Geoid
TECHNOLOGIES LTD
Thrill To Accurate Measurements

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Opposite Garden City Mall Along Thika Road.
P.O. Box 2598 - 00100 Nairobi
0726 884 224 / 0708 264 288 / 0721 143 638
info@geoidtechnologies.com
www.geoidtechnologies.com

MicroSurvey
FIELDGenius
For Android

Microsurvey is continually improving FieldGenius for Android™ by adding new features and enhancements based on customer feedback. New technology opens opportunities to develop better tools for the survey industry. FieldGenius for Android™ extends MicroSurvey's mission to provide a brand-neutral solution, supporting most common hardware available in the market today. Our map-driven data collection software is easy to use and intuitive, reducing training time. New data panels provide information that is synchronized to the maps display, which will be appreciated by both skilled and new employees. MicroSurvey has used its decades of experience in data collection as a guide, applying its knowledge to the android platform, and enhancing established workflows to be more efficient and intuitive. Downtime is expensive; you can leverage your existing FieldGenius skill set the next time you need to upgrade your equipment or switch manufacturers. MicroSurvey remains dedicated to consistency in the use of our data collection software, regardless of the device you choose to run it on.

Project progress is easy to visualize in FieldGenius because all new work is displayed on the map as it is conducted; a quick review makes it easy to see points that are out of place. New slide-out panels displaying observation and point data provide key information at a glance, and an integrated details page is provided for further analysis. Instrument connections are laid out in logical steps, and once configured, can be reconnected with the touch of a button. The map screen drives all primary survey functionality, and objects can be selected from either the map or data panel with ease.

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PREPARATIONS FOR FIELDWORK

CHECK LIST FOR BASE+ ROVER

- ❖ 2- receiver (base and rover) both in good condition
- ❖ Fully charged receiver and datalogger batteries
- ❖ Datalogger
- ❖ Datalogger holder
- ❖ Tripod
- ❖ Calibrated tribrach and adaptor
- ❖ Adaptor joint
- ❖ Measuring plate and tape
- ❖ Calibrated carbon fiber pole
- ❖ GNSS receiver antennas (UHF or GSM antennas)
- ❖ GNSS receiver batteries and datalogger chargers

COLLECTION OF NEW DATA(PICKING)

- ❖ Selected Refence position/control point
- ❖ Know co-ordinate system of your working area/region
- ❖ Ellipsoidal (vertical system) to be applied

SETTING-OUT/ PLACING
- ❖ Control point
- ❖ Setting-out data in csv format (I, N, E, Z, D)
- ❖ Confirm coordinate system and ellipsoidal used for controls

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Machine configuration

With maximum care and precision set up your GNSS receivers   as guided by survey instrument setup
and leveling procedures

NOTE
- ❖ Tripod is firmly mounted on the ground.
- ❖ Tribrach and adaptor are parapedicular centered and precisely leveled.
- ❖ Correctly mounting of antennas.
- ❖ Correct mounting of batteries.

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CONFIGURATION

GNSS REFERENCE

Launch your android FIELDGENIUS app on your datalogger
Open/Create new project
Set the project parameters
➢ Name
➢ Units
➢ Co-ordinate system
➢ Vertical system

Selecting coordinate system
Define new system or select from existing list

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Select instrument

Start by configuring your refence position (base receiver)

➢ Select instrument
➢ GNSS reference
➢ Select make and model of the receiver
➢ Create

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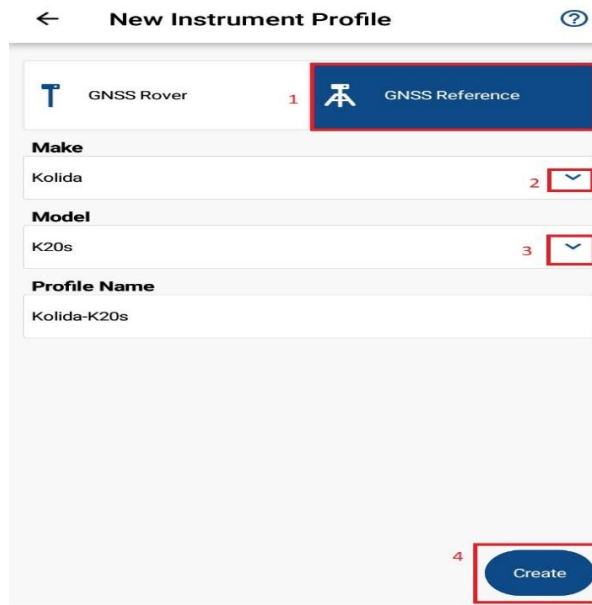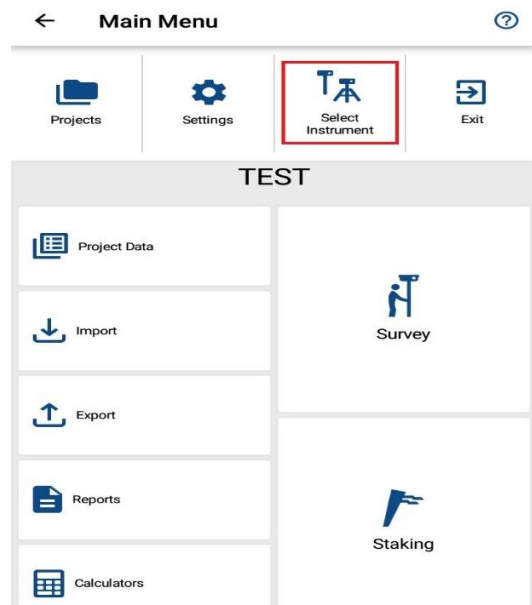
SET-UP COMMUNICATION
➢ Connection via Bluetooth
➢ Select the targeted receiver Bluetooth

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REFERENCE TOLERANCE

Set

➢ min satellites
➢ max PDOP
➢ elevation mask

✕ Reference Tolerance   **RESET VALUES**

Min Satellites

5   1

Max PDOP

4.000   2

Elevation Mask

15   3

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ANTENNA HEIGHT

Measure the height of instrument from the point to measuring plate, calculate the perpendicular height

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REFERENCE POSITION

1. select know if your using known control
    select cartesian
    add point (N,E,Z) manually or select from point list

2. Select observe if your occupying arbitrary point
    2a. Press start to start observing and stop to stop observing.
    2c. time observed

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STORING POSITION

Details

1a. Give point name.

1b. Select control if point picked or added is a control point.

1c. Annotation: to describe a point.

Media

To add media related to point added(photos)

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RADIO SETTINGS

NOTE
  - protocol used (SOUTH OR TRIMTALK)
  - transmission power(high,medium,low) always use high
  - radio channel (1-8)
  - radio frequency eg 463.125

Correction format
- ➢ Select the latest message format : RTCM 3(MSM)
- ➢ Select base ID to be zero

Start transmitting data from your GNSS reference (BASE) by pressing start transmitting
Press done to end GNSS reference set-up

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← **Corrections**   ⊙

RTK via Radio

Communication   ⋮
⌄
UHF Radio Module

⌄   **Correction Format**   ⋮

Start Transmitting

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GNSS ROVER

A **GNSS Rover**, receives and digitally processes the signals from a **GNSS REFERENCE** (BASE) in order to provide position, velocity and time of the receiver

Rover configuration
➢ Add new profile
➢ Select GNSS Rover
➢ Select make and model as indicated on your receiver
➢ create

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Communication
- ➤ Connection type: Bluetooth
- ➤ Bluetooth device: select the serial number of your targeted receiver
- ➤ Press search if serial number is not available

← **Communication** ?

Connection Type:

Bluetooth ⌄ 1

Bluetooth Device:

KB10A7126355055 2 3 Search

Correction format
- ➤ RTK via Radio if you're using base rover
- ➤ RTK via internet if you're using **CORS** (Continuously operating reference position)
- ➤ Set up communication to open radio parameters

← **Corrections** ?

1   2
RTK via Radio | RTK via Internet | No RTK

3
SET UP COMMUNICATION

SET UP CORRECTION FORMAT

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RADIO SETTINGS

Ensure these settings are similar to base radio settings

➢ Protocol: south or trimtalk
➢ Channel: 1 - 8
➢ Frequency eg 463.125
➢ Apply

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CORRECTION FORMAT
➢ Message format: select the latest format (RTCM)
➢ Activate verify base station ID
➢ Base station ID: zero
➢ Done
➢ Start receiving

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ANTENNA HEIGHT

Input the measured height of rover pole

TOLERANCE

Rtk fixed

Set the minimum standards for your data

➢ Observation time
➢ Elevation mask
➢ Horizontal stdDev:
➢ Vertical stdDev:

Denny the following

➢ Tolerance override
➢ Auto store accepted position
➢ Skip new point screen after measure screen

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Tolerances — RESET TOLERANCES

RTK Fixed – Topo
✔ StdDev H: **0.050 m**   StdDev V: **0.050 m**
Obs Count: **3**   ⋮

RTK Fixed – Control
StdDev H: **0.030 m**   StdDev V: **0.040 m**
Obs Count: **30**   ⋮

Autonomous
StdDev H: **20.000 m**   StdDev V: **20.000 m**
Obs Count: **1**   ⋮

OK

← Tolerance settings ⍰

Description
RTK Fixed – Topo

⌄ Real Time

Observations
5

Solution
RTK Fixed ⌄

Elevation Mask
15°

Max PDOP
4.000

Min Satellites
5

← Tolerance settings ⍰

Max PDOP
4.000

Min Satellites
5

Horizontal StdDev:
0.050 m

Vertical StdDev:
0.050 m

Correction Age
5s
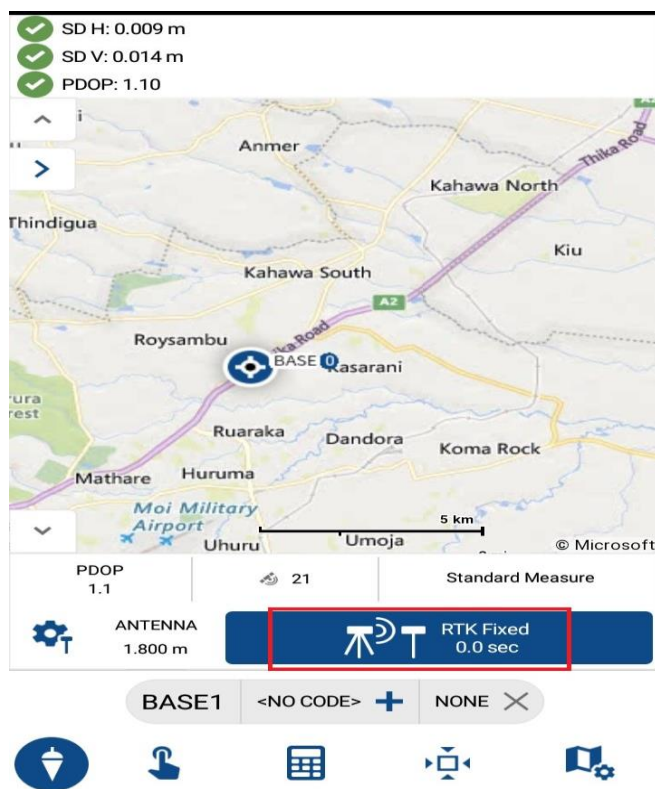
⬜ Allow Tolerance Override

⬜ Auto Store Accepted Position

⬜ Skip New Point screen after Measure screen

OK

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RECEIVER CONNECTION STATUS

Press survey to see the status of your machine
Optional: activate your datalogger internet to vie topo map of your location
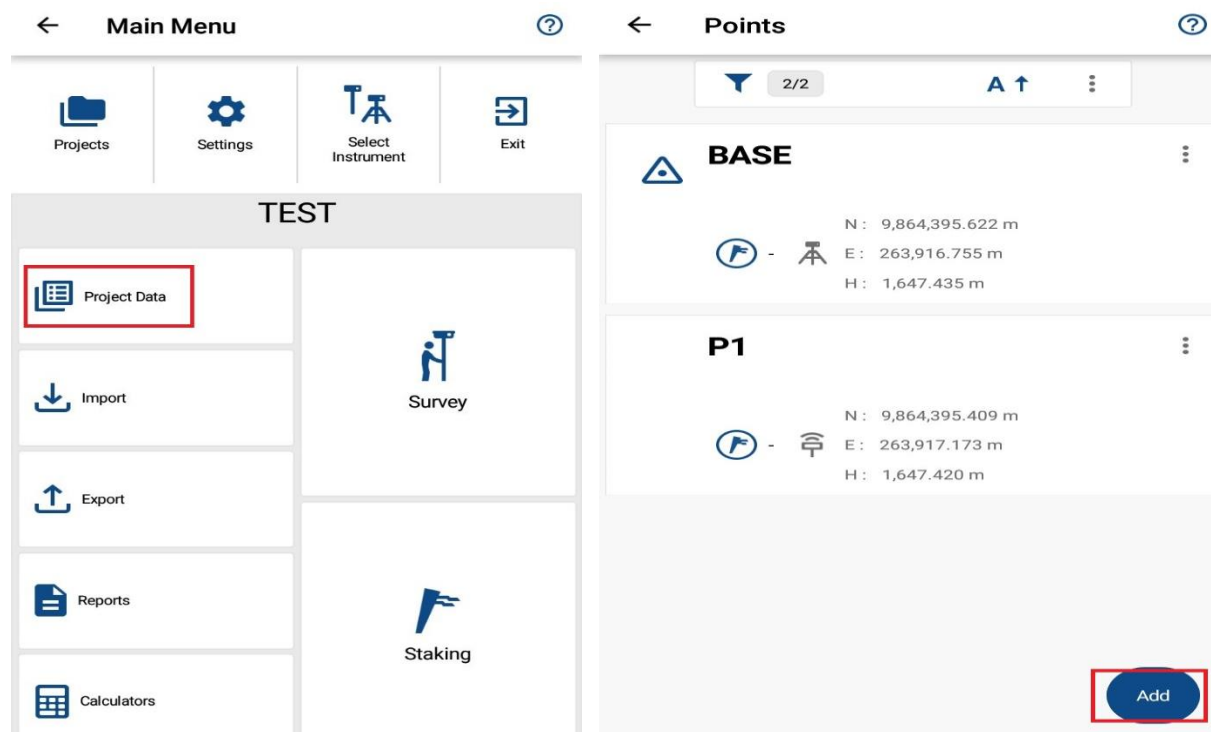
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PICKING OF DATA

➢ Press survey on home page
➢ Press RTK fixed
➢ For a point to be recorded it must meet the minimum standards set tolerance setting
➢ Enter name of the point
➢ Select control point if it's a control point
➢ Annotation: Add description
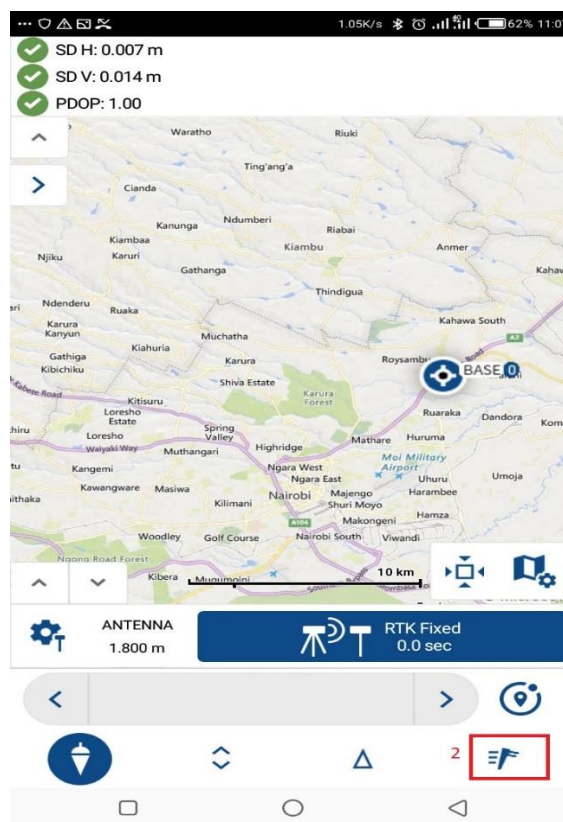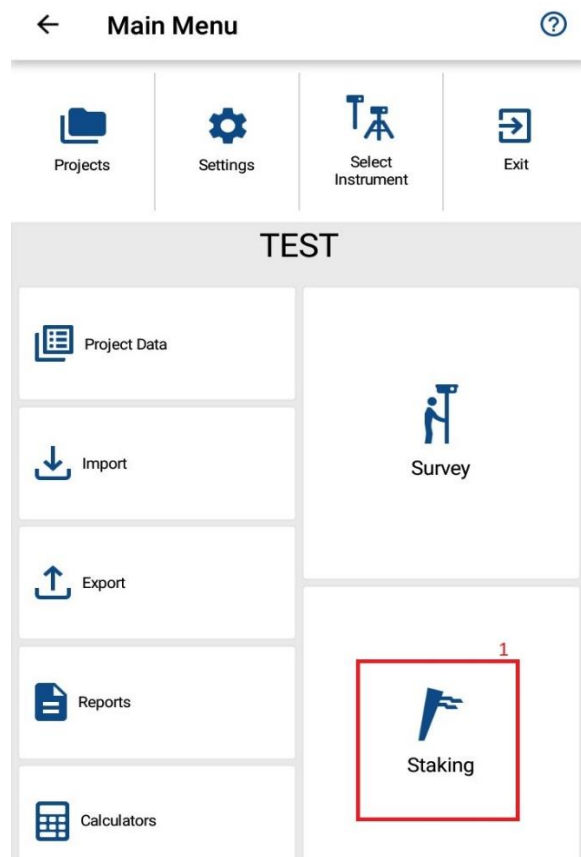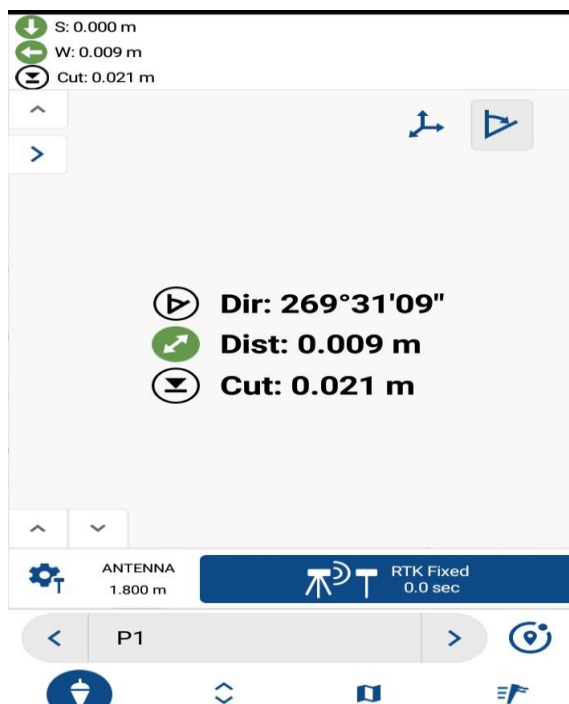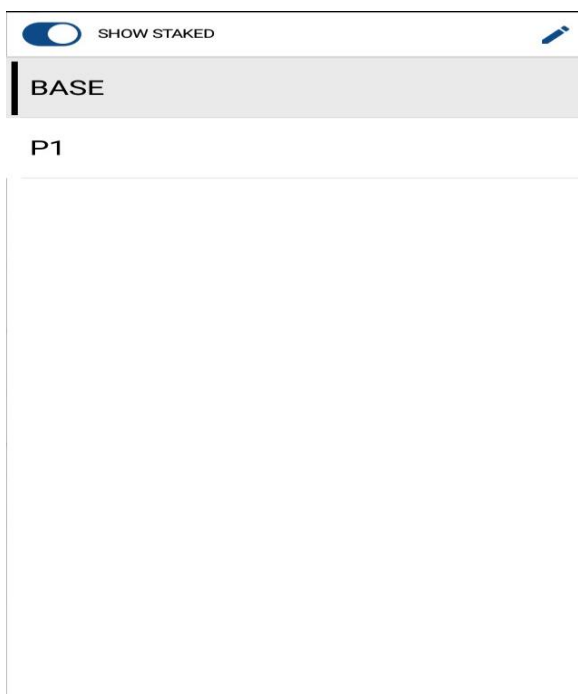➢ Select media to add media details (photo)
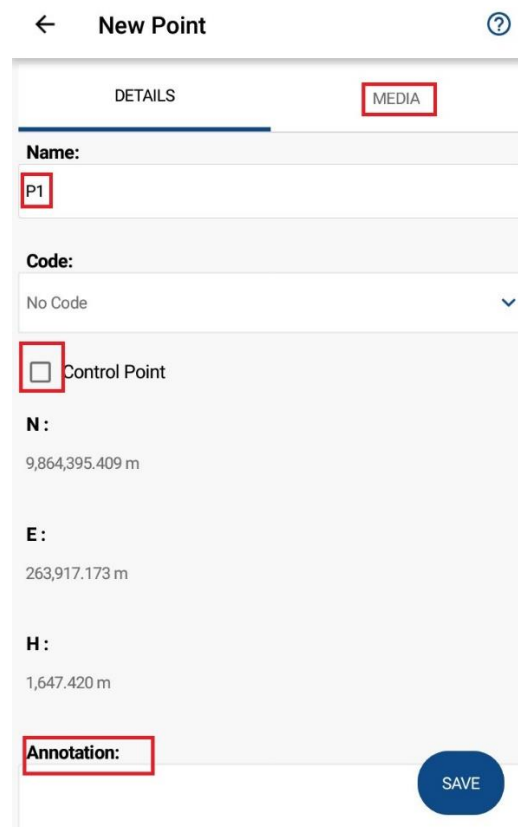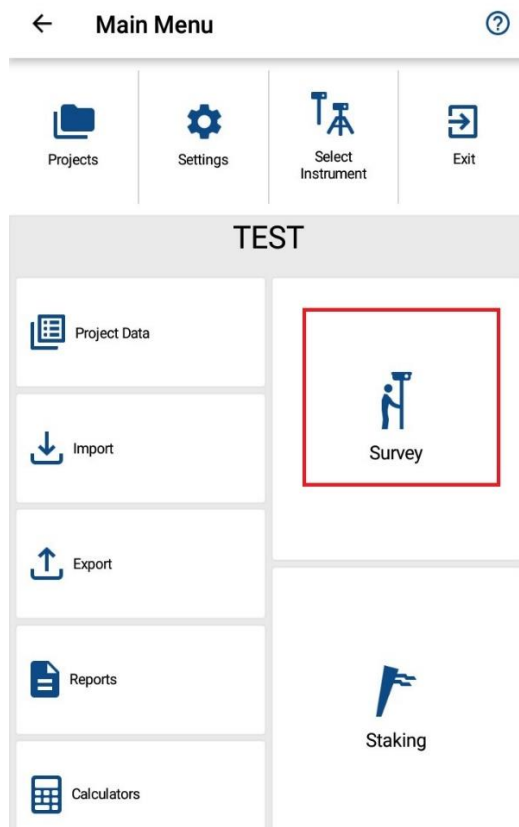
PROJECT DATA

- ➢ Select project data on home page
- ➢ Points: all point picked or imported will be displayed
- ➢ Add: to add new points manually

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STAKING/SETTING OUT

1) Select staking on home page
2) Select staking mode (stake point list or stake line)
3) Activate show staked
4) Press edit list
5) Select all
6) Done
7) Select point to stake from the list
8) Distance and direction will be displayed on top left
9) Use the compass on your cradle to navigate to point

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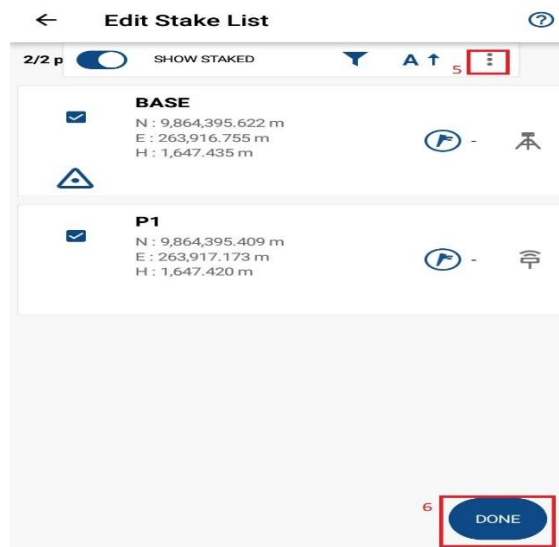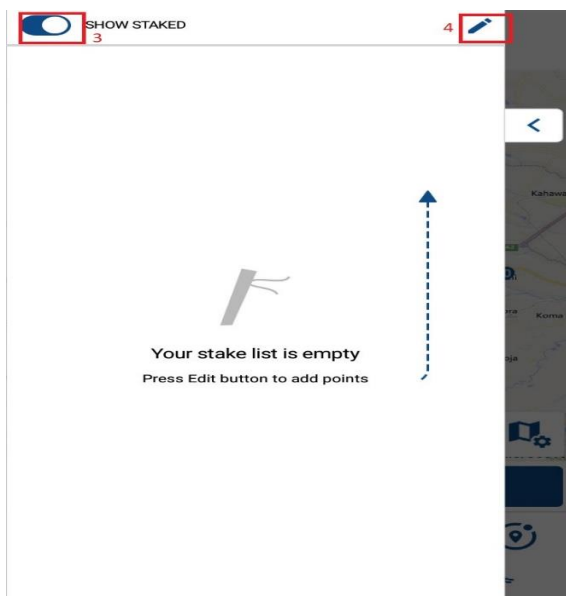
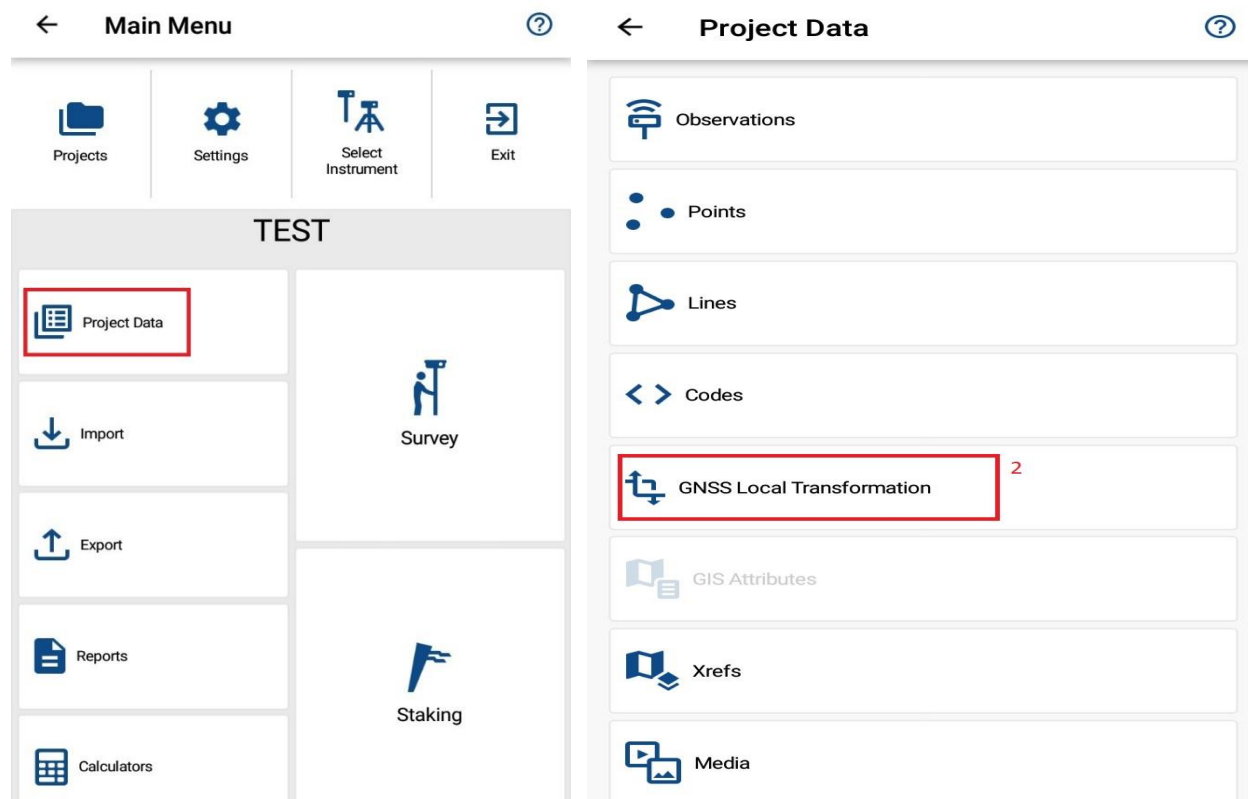**GNSS LOCAL TRANSFORMATION**

Select
1) Project data
2) GNSS local transformation
3) Calculate from point pairs
4) Add pair
5) Local control (select new point or select from existing)
6) GNSS control: select measure to pick the desired control
7) Add pair
8) Apply
9) Done

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← **GNSS Local Transformation** ?

GNSS Local Transformation parameters
not defined for current project

CALCULATE FROM POINT PAIRS 3

SELECT FROM EXISTING PROJECT

INPUT TRANSFORMATION PARAMETERS

← **Pair Control Points**

☑ **Apply Horizontal**

☑ **Apply Vertical**

5
| **Local Control** | **BASE** |
| **New** | **Select Existing** |

6
| **GNSS Control** | **P2** |
| **Measure** | **Select Existing** |

7
ADD PAIR

← **Calculate Transformation** ?

Scale Factor Type
Calculate ⌄

Vertical Adjustment
Constant Shift ⌄

Pnt ID	Delta N	Delta E	Delta H	Horz	Vert	Lo
⋮ BASE	0.000 m	0.000 m	0.000 m	☑	☑	26:

ADD PAIR   APPLY

← **GNSS Local Transformation** ?

✎ Modify (1)   **Reset**

Method	Similarity
Origin North	9,864,395.414 m
Origin East	263,917.178 m
Translate North	9,864,395.622 m
Translate East	263,916.755 m
Rotation	0°00'00.00000"
Scale	1.0000000000
Translate Height	0.002 m

9   DONE

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IMPORTING DATA

Select

➢ Import on home page
➢ Select from folder as saved in your device

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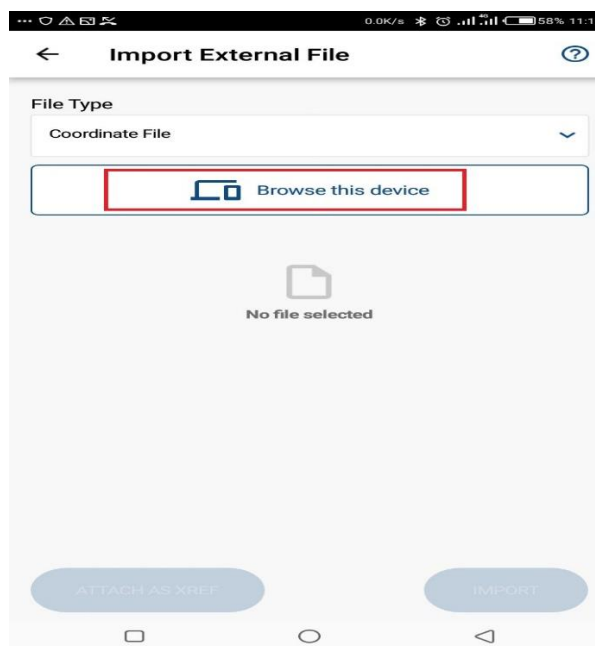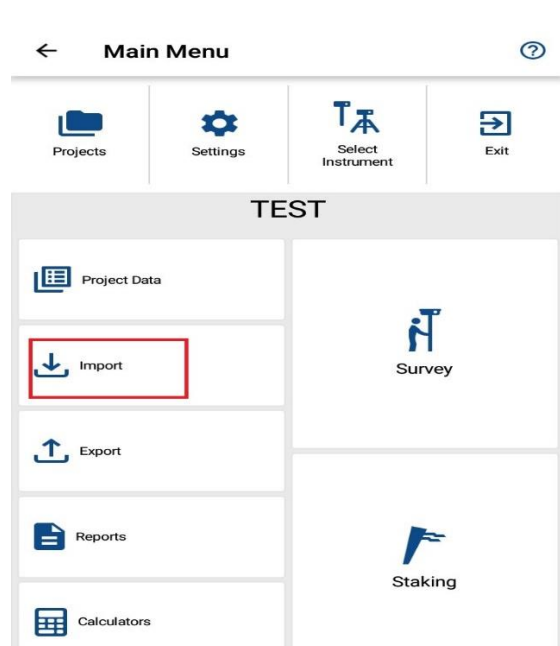
EXPORTING DATA

Select

- ➢ Export on home page
- ➢ File type: coordinate file
- ➢ File name: name the project
- ➢ File extension:(PT, N, E, H, CODE)
- ➢ File delimiter: comma
- ➢ Export: (share or save file)

← **Export** ⑦

| ▼ 2/3 points | CLEAR FILTERS |

File Type

Coordinate File ⌄

File Name

TEST-2021-06-23

File Extension

csv ⌄

☐ Include Header

Output Format

pt. number, N, E, H, Code ⌄

Field Delimiter

Comma   EXPORT

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REPORTS

Select
- ➤ Report on main menu
- ➤ Report type: GNSS survey report (CSV)
  Stake point report (CSV)
- ➤ File name
- ➤ Create

← **Reports** ⑦

Report Type

Stake point report (csv) ⌄

File Name

TEST-STK-2021-06-23

◻

CREATE