No. IV-P/604/2015 (389)/TWD&N Svl Robot/NSG -1121

भारत सरकार/Government of India

गृह मंत्रालय/Ministry of Home Affairs

पुलिस आधुनिकीकरण प्रभाग /Police Modernization Division

संभरण-I डेस्क/Prov.I Desk

*****

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.

2. All the CAPFs should procure the above item required by them strictly as per revised laid down QRs/TDs.

3. The concerned CAPF will be accountable for correctness of the QRs/TDs.

Encl: As above.

Yours faithfully,

(Ram Raj)
Under Secretary (Prov-I)
Tel: 2338 1278

Copy to:

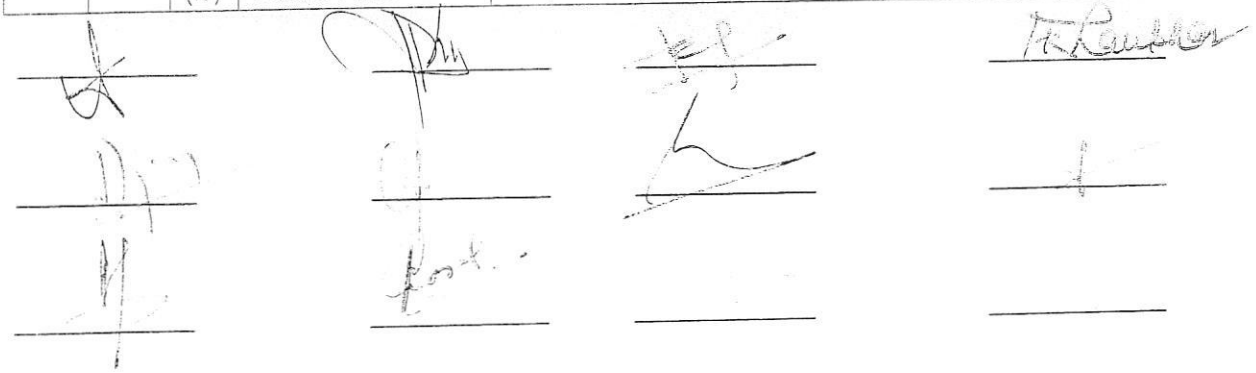
1. SO (IT), MHA: with the request to upload the instant QRs and TDs (soft copy attached) of Two Wheeled Day and Night Surveillance Robot on the MHA website (under the page of Organizational Set up-Police Modernization Division-Qualitative Requirement under Surveillance Equipment list).

2. DDG (Procurement), MHA

(V. Devadas)
SO (Prov-I)

QRs/SPECIFICATIONS OF TWO WHEELED DAY AND NIGHT SURVEILLANCE ROBOT

Ser No	Qualitative Requirements			
1.	**General**			
	(a)	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**.		
	(b)	**Wireless Link with Control Unit**		
		(i)	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	
			(aa)	Line of Sight Range	Essential : 90 mtr Desirable :150 mtr
			(ab)	Non Line of Sight Range	Essential : 25 mtr Desirable : 70 mtr
		(ii)	The Robot should be able to transmit audio and video reconnaissance data over the wireless link to Control unit at the following desired ranges:-	
			(aa)	Line of Sight Range	Essential : 90 mtr Desirable : 150 mtr
			(ab)	Non Line of Sight Range	Essential : 25 mtr Desirable :70 mtr
	(c)	Should be able to be used as a pole camera when used in tandem with an extendable manual / robotic pole to see over walls, through windows and under culverts. Proposed pole attachment should be compact and lightweight for ease of carriage.		
2.	**Two Wheeled Robot**			
	(a)	Weight	750 gms or less	
	(b)	Should be able to sustain drops on concrete floor	Up to 8 mtr or better	
	(c)	Should be able to sustain throws on concrete floor	Up to 30 mtr	
	(d)	Should comply to IP 65 or better		
	(e)	**Day and Night Camera- For video Surveillance**		
		(i)	The Camera should have a CCD Sensor capable of producing B & W images. A Colorful display is desirable	
		(ii)	Resolution	420 TV lines or higher
		(iii)	Field of View of each Camera	50 degrees or higher (Both Azimuth and Elevation)
		(iv)	Frame Rate	25 fps or higher



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

Ser No		Qualitative Requirements		
	(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 Surveillance. Super sensitive omni directionnel microphone with pickup range at least of 5 mtr is essential, Pick up range of 15 mtr is désirable.		
	(h)	Battery		
		(i)	Endurance	60 Minutes or Higher
		(ii)	Charge Cycles	500 or Higher
	(j)	Speed. Equal or more than one Foot per second		
3.	Control Unit. To receive and display audio and video reconnaissance data picked up by Robot and also to move the Robot.			
	(a)	Weight		1.75 Kg or Less
	(b)	Video Out and Audio Out Port		Must be there
	(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.	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 Personal Load Carrying Equipment during operations.			

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.	**Literature**. Operating and Technical literature for each discrete components of system should be in English language
8.	**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.

Amit K. Gupta
DCT/ITBP

PAWAN KR (C)
25th Bn (SSB)

(HARMINDER KUMAR)
DC BSF

GR AK SHARMA
GC TSG, NSG

DC(Ord), CRPF

APPROVED / NOT APPROVED

(RC Tayal)
DG, NSG

TRIAL DIRECTIVES FOR TWO WHEELED DAY AND NIGHT SURVEILLANCE ROBOT

Ser No	Qualitative Requirements				Trial Methodology
1.	**General**				
	(a)	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**.			To be checked physically by BOO
	(b)	**Wireless Link with Control Unit**			
		(i)	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		To be checked physically by BOO
			(aa)	Line of Sight Range	Essential : 90 mtr Desirable :150 mtr	To be checked physically by BOO
			(ab)	Non Line of Sight Range	Essential : 25 mtr Desirable : 70 mtr	To be checked physically by BOO
		(ii)	The Robot should be able to transmit audio and video reconnaissance data over the wireless link to Control unit at the following desired ranges:-		To be checked physically by BOO
			(aa)	Line of Sight Range	Essential : 90 mtr Desirable : 150 mtr	To be checked physically by BOO
			(ab)	Non Line of Sight Range	Essential : 25 mtr Desirable :70 mtr	To be checked physically by BOO
	(c)	Should be able to be used as a pole camera when used in tandem with an extendable manual / robotic pole to see over walls, through windows and under culverts. Proposed pole attachment should be compact and lightweight for ease of carriage.			To be checked physically by BOO

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

Ser No	Qualitative Requirements			Trial Methodology
2.	**Two Wheeled Robot**			
	(a)	Weight	750 gms or less	To be checked physically by BOO
	(b)	Should be able to sustain drops on concrete floor	Up to 8 mtr or better	To be checked physically by BOO
	(c)	Should be able to sustain throws on concrete floor	Up to 30 mtr	To be checked physically by BOO
	(d)	Should comply to IP 65 or better		Certification from National / International accredited lab to be checked by BOO.
	(e)	**Day and Night Camera- For video Surveillance**		
		(i) The Camera should have a CCD Sensor capable of producing B & W images. A Colorful 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 of each Camera	50 degree or higher (Both Azimuth and Elevation)	To be checked physically by BOO
		(iv) Frame Rate	25 fps or higher	Certificate from OEM to be provided. Correctness and authenticity to be verified by BOO.

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

Ser No	Qualitative Requirements				Trial Methodology
	(f)	**IR Illumination**		Non Visible IR illumination should be provided for darkness which should automatically switch on if ambient light is really low.	To be checked physically by BOO
		(i)	Range of IR Illumination	7.5 Mtr	To be checked physically by BOO
	(g)	**Microphone – For Audio Surveillance** Super sensitive omni directionnel microphone with pickup range at least of 5 mtr is essential, Pick up range of 15 mtr is désirable.			To be checked physically by BOO
	(h)	**Battery**			
		(i)	Endurance	60 Minutes or Higher	To be checked physically by BOO
		(ii)	Charge Cycles	500 or Higher	Certificate from OEM to be provided. Correctness and authenticity to be verified by BOO.
	(j)	**Speed**. Equal or more than Feet per second			To be checked physically by BOO
3.	**Control Unit**. To receive and display audio and video reconnaissance data picked up by Robot and also to move the Robot.				To be checked physically by BOO
	(a)	Weight		1.75 Kg or Less	To be checked physically by BOO
	(b)	Video Out and Audio Out Port		Must be there	To be checked physically by BOO
	(c)	Joystick Control		Suitable Joystick to be provided to move the Robot	To be checked physically by BOO
	(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.	To be checked physically by BOO
	(e)	**Battery**			
		(i)	Endurance	60 minute is essential desirable 180 minutes or Higher	To be checked physically by BOO
		(ii)	Charge Cycles	500 or Higher	

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

Ser No	Qualitative Requirements	Trial Methodology
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.	To be checked physically by BOO
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 Personal Load Carrying Equipment during operations.	To be checked physically by BOO
6.	**Maintenance Kit**. Suitable maintenance kit with recommended accessories to be provided to reduce Mean Time to Repair (MTTR).	To be checked physically by BOO
7.	**Literature**. Operating and Technical literature for each discrete components of system should be in English language	To be checked physically by BOO
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