Specification for Robotic Total Station with reflectorless measurement capabilities, 3D laser scanning along with Real time Kinematic Differential GNSS/GPS System and data processing software:

- Should be an EDM with reflector-less measurement along with automatic target recognition.
- Minimum angle measurement accuracy 1" (0.3mgon).
- Minimum range 1.5 m to 3000 m with prism and 1.5 m to 750 m without the prism.
- Accuracy (Total Station) 1 mm + 1.5 PPM with prism and 2 mm + 2 PPM without prism for atleast 300 m range.
- Autofocus/aiming/locking capabilities and robotic control of target at 750 m range or better with 360° prism.
- Should have overview and imaging capabilities with at least 5MP sensor and having at least 10fps frame rate.
- Should have capability of 3d point cloud scan with scanning rate of 1000Hz or better for at least 300 m or better.
- Touch screen display of at least 3" along with keyboard
- The total station should have capability to integrate with compatible RTK GNSS/GPS.
- Total station should be USB connection or RS232 or Wi-Fi for data communication purposes
- Internal memory of at least 1GB along with 2 GB external storage through SD card/flash memory/USB stick facility.
- IP Protection: IP 55 or better.
- GNSS/GPS system with base and rover setup having 440 Channels or better with GSM, UHF & RKT and simultaneous satellite signal tracking capabilities for GPS, GLONASS, SBAS, Galileo, BeiDou, QZSS, NAVIC, GAGAN.
- Accuracy (GNSS/GPS)

Differential position	25 cm or better
Static mode	5 mm + 1 PPM (V) or better
	3.5 mm +1 PPM (H) or better
RTK Kinematics mode	15 mm + 1 PPM (V) or better
	8 mm + 1 PPM (H) or better

- Data Controller (for base and rover): controller should have hard QWERTY keyboard, radio communication facility, inbuilt camera with 2MP sensor, atleast 256 MB RAM, 800 MHz processor and 1GB storage or better.

- Environmental Standards: Should meet established environmental standard Such as MIL-STD or equivalent ISO Standard
    a) Shock: 40G/10 msec atleast and designed to withstand drop of 2 m
    b) Vibration: Follow MIL STD 810 or ISO 9022
    c) Humidity : 100%
    d) Temperature: -10° to +55° C
    e) Ingress Protection: IP67
- Software: Perpetual license for the software, application should be able to download and View point cloud data, full 3D visualization, geo referencing, point, line and area support, 2D and 3D data handling, facility for total station data processing and adjustment of traverse, facility for processing digital level aata, facility to support RTK GNSS/GPS Data, facility for volume calculations and automated extraction and interoperability to leading CAD and GIS packages.
- Essential Accessories: All Quoted accessories should be OEM make only
    a) Hard carrying case
    b) Heavy Duty wooden Tripod —1 No.,
    c) 360° Prism
    d) Prism assembly withholder— 2 Nos.,
    e) Rechargeable batteries Li-ion — 4 Nos.,
    f) Charger — 1 No., Prism Pole — 2 Nos.,
    g) Data downloading cable— 1 No.,
    h) SD Card — 2 Nos.,
    i) External battery source connector cable, if applicable
    j) Other essentially required accessories for smooth functioning of the instrument.
- Essential Accessories for RTK DGPS/GNSS: All Quoted accessories such as Tribrach, Data cable, rechargeable batteries charger, hard carrying case etc. should be OEM make only
- Training, Demonstration and Warranty
a) Demonstration and Training of the equipment should be provided free of the cost at CSIR-CBRI premises and at one site selected by CSIR-CBRI along with pre and post data processing software training.
b) Comprehensive warranty for 03 years should be quoted applicable from date of commissioning/installation.