

**REVISED DRAFT QRS/TDS OF FOUR WHEELED DAY AND NIGHT SURVEILLANCE ROBOT**

<b>Ser No</b>	<b>Qualitative Requirements</b>		<b>Trial Methodology</b>	
1.	(a)	Four Wheeled Day and Night Svl Robot should be a mini robot that enables easy maneuverability through a remote control and instantaneous video and audio reconnaissance within indoor or outdoor environments.	To be physically checked by BOO	
	(b)	<b>Wireless Link with Control Unit</b> The Robot should be able to receive Command and Control instructions from Control Unit and should be able to transmit audio and video svl data to control unit through a Wireless NLOS Link at a range of 80 mtr or better without any mesh topology in Non Line of Sight Environment and 250 mtr or better without any mesh topology in Line of Sight Environment.	To be physically checked by BOO	
	(c)	Robot should be able to self-right when overturned or alternatively the four wheeled robot should be able to carry out all its functions even when overturned.	To be physically checked by BOO	
2.	(a)	Weight of four wheeled robot (Excluding spare battery(s))	4.5 Kg or lesser	To be physically checked by BOO
	(b)	Should be able to sustain drops on concrete floor	2.5 mtr or more	Vendor to provide OEM/NABL/International accredited lab certificate. To be physically checked by BOO.
	(c)	<b>Day and Night Camera- For video Surveillance</b>		
	(i)	Day and night integrated cameras(with IR illumination (nonvisible)).		To be physically checked by BOO

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	(ii)	While operating the robot, the cameras should provide 360 degree Field of View simultaneously.  <b>Resolution:</b> – Day camera- 1280x720p or better (Resolution should be same or better than existing eqpt) Night camera - 640 x 480p or better (Day and night cameras may be same or different) Digital zoom - 4x or better	To be physically checked by BOO.  Vendor to provide OEM/NABL/ International accredited lab certificate. To be physically checked by BOO.
	(iii)	Cameras should offer vertical field of view of -90 to +100 Degrees or better.	To be physically checked by BOO
(d)	<b>IR Illumination</b>		
	(i)	360 degree simultaneous IR illumination should be provided for darkness.	To be physically checked by BOO
	(ii)	Range of IR Illumination   7.5 Meters or Higher	To be physically checked by BOO
(e)	<b>Microphone – For Audio Surveillance</b> Super sensitive omni-directional microphone with microphone sensitivity of 75 db or better.		To be physically checked by BOO

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Ser No	<u>Qualitative Requirements</u>		<u>Trial Methodology</u>
(f)	<b>Battery</b>		
	(i)	Endurance <b>2.30 Hours or more for continuous operation</b>	To be physically checked by BOO
	(ii)	aa) Spare Batteries should be provided as per user requirements. (User to specify)  (ab) Minimum 500 charge cycles	Vendor to provide BIS certificate. To be physically checked by BOO
(g)	<b>Drive and Speed</b>		
	(i)	Drive 4 Wheel drive	To be physically checked by BOO
	(ii)	Tracks Suitable tracks to be provided for movement in rough terrain	To be physically checked by BOO
	(iii)	Speed Variable Speed during operation with Speed upto 3.5 Km/Hr or more	To be physically checked by BOO
	(iv)	Maneuverability (i) The Robot should be maneuverable in a variety of rough terrain. Should be able to climb steps at least 200mm high. It should be able to climb two or more steps in continuation provided the width of each step is at least 400mm. (ii) The Robot should be able to overcome curves and should have small turnings radius  (iii) Robot should be able to self-right when overturned or alternatively the four wheeled robot should be able to carry out all its functions even when overturned	To be physically checked by BOO

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3.	<b>Control Unit</b> - Should receive and display audio and video reconnaissance data picked up by Robot and should also be able to control all features of robot.		To be physically checked by BOO
	(a)	Weight Less than 1.5 Kg	To be physically checked by BOO
	(b)	Screen Control Unit to have suitable 5 inches screen or better to display video being received.	To be physically checked by BOO
	(c)	Display The display should offer 360° FoV	To be physically checked by BOO
	(d)	<b>Battery</b> Suitable rechargeable battery to offer <b>180 minutes</b> of endurance or better	To be physically checked by BOO
	(e)	Suitable inbuilt or miniaturized external Video Recorder with Minimum 500GB storage capacity and Compatible with Windows OS 10 for data extraction	To be physically checked by BOO
4.	<b>Battery Charger</b> Suitable 110/220 V AC battery Chargers to charge the Robot and Control Unit batteries. Separate chargers required for Control Unit and Robot.		To be physically checked by BOO
5.	<b>Portability and Storage</b> The equipment to be provided in suitable pelican box for ease of carriage. In addition, vendor to provide suitable deployment sling and bag to carry robot and control unit during operations.		To be physically checked by BOO

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6.	<b>Maintenance Kit</b> Suitable maintenance kit with recommended accessories to be provided to reduce Mean Time to Repair (MTTR).	To be physically checked by BOO
7.	<b>Literature</b> Operating and Technical literature for each discrete components of system should be in English language	To be physically checked by BOO
8.	<b>Training</b> Demonstration of one set of complete system with its full accessories should be arranged at buyers premises on NO cost NO commitment basis. In situ training of users for three day on operation, maintenance, fault finding and user level repairs.	Undertaking from the OEM for the training. Authenticity and Correctness of the undertaking to be submitted by BOO.
9.	<b>Ruggedisation</b> All the equipment should comply with Mil Std 810 and IP 67 or better	OEM to provide International/ National/NABL accredited lab certificate and the same will be physically checked by BOO.


  
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