonomic wrist support.</p> <p>8. OEM shall enclose copy of certification of ISO.</p> <p>9. Bare Enclosure shall be RoHS certified to ensure restriction of hazardous material.</p> <p>10. Manufacture shall have CE Compliance certificate.</p> <p>11. <b>A typical diagram for FID Control Kiosk is attached at Fig 3 for reference.</b></p> <p><b>Final drawings and design will be approved by Engineer-In-charge/CHQ before the time of execution.</b></p>		
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**Fig 3: Typical diagram of FID Control Kiosk for Departure/Arrival/Security Hall**

**Front-side:**



## Rear-side:



