

ELECTION COMMISSION OF INDIA

Nirvachan Sadan, Ashoka Road, New Delhi-110 001.

No.485/COMP /2017(Webcasting)

Dated : 19.09.2017

To

The Chief Electoral Officers of Gujarat and Himachal Pradesh.

Subject: -Suggestive Technical Specification for webcasting –reg

Madam/Sir,

I am directed to refer to the Commission's standing instructions (issued vide letter number 464/INST/2016-EPS dated 30.4.2016) regarding multiple measures to be taken to keep a watch on the polling stations to ensure free and fair elections. After a comprehensive review of the said instructions and in the light of the feedback received from the field and from the Chief Electoral Officers of various States, the Commission has decided to issue suggestive technical specification document for effective management of webcasting during the poll. This document is exhaustive and covers all stages of the process starting from technical specification, procedure for livestreaming, setting up help centre, deployment of manpower, time schedule for deliverables, installation of equipment, condition for release of payment, etc. for the guidance to the State in preparing their State bid documents for webcasting.

You are accordingly requested to prepare your State's Request for Proposal (RFP) for webcasting for ensuing assembly elections and finalize agreements with suitable vendor following all existing financial rules. A copy of the document containing suggestive technical specifications for implementation of webcasting solution on turn-key basis is enclosed herewith for your guidance.

Yours faithfully,



(AMIT KUMAR)

UNDER SECRETARY

Copy to:-

1. All Chief Electoral Officers of States/UTs for information

Suggestive Technical Specification Document for Installation, Implementation of webcasting solution on turn-key basis for Elections (Name)

Scope of Work

The Successful bidder has to undertake the Live web streaming (both audio & video) of polling day and counting day events during the (Legislative Assembly Elections) (Year) (State Name), with the installation of the necessary suitable, proven web based web streaming software along with the supply of other related items as per the detailed Scope of Work given below.

1. Supply, installation, commissioning and implementation of the web based audio & video streaming software in the server set up in the secured cloud environment.
2. Supply and installation internet connectivity for use in the identified polling stations on the polling day along with one manpower per polling station, to operate them to web stream the live data.
3. Supply and installation of (enter number) LED TV as per the specifications for use in the office of the Returning Officer (RO), on the polling day to operate them to view the live data.
4. Supply and installation of (enter number) LED TV as per the specifications indicated in (Enter appendix) for use in the office of the District Election Officers (DEO), on the polling day along with one manpower per DEO, to operate them to view the live data.
5. Supply and installation of (enter number) LED TVs as per the specifications indicated in (Enter Appendix) for use in the office of the Chief Election officer (CEO) at State HeadQuarters, on the polling day along with two manpower, to operate them to view the live data.
6. Supply and installation of IP based HD web cameras along with one manpower per counting centre, for use in the counting centres, on counting day, to web stream the counting day activities in each counting centre.
7. Supply and installation of (enter number) LED TV as per the specifications indicated in (enter Appendix) in the office of the DEO, along with one manpower, for use on the counting day, to view the live data of counting activities in each DEO's office.
8. Supply and installation of (enter number) LED TV as per the specifications indicated in (enter Appendix) in the office of the CEO, along with two manpower, for use on the counting day, to view the live data of counting activities in each CEO's office.
9. The Video Streaming solution should be able to display multiple streams happening at the same time, in the Polling stations/Counting Centres, on TV (s) for viewing in the Offices of the CEO, DEOs & ROs and ECI/
10. Training manual and training schedules at each DEO office for the officials on the operation of the web streaming software.

11. Establishment of the centralized Help desk with minimum of (specify numbers) seaters to manage and fix the complaints/issues coming up on the Polling and Counting days.

Technical Specifications

Task 1: Hosting of the web based streaming software:

The bidder shall deploy suitably secured proven web based software, that has the ability to record both audio and video.

The key features of the software shall be:

1. Able to record video in H.264 compression or other equivalent open formats which can be read by a variety of open source software solution.
2. Able to record at least 4 kbps audio in a good quality. This may be either encoded within the video stream or recorded as a separate stream.
3. The camera should be wall mounted and fixed. It should be appropriately secured from physical damage.
4. The web camera should be so placed to cover the maximum possible area in polling station without hampering the secrecy of vote. The light and glare should be minimum and should be capable of zooming in as per the requirements
5. During recording the assembly constituency (AC No.) and polling station no.(PS No.) should be visible clearly in camera view.
6. Further, it must be insured that in the framework used for webcasting, advertisement of any kind is not displayed.
7. Both audio and video should have the running time stamp. The timestamp should come from a secured location / source and should be approved by the Nodal Officer
8. The recording should not require any specialized software for viewing and should be done using the standard browsers which include the latest and up to 4 previous versions of the following – Google Chrome, Internet Explorer, Mozilla FireFox and Apple Safari.
9. The Application shall be loaded from the Browser and the operator shall, only have the capability to Start and Stop the Recording. (The operator is a person provided by the bidder, who will use and operate the recording system and online application at the polling station).
10. The software shall provide video streaming URL with password protection to view district wise, parliamentary constituency/assembly constituency wise and polling station/counting centre wise videos which are streamed from the polling stations/counting centres. The software shall provide for secure data streaming over the internet, with viewing access only to the CEO, and such other Offices as authorized by the CEO with user id and password. The data streaming shall not be open for viewing by the public over the internet without the approval of CEO
11. The software shall include options for
 - a. Connectivity status of web camera/IP camera from the polling station/counting centre whether the stream is online/offline

- b. Option for auto rotation of videos within assembly constituency/district/state level based on the type of user connected and options selected.
 - c. Option for on-demand view of the polling station/counting centre wise video
12. Upon browser based video recording commencement, generic desktop lock must be engaged to disable all other applications from launching and connecting to the internet.
 13. The software provided should have been developed by the bidder and should not be the free software or shareware available on the internet. During the recording, the User should be able to see the actual video that is being recorded.
 14. The software should be able to offer graceful degradation of the recording quality in case there is deterioration in the network speed. This should be automated without any user inputs to be required on this.
 15. The necessary load testing should also be carried out so that web streaming event meets the demand and goes through smoothly with good performance.
 16. Software provided shall be able to perform query of the video and audio content of the storage. The software shall be able to burn CD and DVD disks on Windows based computers and be able to query the content available based on multiple parameters as Data, Time, Location, etc.
 17. The Video Streaming solution should be such that it supports rewind with playback option and the option to move to the current live status of recording.
 18. The Video Streaming solution should be able to display multiple streams happening at the same time on one TV location. It shall provide for the selection of any of the polling stations at any time on poll day, from where video data is being streamed, for viewing in the Offices of the CEO, DEOs & ROs.
 19. The software shall list all polling stations/counting centres with their respective webcast after collecting and updating the details and the application software design from the nodal officer.
 20. The data should in no point be hosted outside India and bidder will not access the data unless authorised by the CEO/DEO.
 21. The video recording of the live webcasting at server shall be done as per the instructions of the nodal officer and shall not be stored in any form in any type of devices outside CEO's office after giving backup of all the videos to CEO's office. The bidder shall add the digital video watermark in the background of the streaming videos.
 22. Uploading of the videos shall be carried out by the manpower posted by the bidder at each identified place, using webcam/HD camera and connectivity of either 4G/3G/2G/broadband, WiMax, DSPT etc., based on local availability.
 23. At the end of each event, the web streamed data along with required reports, shall be made available within 4 days to the Client in a Hard disk for later retrieval and usage as necessary.
 24. The Client shall facilitate the bidder in interaction with the telecom service providers to see that the connectivity is ensured during the events towards the smooth transmission of web streaming data.
 25. The client shall also ensure the safety of the equipments such as Laptops, internet connectivity devices, high end cameras etc., installed by the bidders at the respective places, till the events are over.

26. The bidder shall also develop an application software which monitors the data feed from each Polling Station on the polling day and also from each HD camera in the counting centre on the counting day based on which the performance status of the data feed, and the live streaming at the offices of the RO/DEO/CEO, will be arrived on the Service Levels provided, to levy penalties as indicated under penalty clause. This software should be vetted from CEO a week before deployment. The bidder shall provide access to dashboard view for more than one locations, i.e. DEO, CEO and ECI HQ which should reflect point of failures, network status, recording status and downtime status. Network quality indicator on each camera should be made available in the User view mode and this should be computed and displayed automatically.

Task 2. Live Streaming and Recording of the Polling at Polling Stations

1. A pre-determined list of polling stations from where live web streaming will happen shall be shared with the bidder.
2. Number of Locations for Video & Audio Recording: (input numbers) (approximately)
3. The bidder has to supply and install the IP based web cameras, as per the minimum specification in the identified Polling stations. The web camera should have facility of local recording, with minimum of 3 Megapixel camera resolution. The camera should have night vision capability, wide angle with 30/ 170 degrees coverage. The camera should be having capability of 10x zooming. The camera should have minimum illumination of .05 lux.
4. The camera should support 16-4096 Kbps code rate, support constant bit rate/variable frame rate of up to 30 fps. Image Control: Backlight compression, AUtomatic white balance, 3D digital noise reduction. The display should be supported is 1920 x1080.
5. The bidder has to provide the suitable internet connectivity on all locations of installation of cameras for the services rendered by the bidder.
6. The bidder has to post one person at each identified polling station, with proper training on the usage of the web streaming software, using the camera and the internet connectivity on the day of polling and also during trial runs
7. The bidder is required to have at least two dry/trial runs of the process, to satisfy the Client that their systems are in good working condition at least two days before the poll and the counting day.
8. In case of Re-poll ordered at a booth under live web streaming, the web streaming of that re-poll shall continue to be the responsibility of the bidder. This will not entail additional financial commitment.
9. The bidder shall also provide the following, in the offices of RO, DEO & CEO to view the live feeds of the polling day activities smoothly by providing LED TV 70 "
10. The bidder shall ensure that the live feeds are transmitted in a secure manner to the server and then to the concerned officials up to the satisfaction of the nodal officer, for the duration when the operations are on.
11. The bidder shall ensure that the recorded material transmitted does not fall into the hands of any party, not authorized by CEO to receive the same.

12. The recorded material shall be the exclusive property of the CEO and neither the bidder nor any other party will be entitled to utilize the same.
13. After the event is over on polling day, the supplied LED TV's and internet connectivity, have to be taken back and manpower has to be withdrawn by the bidder.
14. The bidder shall provide adequate compute performance on the servers and storage along with suitable high speed internet / network bandwidth to accommodate the multiple video streaming.
15. The Client will provide the list of mobile phone facilities of the election officials (that of the Presiding Officer / PO Officer), in an excel/CSV format, to the bidder, a few hours before the start of the election process for communication purposes.
16. The video and audio should be live streamed to the Control centre via the server. The bidder should deploy the following resources on the days of polling and counting in each Control Centre
17. The bidder shall provide the sufficient internet bandwidth for the live streaming of the poll day event.
18. In case of any disruption due to internet connectivity, the streaming data has to be stored in the local Hard Disk and the same shall be made available in DVD at the end of the day to the officials concerned.
19. Number of Days required for recording at each location : 1 day [References to Day means 24 hours or part thereof

Task 3. Live Streaming and Recording of the Counting Process

1. The bidder has to supply and install the IP based HD web cameras, as per the minimum specification in the identified Polling stations. The web camera should have facility of local recording, with minimum of 3 Megapixel camera resolution. The camera should have night vision capability, wide angle with 30/ 170 degrees coverage. The camera should be having capability of 10x zooming. The camera should have minimum illumination of .05 lux.
2. The camera should support 16-4096 Kbps code rate, support constant bit rate/variable frame rate of up to 30 fps. Image Control: Backlight compression, AUtomatic white balance, 3D digital noise reduction. The display should be supported is 1920 x1080.
3. A pre-determined list of locations where Counting Process will happen shall be shared with the bidder.
4. All the items for Task 1 are required to be adhered to as applicable. Some Important Details for the consideration includes:
5. Number of Locations for Video & Audio Recording: (enter Nos) (approximately).
6. The bidder shall supply (specify nos) of High end IP cameras as per the specifications given in (enter Appendix No) at each counting centre location as per the breakups:
 - a. Near the counting board : 1 No
 - b. Near the RO : 1 No
 - c. Tables 1 to (n) : (write numbers) Nos

7. These cameras should support full HD recording. These cameras will be owned and operated by the bidder and shall be taken back at the end of the assignment.
8. Description and make / model of these cameras should be provided in the proposal.
9. Number of Days required for recording at each location : 1
10. The bidder shall provide the sufficient internet bandwidth to the high end cameras for web streaming of the counting day event.

Task 4: Setting up a Help Centre & Deployment of Manpower

1. The bidder is required to deploy adequate manpower to meet all conditions of the assignment. The following teams shall be required to be created.
2. Centralized Help Desk in state HQ operating under the Control of the Nodal Officer
3. Team with (enter number) seater minimum, shall be located in (location) and shall assist all other locations to fix the issues that are coming up relating to this assignment.
4. The help desk should be operational on 3 days before polling and one day after polling, including the polling day. If there is a repoll, it should continue, till the end of the repoll.
5. Similarly the helpdesk should also function two days before counting and one day after counting including the counting day. If there is recounting, it should continue till the end of the recounting.
6. Manpower: These personnel should be skilled in the application software being deployed by the bidder, their configuration, use, etc. They should be available to assist with any issues arising during the course of the assignment.
7. The CVs of all the personnel, being deployed should be provided as per Appendix-4. Each of the personnel should have at least two of the following with him while in duty. – A Passport, A Driving License, PAN Card, Aadhaar Card or other form of identity as specified by the Nodal Officer.
8. The following details shall be provided by the bidder in the CVs – Name, Date of Birth, and Copies of Identity cards as above, Permanent Address, Address during the last 10 years, Any Criminal or Civil Record, Educational Qualifications, Experience.
9. There may be Police / Security Clearance checks conducted against the personnel and the Client may ask for any or all personnel to be replaced, which shall be required to be complied with immediately.
10. The personnel shall be required to operate around day of polling and counting process from each of the Centre posted, in each of the (Parliamentary /Legislative) Assembly Constituency.
11. The personnel have to report for duty on one day before the polling day and should be available till the sealing of EVM's is completed. Similarly during counting, the personnel have to report for duty one day before counting and should be available till the counting process is over completely.
12. Training of these personnel and the tasks shall include: Training the manpower in downloading the web streaming application and in the setting up of the entire recording system and allied issues, like connectivity, alert assistance etc. The training

required will have to be conducted by the bidder, in the districts/at a suitable place for one or 2 days as decided before they are deputed to the concerned place for on duty.

13. Troubleshooting any hardware/software issues related to entire process of recording, streaming and monitoring.
14. Any other tasks found necessary for the successful live streaming of the videos.
15. The client will issue election duty certificate (EDC) or Postal Ballot to the manpower posted in the respective locations as necessary. The manpower shall be asked to report for duty to the concerned officials when posted.

Task 5. Development of Training Material

1. A detailed Training Material is required to be developed by the bidder as the part of the assignment. The training material is required for the following purposes:
 - a. For operating the web streaming Software / Cameras etc.
 - b. For Post event operation of the Video Surveillance footage.
2. The Training Material should be in the following formats:
 - a. Documentation: Text based training material in the form of documents showing pictures / images and text of How-To, Help Guides, etc.
 - b. Multimedia: Audio and Video content including animations, videos, etc. for the above. Manuals on How To Video shall also be made available.
3. The training material shall be placed in a secure location on the internet, for access only by the authorized users. It shall also be available offline in PEN Drive / CD Discs to all locations, where it can be shared and disseminated with all the intended/required users. The Help Desk personnel shall additionally act as Facilitators to facilitate the learning progress.

Reporting Requirements and Time Schedule for Deliverables

The following would be the reporting requirements for the bidder:

1. An Inception Report within 1 week, from the start of the assignment. Weekly Progress Reports consisting of
 - a. All works performed by the bidder.
 - b. The Time Sheets / Attendance duly countersigned by the Nodal Officer
2. All Other Reports as required for the successful execution of this assignment.
3. Development and Maintenance of an MIS for all reporting purposes.
4. Final Report within 2 weeks of closure of all activities stipulated in the contract.
5. The reports may be submitted in hardcopy and in soft copy (through e-Mail / MIS / Shared Folder over Internet) to the officers concerned.
6. The bidder after completion of the recording activities, all data to be arranged on the Hard disks and handover to the nodal officer, within 4 days after each event (polling/counting) is completed. After handing over the data, the bidder shall not retain any data in their computers or in any form with them. Any deviation in this regard, the bidder shall be held responsible and liable for punishment as per law. The HDD shall be provided by the bidder at his own cost.

Supply, Installation and Commissioning

1. Delivery: The ordered items shall be delivered, installed and commissioned within one week from the date of Work Order. The Successful bidders after obtaining the Consignee address shall visit the sites to assess the readiness of the site for installation. A report in this respect shall be submitted to Client.
2. The Client is solely responsible for the site preparation, if any, before the scheduled installation dates.
3. After successful Installation, commissioning and completion of the delivery to the User Department at different locations, the Bidder must obtain signed Delivery Challan in the specified format (Enter format).
4. The details of the representatives responsible for attending the services at each client site, name and designation of the contact person and centre in-charge, higher level in-charge who is responsible to oversee the service centres, person to whom complaints can be made, in case the service provided to any centre, is not satisfactory and the contact numbers of the responsible person, fax, mobile numbers & email address must be provided well in advance to the Client.
5. In the event of non-acceptance of the items delivered by the Client, the Successful Bidder shall immediately report to client for suitable directions.
6. If there is any cancellation of the event after issuing the work order, it will be intimated within 24 Hours time in advance.
7. The quantity mentioned in the Tender document is tentative only. Payment will be released based on the quantity used at the site and the same has to be attested by Client.
8. The Successful Bidder shall be liable and / or responsible for the compliance of all Statutory Provisions and especially those relating to Labour Laws in respect of this Contract.

Release of Payment

The following are the conditions precedent for release of any payment by the Client:

1. Signing of Contract
2. Signing of Non Disclosure Agreement (**specify format**) by all the persons involved in the assignment
3. Submission of an irrevocable Bank Guarantee of the Contract amount in the format (**specify format**) specified to the Client.
4. The following would be the Milestones and Payment

SN	Milestone	Approval	By Date
1.	Inception Report Submission	By CEO	(Enter date)

2.	Training Documents and Multimedia content & Training for all officials concerned	By CEO	(Enter date)
3.	Two Trial runs and satisfactory Certificate before two days of poll day and counting day.	By CEO	(Enter date)
4.	Submission of all other project deliverables and final report	By CEO and Payment in full	Within 15 days after the completion of polling and counting events

No advance Payment will be made

Service Level Agreement

- 100% Server, Network & Power Uptime SLA: The vendor should provide with 100% Server, Network & Power Uptime SLA as standard. This shall be applicable during the election day as declared by the client and shall be applicable for 24 hours or as decided by the client. The vendor should ensure

SERVICE AVAILABILITY	Deduction from total cost
99.9% to 100%	0%
98% to 99.8%	10%
95% to 97.9%	25%
90% and below	50%

- The buffer should not happen in the streaming at the CEO, DEO and RO office. Vendor will develop a dashboard for reporting the buffer and failure.

Buffer and connection loss	Deductions from the total cost
<10 point failures	0%
>10 Points Failure	10%
>50 Points Failure	25%
>100 Point Failures	50%

Appendix

Technical Specifications of the camera

During Polling	IP based web camera
	3 MegaPixel minimum
	night vision capability
	wide angle with 30/ 170 degrees coverage
	minimum illumination of .05 lux.
	support 16-4096 Kbps code rate
	support constant bit rate/variable frame rate of up to 30 fps
	Image Control: Backlight compression, Automatic white balance, 3D digital noise reduction.
	display should be supported is 1920 x1080.
During Counting	IP based HD web camera
	3 MegaPixel minimum
	night vision capability
	wide angle with 30/ 170 degrees coverage
	minimum illumination of .05 lux.
	support 16-4096 Kbps code rate
	support constant bit rate/variable frame rate of up to 30 fps
	Image Control: Backlight compression, Automatic white balance, 3D digital noise reduction.
	display should be supported is 1920 x1080.