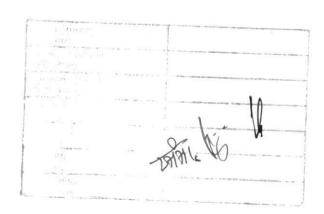
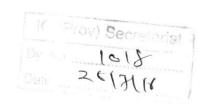
No. IV-P/604/2015 (389)/TWD&N Svl Robot/NSG -\12\1 भारत सरकार/Government of India गृह मंत्रालय/Ministry of Home Affairs पुलिस आधुनिकीकरण प्रभाग /Police Modernization Division 26/7/16 संभरण-। डेस्क/Prov.I Desk 14(Bor) 26, Man Singh Road, Jaisalmer House, New Delhi, the 25 July, 2016. To. DsG: AR (through LOAR), BSF, CISF, CRPF, ITBP, SSB, NSG & BPR&D. Subject: Qualitative Requirements (QRs) and Trial Directives (TDs) of Two Wheeled Day and Night Surveillance Robot (as NSG specific). The QRs and TDs in respect of Two Wheeled Day and Night Surveillance Robot. as per Annex-I and Annex-II respectively have been approved by the Competent Authority in MHA. All the CAPFs should procure the above item required by them strictly as per revised laid down ORs/TDs. The concerned CAPF will be accountable for correctness of the QRs/TDs. 3. Encl: As above. Yours faithfully, (Ram Raj) Under Secretary (Prov-I) Tel: 2338 1278 Copy to: 1. SO (IT), MHA: with the request to upload the instant QRs and TDs (soft copy

- 1. SO (IT), MHA: with the request to upload the instant QRs and TDs (soft copy attached) of Two Wheeled Day and Night Surveillance Robot on the MHA website (under the page of Organizational Set up-Police Modernization Division-Qualitative Requirement under Surveillance Equipment list).
- 2. DDG (Procurement), MHA



(V. Devadas) SO (Prov-I)



## QRs/SPECIFICATIONS OF TWO WHEELED DAY AND NIGHT SURVEILLANCE ROBOT

10					Qualitat	ive Requirements				
10	Ger	neral								
	(a) (b)	enab enviro opera	les instanta onments. T	aneous The Rob	video an oot shoul	Surveillance Robot should be a micro-robot that discussion and audio reconnaissance within indoor or outdoor discussion be used by a single				
		(i)	Control	Unit thr	ough a	to receive Command and Control instructions from Wireless Link and should be able to move g desired ranges				
			(aa)	Line Rang		Essential : 90 mtr Desirable :150 mtr				
			(ab)		Line of Range	Essential: 25 mtr Desirable: 70 mtr				
		(ii)				to transmit audio and video reconnaissance data ontrol unit at the following desired ranges:-				
			(aa)	Line		Essential: 90 mtr Desirable: 150 mtr				
			(ab)	Sight	Range	Essential : 25 mtr Desirable :70 mtr				
	(c)	Should	d be able	to be	to be used as a pole camera when used in tandem al / robotic pole to see over walls, through windows are pole attachment should be compact and lightweight for					
		culver	ts. Propose	ial / rob ed pole a	otic pole attachme	to see over walls, through windows and unde				
	Two	culvert	ts. Propose	ual / rob ed pole a	otic pole attachme	to see over walls, through windows and unde				
	Two (a)	culvert	ts. Propose ge. d Robot	ual / rob	attachme	to see over walls, through windows and unde				
		culverd carriag Wheele Weigh Should sustain	ts. Propose ge. d Robot t be ab n drops	ed pole a	attachme 750 gm	to see over walls, through windows and undent should be compact and lightweight for ease o				
	(a)	culverd carriag Wheele Weigh Should sustair concre Should sustair	ts. Propose ge. d Robot t d be ab n drops ste floor d be ab	ple to on	attachme 750 gm	to see over walls, through windows and undent should be compact and lightweight for ease of the sor less must be t				
	(a) (b)	wheele Weigh Should sustair concre Should sustair concre Should Should	ts. Propose ge. d Robot  t d be ab n drops ete floor d be ab n throws ete floor d comply to	ole to on IP 65 or	750 gm Up to 8 Up to 30	to see over walls, through windows and undent should be compact and lightweight for ease of sor less  mtr or better				
	(a) (b)	wheele Weigh Should sustair concre Should sustair concre Should sustair concre	ts. Propose ge. d Robot t d be ab n drops ste floor d be ab n throws ste floor d comply to	ole to on IP 65 or amera-	750 gm Up to 30 Up to 30 better	to see over walls, through windows and undent should be compact and lightweight for ease of sor less  mtr or better  Discreptions of the source of the sourc				
	(a) (b) (c)	Weigh Should sustair concre	ts. Propose ge. d Robot  t d be ab n drops ste floor d be ab n throws te floor d comply to nd Night C  The Camera Colorful d	ole to on IP 65 or amera-	750 gm Up to 8 Up to 30 better For vided have a 0 desirable	to see over walls, through windows and undent should be compact and lightweight for ease of sor less  mitror better  Discretifiance  CCD Sensor capable of producing B & W images				
	(a) (b) (c)	Weigh Should sustair concre	ts. Propose ge. d Robot t d be about the drops ste floor d be about throws the floor d comply to nd Night C	ole to on IP 65 or amera-	750 gm Up to 8 Up to 30 better For vide have a 0 desirable 420 TV	to see over walls, through windows and undent should be compact and lightweight for ease of sor less  mtr or better  Description of Surveillance  CCD Sensor capable of producing B & W images of sor higher				
	(a) (b) (c)	wheele Weigh Should sustair concre Should sustair concre Should sustair concre Should sustair concre (i) T A (ii) F	ts. Propose ge. d Robot  t d be ab n drops ste floor d be ab n throws te floor d comply to nd Night C  The Camera Colorful d	ole to on IP 65 or amera-a should isplay is	750 gm Up to 30 Up to 30 better For vide have a 0 desirable 420 TV	to see over walls, through windows and undent should be compact and lightweight for ease of sor less  mtr or better  Discreping Surveillance  CCD Sensor capable of producing B & W images				
	(a) (b) (c)	culverdicarriag Wheele Weigh Should sustair concre Should sustair concre Should sustair concre Should (ii) T	ts. Propose ge.  d Robot  t  d be about  d comply to  d Night C  he Camera  Colorful d  Resolution	ole to on on one one one one one one one one	750 gm Up to 30 Up to 30 better For vide have a 0 desirable 420 TV	to see over walls, through windows and undent should be compact and lightweight for ease of sor less  metror better  Description of the sort of the so				

# QRs/SPECIFICATIONS OF TWO WHEELED DAY AND NIGHT SURVEILLANCE ROBOT (Contd....)

<u>Ser</u> No			Qualitative Requirements					
110	(f)	IR Illumination	Non Visible IR illumination should be provided for darkness which should automatically switch on if ambient light is really low.					
		(i) Range of IR Illumination	7.5 Mtr					
	(g)	Microphone – For Audio microphone with pickup r désirable.	Surveillance. Super sensitive omni directionnel range at least of 5 mtr is essential, Pick up range of 15 mtr is					
	(h)	Battery						
		(i) Endurance	60 Minutes or Higher					
		(ii) Charge Cycles	500 or Higher					
	(j)	Speed. Equal or more	han one Foot per second					
3.	Con	trol Unit. To receive and to and also to move the Rol						
	(a)	Weight	1.75 Kg or Less					
	(p)	Video Out and Audio Ou Port						
	(c)	Joystick Control	Suitable Joystick to be provided to move the Robot					
	(d)	Screen	Control Unit to have suitable screen of 3 inches to 3.5 inches to display video being received is essential desirable 7 inch.					
	(e)	Battery						
		(i) Endurance	60 minute is essential desirable 180 minutes or Higher					
		(ii) Charge Cycles	500 or Higher					
4.	<u>Batt</u> Unit	Lui - Cte oborgo	10/220 V AC battery Chargers to charge the Robot and Control rs required for Control Unit and Robot.					
5.	Port	ability and Storage. The	ne equipment to be provided in suitable pelican box for ease of the provide suitable black bag to allow the equipment to be carrying Equipment during operations.					

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# QRs/SPECIFICATIONS OF TWO WHEELED DAY AND NIGHT SURVEILLANCE ROBOT (Contd...)

Ser No	Qualitative Requirements
6.	Maintenance Kit. Suitable maintenance kit with recommended accessories to be provided to reduce Mean Time to Repair (MTTR).
7.	<u>Literature</u> Operating and Technical literature for each discrete components of system should be in English language
8.	<u>Training</u> . 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.

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(RC Tayal) DG, NSG

# TRIAL DIRECTIVES FOR TWO WHEELED DAY AND NIGHT SURVEILLANCE ROBOT

	General	(a)	(b)							(c)	X	
	ra	Two Vinstant Robot	Wirele	3			(E)			Should manua pole a		
		Wheeled Da aneous vid should be	ss Link w	The Robo Control U the follow	(aa)	(ab)	The Robo the wirele	(aa)	(ab)	d be able al / robotic ttachment		
Qualit	The second secon	ay and Night Sulleo and audio rec	Wireless Link with Control Unit	The Robot should be able Control Unit through a Wirel the following desired ranges	Line of Sight Range	Non Line of Sight Range	ot should be able	Line of Sight Range	Non Line of Sight Range	to be used as a pole to see ove should be compa		in,
Qualitative Requirements		Two Wheeled Day and Night Surveillance Robot should be a minstantaneous video and audio reconnaissance within indoor or out Robot should be portable enough to be used by a single operator		e to receive Command an reless Link and should be	Essential : 90 mtr Desirable :150 mtr	Essential : 25 mtr Desirable : 70 mtr	The Robot should be able to transmit audio and video reconrective wireless link to Control unit at the following desired ranges:-	Essential : 90 mtr Desirable : 150 mtr	Essential : 25 mtr Desirable :70 mtr	Should be able to be used as a pole camera when used in tandem with an emanual / robotic pole to see over walls, through windows and under culverts, pole attachment should be compact and lightweight for ease of carriage.		
		Two Wheeled Day and Night Surveillance Robot should be a micro-robot that enables instantaneous video and audio reconnaissance within indoor or outdoor environments. The Robot should be portable enough to be used by a single operator.		The Robot should be able to receive Command and Control instructions from Control Unit through a Wireless Link and should be able to move accordingly at the following desired ranges			The Robot should be able to transmit audio and video reconnaissance data over the wireless link to Control unit at the following desired ranges:-			tandem with an extendable nd under culverts. Proposed f carriage.	The section	
Iriai Wetnodology		To be checked physically by BOO		To be checked physically by BOO	To be checked physically by BOO	To be checked physically by BOO	To be checked physically by BOO	To be checked physically by BOO	To be checked physically by BOO	To be checked physically by BOO		

### TRIAL DIRECTIVES FOR TWO WHEELED DAY AND NIGHT SURVEILLANCE ROBOT (Contd...)

er o				Qu	alitative Requirements	Trial Methodology		
<u> </u>	Two \	Nheele	ed Robot					
	(a)	Weigl	nt		750 gms or less	To be checked physically by BOO		
	(b)	Shoul susta concr		to on	Up to 8 mtr or better	To be checked physically by BOO		
	(c)	Shou	ld be able	to on	Up to 30 mtr	To be checked physically by BOO		
	(d)		ld comply to IP	65 oı	better	Certification from National / International accredited lab to be checked by BOO.		
	(e)	Day	and Night Can	iera-	For video Surveillance			
		(i)			d have a CCD Sensor capable of producing B & W display is desirable	Certificate from OEM to be provided. Correctness and authenticity to be verified by BOO.		
		(ii)	Resolution		420 TV lines or higher	Certificate from OEM to be provided. Correctness and authenticity to be verified by BOO.		
		(iii)	Field of View	w of	50 degree or higher (Both Azimuth and Elevation)	To be checked physically by BOO		
	4.5	(iv)	Frame Rate		25 fps or higher	Certificate from OEM to be provided. Correctness and authenticity to be verified by EOO.		
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# TRIAL DIRECTIVES FOR TWO WHEELED DAY AND NIGHT SURVEILLANCE ROBOT (Contd...)

(i) R Illumination   Ron Visible IR Illumination should be provided for darkness which should automatically switch on if ambient light is really	Ser									(,)										\ 
Qualitative Requirements   Qualitative Requirements		(5)		(g)		(h)			9	and	(a)	(b)	(c)	(d)	(e)			K		
Qualitative Requirements   Qualitative Requirements		IR IIIu	<u> </u>	Micro	with pi	Batter	Ξ	(ii)	Speed	tro! Uni	Weigh	Video Port	Joysti	Scree	Batte	(E)	3		decim industrial	
Non Visible IR illumination should be provided for dark which should automatically switch on if ambient light is low.  7.5 Mir  Surveillance Super sensitive omni directionnel microp of 5 mtr is essential, Pick up range of 15 mtr is désirable.  60 Minutes or Higher  500 or Higher  1.75 Kg or Less  I Must be there  Sultable Joystick to be provided to move the Robot Control Unit to have suitable screen of 3 inches to 3.5 it to display video being received is essential, desirable 7 to display video being received is essential, desirable 7 500 or Higher		nination	of ation	hone – For Audio	ckup range at least	X	Endurance	Charge	1.	t. To receive and d nove the Robot.	it.	Out and Audio Ou	ck Control		R	Endurance	Charge Cycles			į
		Visible IR illumination should be provided for dann the should automatically switch on if ambient light is	7.5 Mtr	Super sensitive omni directionnel micr	of 5 mtr is essential, Pick up range of 15 mtr is désirable.		60 Minutes or Higher	500 or Higher	ore than Feet per second	isplay audio and video reconnaissance data picked up by	1.75 Kg or Less		Suitable Joystick to be provided to move the Robot	-1 (n		60 minute is essential desirable 180 minutes or Higher	500 or Higher	The Country of the Co	The state of the s	
	Trial Methodology	To be checked physically by BOO	To be checked physically by BOO	To be checked physically by BOO		-	To be checked physically by BOO	Certificate from OEM to be provided. Correctness and authenticity to be verified by BOO.	To be checked physically by BOO	To be checked physically by BOO	To be checked physically by BOO	To be checked physically by BOO	To be checked physically by BOO	To be checked physically by BOO		To be checked physically by BOO				

## TRIAL DIRECTIVES FOR TWO WHEELED DAY AND NIGHT SURVEILLANCE ROBOT (Contd...)

<u>Ser</u>	Qualitative Requirements	Trial Methodology
<u>No</u> 4.	Battery Charger. Suitable 110/220 V AC battery Chargers to charge the Robot and Control Unit batteries. Separate chargers required for Control Unit and Robot.	
5.	Portability and Storage. The equipment to be provided in suitable pelican box for ease of carriage. In addition, vendor to provide suitable black bag to allow the equipment to be secured to the Paragonal Lead Carriage Equipment during operations.	
6.	Maintenance Kit. Suitable maintenance kit with recommended accessories to be provided to reduce Mean Time to Repair (MTTR).	
7.	Literature. Operating and Technical literature for each discrete components of system should	
8.	be in English language  Training. 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 to be obtained from the OEM.

Amit K. Gupta DCT/ITBP PAWAIN KRUCK 25th Bryssin 11-11-

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