

OUTLINE SPECIFICATIONS FOR IP CCTV SURVEILLANCE SYSTEM

REFERENCE DRAWINGS/DOCUMENTS:

RFP Exhibit D (RFQ Attachment 1): Campus Site Plan, Building Floor Plans

As-built drawings of facilities included in the work are available at HSU Facilities Management offices.

DESIGN CONCEPT & SCOPE OF WORK:

1) IP SURVEILLANCE SYSTEM

(i) DESIGN CONCEPT:

The entire IP surveillance system shall monitor entrances, exits and other selected public areas of the residential facilities at Humboldt State University (HSU).

Two types of cameras shall be installed to monitor the movement of the people as follows:

- IP fixed camera indoor type, dome or turret.
- IP fixed camera outdoor type, dome or turret.

All cameras shall be true IP camera, 1080p or higher resolution, and Power over Ethernet (PoE).

All outdoor cameras shall be rated IP 66 or higher.

All outdoor items for cameras like junction boxes, power supply, media converter etc. shall be in water proof and dust proof housings.

Surveillance system shall include centralized recording solution with Video Management Software and Network Video Recorder.

Approximate camera locations are shown on the drawings. Contractor shall finalize locations based on optimal field of vision and coverage.

All CCTV cameras shall have connectivity to Owner's PoE-powered dedicated local area network.

(ii) SCOPE OF WORK:

Supply, install, test and commission high quality IP CCTV surveillance system along with software, server(s), power supply, power distribution and required accessories throughout the residential facilities of HSU.

The entire system shall be as per technical specifications and drawings.

The CCTV surveillance system should consist of IP Fixed cameras (indoor type), fixed cameras (outdoor type), software, server, power supply and cables.

Video management software shall offer both video stream management and video stream storage management.

Recording frame rate shall be 15 frames per second or greater.

Cat 6 cable/fiber cable connectivity with all required hardware up to purchaser's networking switches of LAN, locations of networking switches.

Integrated testing and commissioning of CCTV system on LAN to be provided by Contractor.

Training & handing over of all materials, equipment and appliances.

Any other items/accessories required for installation, testing and commissioning of CCTV system.

2) SUBMITTALS:

(i) Drawings:

Prior to installation, system supplier shall submit:

- Installation drawing
- Cable connectivity drawings and cable schedule.
- Power distribution scheme.
- Specifications and data sheet for each item.
- List of software and software licenses.
- Test certificates, Internal test reports etc.

(ii) System Documentation

Upon completion of installation, system supplier shall submit:

- System configuration diagrams in simplified block format.
- Manufacturer's instructions and drawings for installation, maintenance, and operation of all purchased items.
- Overall system operation and maintenance instructions—including preventive maintenance and troubleshooting instructions.
- A list of all functions available and a sample of function block programming that shall be part of delivered system.
- Quality Assurance Plan.
- Operation and maintenance manuals.

3) QUALITY ASSURANCE:

- The entire system shall be installed and commissioned from a single vendor to assure reliability and continued service.

- The vendor shall be required to train and instruct client's personnel in the correct use, operation and supervision of the system, preferably prior to the handing over of the project.
- The supplier shall be responsible for inspection and Quality Assurance (QA) for all materials and workmanship.

4) TESTING:

Initial testing: Prior to installation of the system, Contractor shall install Contractor's proposed IP cameras for each type of camera specified in the proposed monitoring locations to demonstrate the image quality. Contractor shall provide temporary power for the initial testing.

Component Testing: Maximum reliability shall be achieved through extensive use of high-quality, pre-tested components. Each and every component shall be individually tested by the manufacturer prior to shipment.

Tools, Testing and Calibration Equipment: The supplier shall provide all tools, testing, and calibration equipment necessary to ensure reliability and accuracy of the system.

Commissioning: Contractor and Owner shall review video from each camera to confirm image quality and detail from each location at times that most critical to the Owner for surveillance.

5) POWER SUPPLY:

Contractor's scope shall design and installation of complete power distribution to support PoE IP CCTV system including complete cabling work, dedicated patch panels at each data closet, and required electrical accessories with suitable protection devices from UPS and UPS output to IP CCTV cameras.

(I) IP CCTV SURVEILLANCE SYSTEM:

(a) IP Video System Overview:

- Transmit and Receive H.264 and/or H.265 video.
- Video and alarm management software under one single front end and should be on open platform with support to renowned IP camera brands.
- Support for multi-user and multi-user group environment in addition to user hierarchy.
- System should allow to be used as a distributed or centralized architecture with support to any number of cameras and any number of clients that may be added in the future.
- System Guarantees Bandwidth & Frame rate control.
- Must provide up to 120 days of motion-based archive footage per CSU guidelines. Provide a local storage solution with the option of cloud-based storage.
- Provides Activity Controlled Frame rate, which in turn reduces bandwidth and storage requirements.

- Provides Broadcast quality Video across IP network including Internet.
- Provides multiple fail-over and network resilience.
- Provides real time recording at 15 or higher fps with no frame loss.
- Supports Multiple IP Video Streams.
- Secured recording for evidence purposes and user authentication to protect data integrity.

(b) Minimum IP Fixed Dome or Turret Camera

Distance from camera: as appropriate for area to be covered.

Integrated IR.

Outdoor rating: IP66 for outdoor camera locations.

Temperature Range: Minimum 25°F – Maximum 90°F.

Vandal Resistant: where appropriate

Operating voltage: Power over Ethernet (802.3af).

Codec: H.264, H.265 with optional smart codec enhancements

Recording Mode: motion based.

Each stream must allow independent configuration of bit rate, frame rate, I frame interval, rate control mode and motion data.

The IP Camera must support Capped Bit Rate (CBR) control, to enable users to keep bandwidth utilization under a certain value without compromise on image quality irrespective of the level of motion in the scene.

The IP Camera must support Activity Controlled Frame Rate control to automatically adjust frame rate depending on motion in the scene. During periods of negligible motion, the frame rate must drop to 1fps and when motion occurs the frame rate will return to full frame rate within 100ms. It must be configurable using a Region of Interest editor (ROI) that can select regions of the scene where motion will be ignored. Support network protocol 802.3 and IETF Standards 10/100 Base-T Ethernet, RTP/RTCP, TCP, UDP, ICMP, SNMP, HTTP, FTP, MULTICAST, ARP and IGMP.

Each stream Bit-rate should be user configurable from 32 to 4096 Kbps or better.

The IP Camera will have a built in web server, making it accessible for configuration using a standard Internet browser.

Should be able to detect motion based on localized area, object size & direction.

It must be possible to reset a unit back to Factory Default configuration without losing IP address information.

Password protected Web interface for administration.

The system shall be able to use one particular frame rate and resolution at Day time and automatically switch to another frame rate/resolution profile when low light conditions occur.

(c) Video Operation Codec Management, Recording and Processing Software (VOCMRPS)

VOCMRPS will be a highly scalable, enterprise level software solution. It must offer a complete Video Surveillance solution that will be scalable from one to hundreds of cameras that can be added as and when required. It should allow for seamless integration of third party security infrastructure where possible. The system shall be capable of working on latest Windows OS and Windows Server platforms. Should support client- server architecture.

The software must come as one unit and not multiple loadable units and should support free distribution of multiple clients to multiple machines.

The software must not have operator seat based licensing. It must allow for any number of user seats/installations on the IP video network to be added for future scalability at no management software cost or licensing cost.

The manufacturer supplied management software pack should be on open platform/standard media player.

All upgrades and releases should be made available free of cost during the warranty period.

The VOCMRPS shall provide the following:

- Automatic search of components of proposed system on the network. They can be Cameras, Monitors, Alarm panels, NVRs.
- The system should allow for live view, playback and system configuration of the IP video system.
- The system should allow for creation of multiple users and user groups and assign tasks to each.
- Drag & Drop functions for most functions on the system and also for set up of connection between cameras and monitors and also support to create custom layout by grouping of cameras from different server/ locations into groups for more efficient monitoring.
- It shall be possible to display video and audio bit rates; frame rate and resolutions on each video pane as overlays.
- System setup for pre-defined surveillance tasks to be invoked at predefined times in the day.
- Programming of automatic recording events on NVR, maybe based on events such as alarms and video analysis.
- Remote maintenance of IP Video components.
- Off line construction of site 'tree' and addition of devices.
- The VOCMRPS shall allow the following:
 - Live display of cameras

- Playback of archived Video at speeds of x1/4 – x16
- Retrieval of archived Video using normal playback, thumbnails (motion, event or time based)
- Instant Replay of Live Video
- Use of site maps and/or Google map
- Configuration of system settings

- For each camera set up bit rate, frame rate, and resolution shall be set independent of other cameras in the system; altering the setting of one shall not affect the settings of other cameras.
- Should have facilities for play, forward, rewind, pause along with fast forward and rewind for reviewing the recorded videos. The system must support video bookmarks, where the system allows the user to create textual bookmarks at various places in a recorded footage and allow access to these bookmarks through an intelligent bookmark management system.
- The system must allow application of sorting and searching filters on bookmarks for faster retrieval and access to incidents in recorded footage.

(d) Network Video Recorder

The NVR/NAS must be providing for a disk management system which will automatically remove old recordings to overwrite with new ones when max disk usage is reached.

(II) UPS (ONLINE) WITH BATTERY BACKUP FOR A MINIMUM OF 30 MINUTES :

Input:

- Nominal AC Input Voltage: 1 Phase 120V AC
- Line low/ High transfer: + 15%
- Frequency range: + 5%

Output

- Voltage: 120VAC
- Voltage Regulation: + 1%
- Frequency: 50 Hz+/- 0.1%
- Output waveform: Pure sinewave
- Harmonic distortion: < 2% (linear load) / 5 % nonlinear load
- Power factor: 0.7 to unity
- Crest factor: 3:1
- Inverter overload capacity: 110% 15 min./ 125% 10 min./ 150% 1 min./ > 150% 1 sec.
- Efficiency (AC – DC): 90%
- Bypass: Static bypass

Display

- Standard: 2 line x 20 characters, Backlight LCD
- AC input voltage, AC input frequency, Battery voltage, AC output voltage , AC output frequency, AC output load
- %, Temperature
- UPS status(Mains fail, Individual phase fail, Battery low DC high, Overload with shut down time, Output low, Output high, Over temperature, UPS bypass)

(III) CAT – 6 Cable :

- 23 AWG bare solid copper, CAT-6 UTP Cable Meets EIA/TIA 568A specifications, Meets CM and CMR ratings
- Worst Case Cable Skew : 45 nsec/100 meters
- Insulation High Density polyethylene, Diameter 0.94 mm (nominal)
- Support for Fast Ethernet and Gigabit Ethernet IEEE 802.3/5/12, Voice, ISDN, ATM 155 & 622 Mbps and Broadband.

- END OF OUTLINE SPECIFICATIONS -