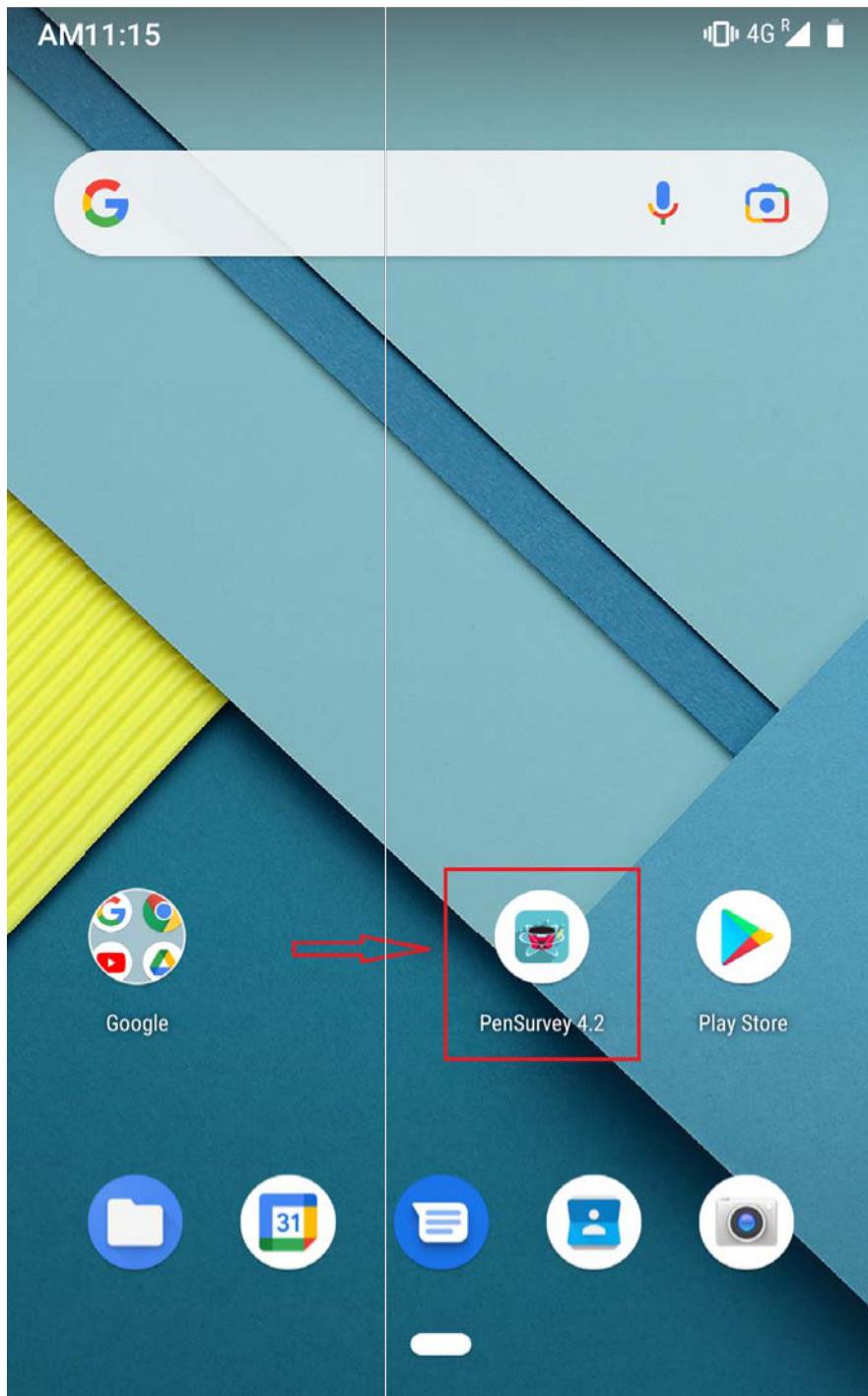


Disclaimer: The following MOP is as per Survey of India requirements. For more details and other GNSS receivers, contact respective manufacturers.

SOP FOR RTK DATA COLLECTION USING PENTAX ROVER



Open PenSurvey application in your controller using double click

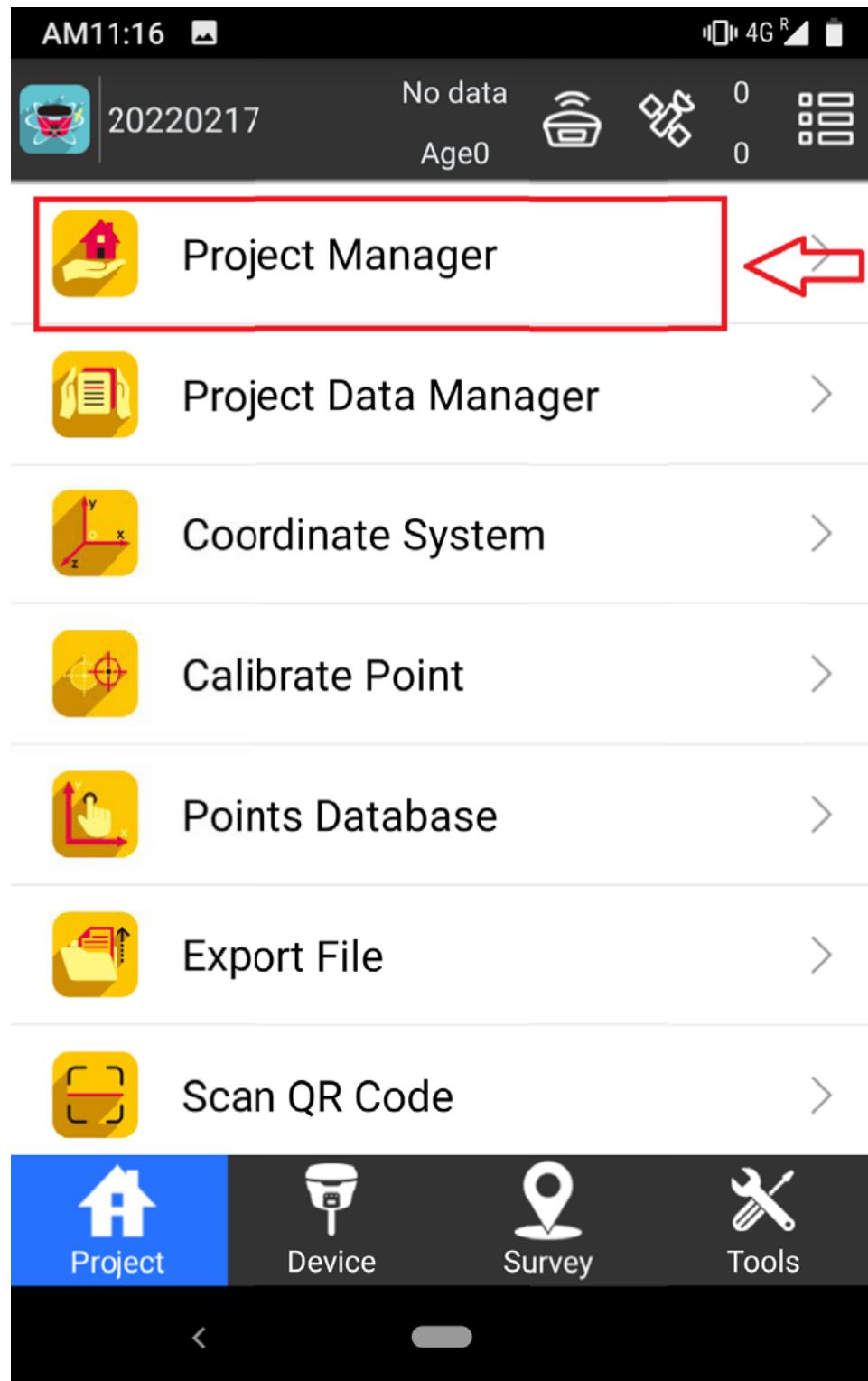




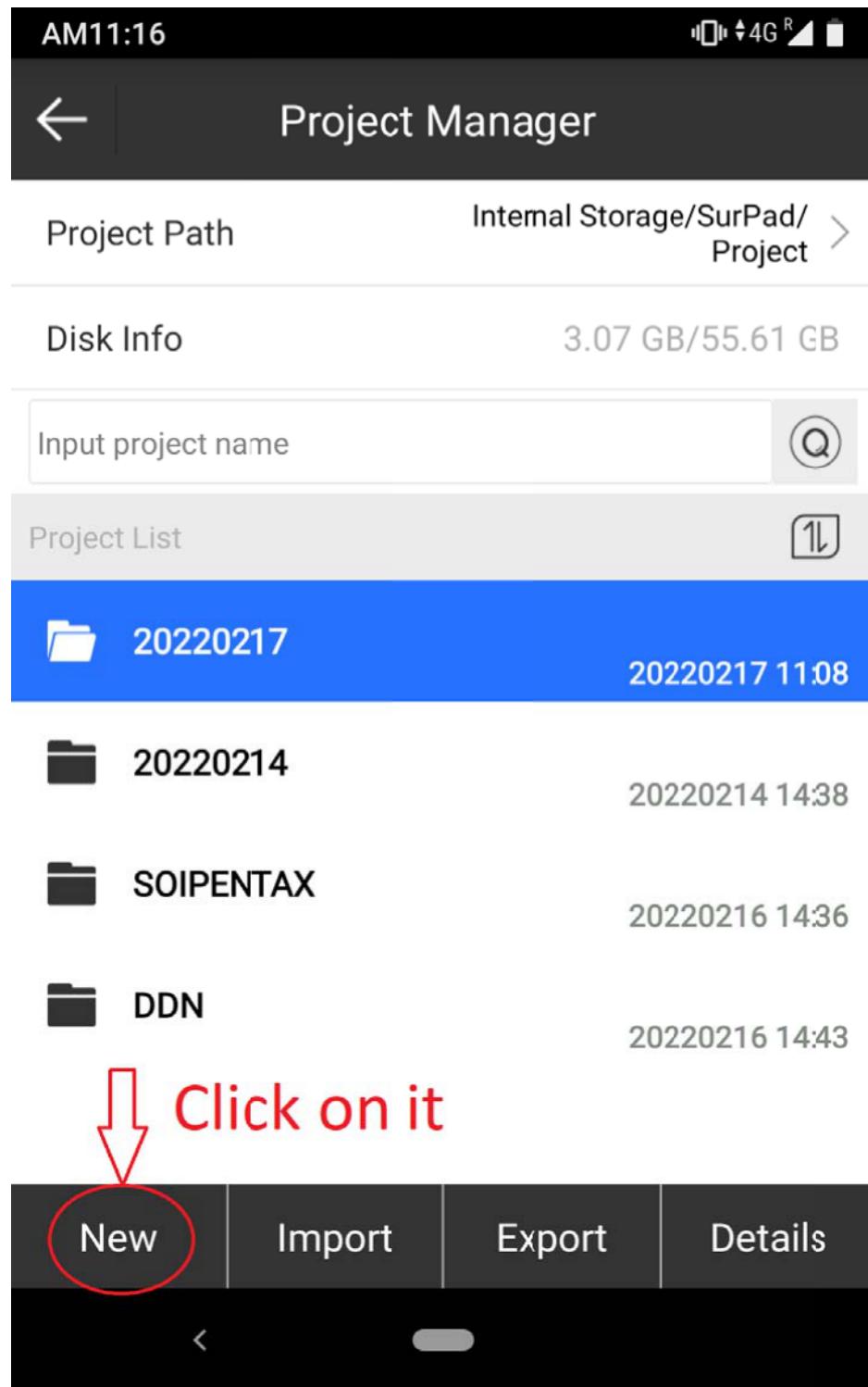
PENTAX

TI Asahi Co., Ltd

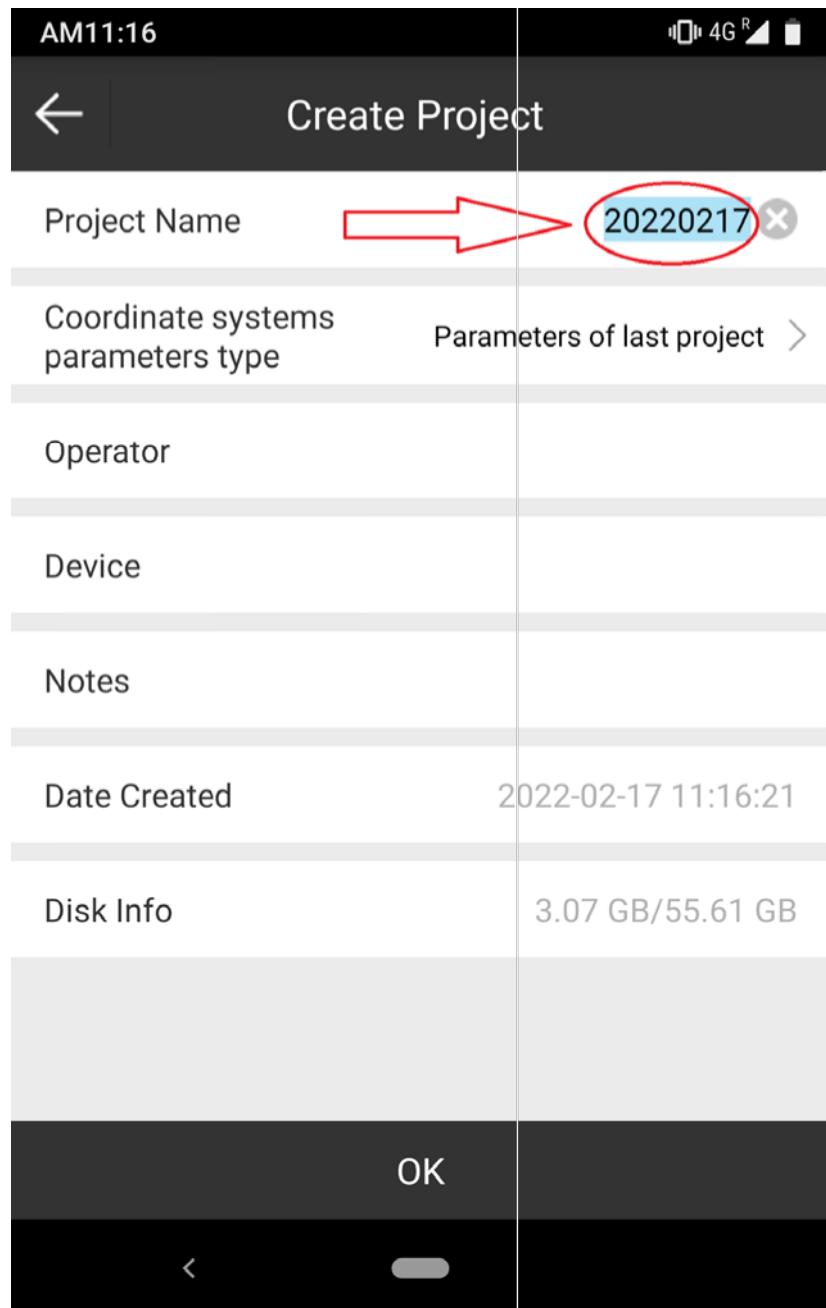
A project info window will appear.



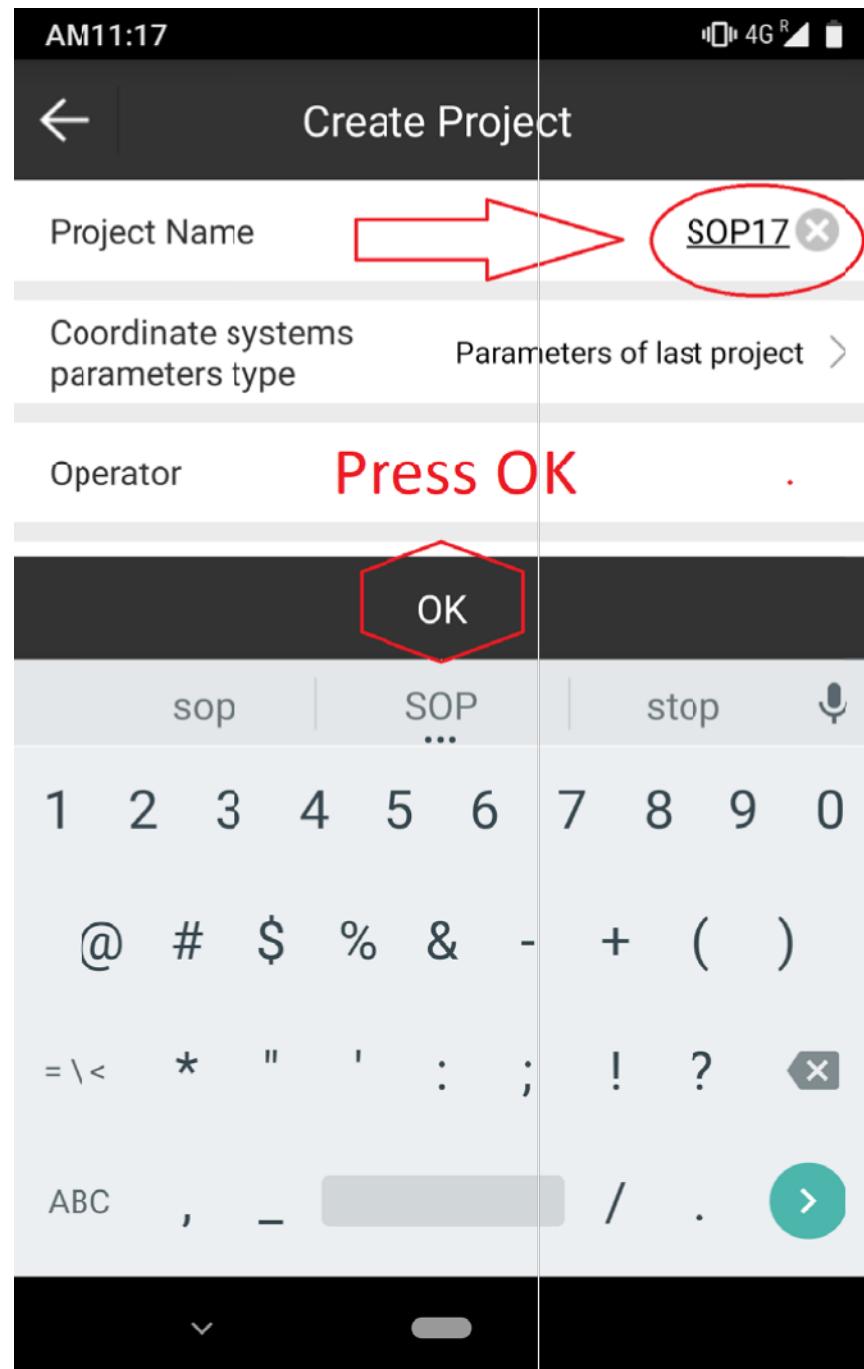
Now go to Project Manager.



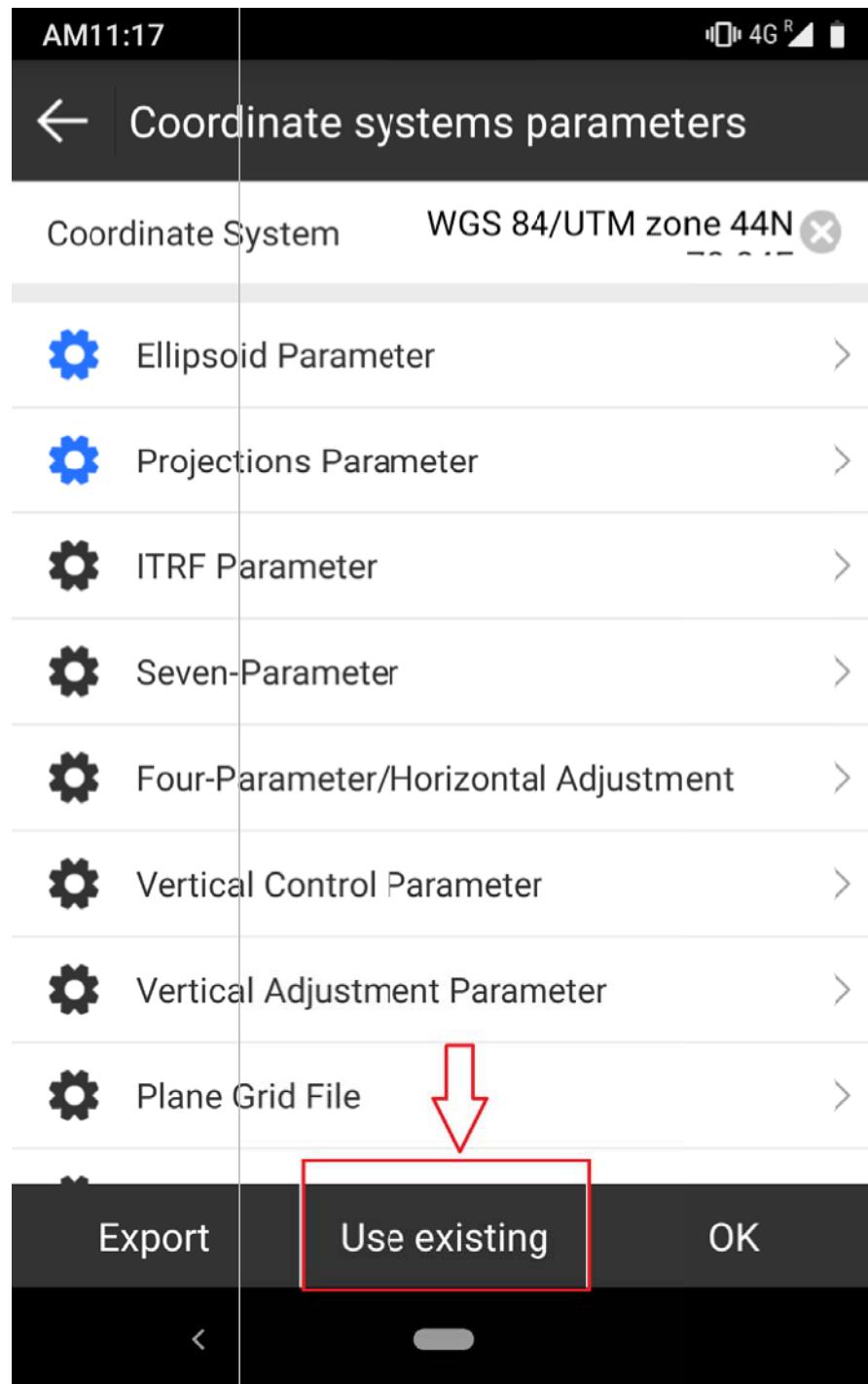
In the Project Manager window create a new project by clicking on New.



Now give a user defined project name and press OK.

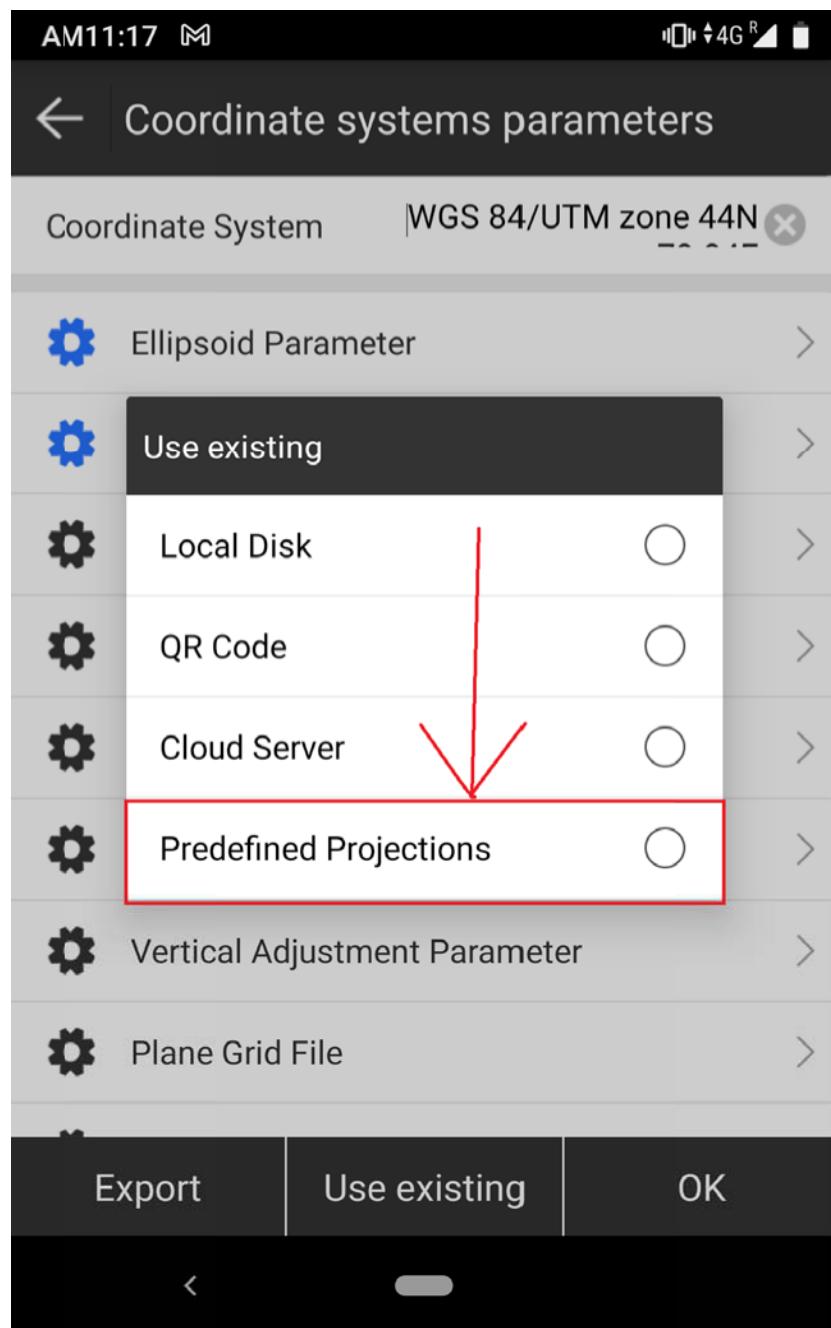


You have created your project.

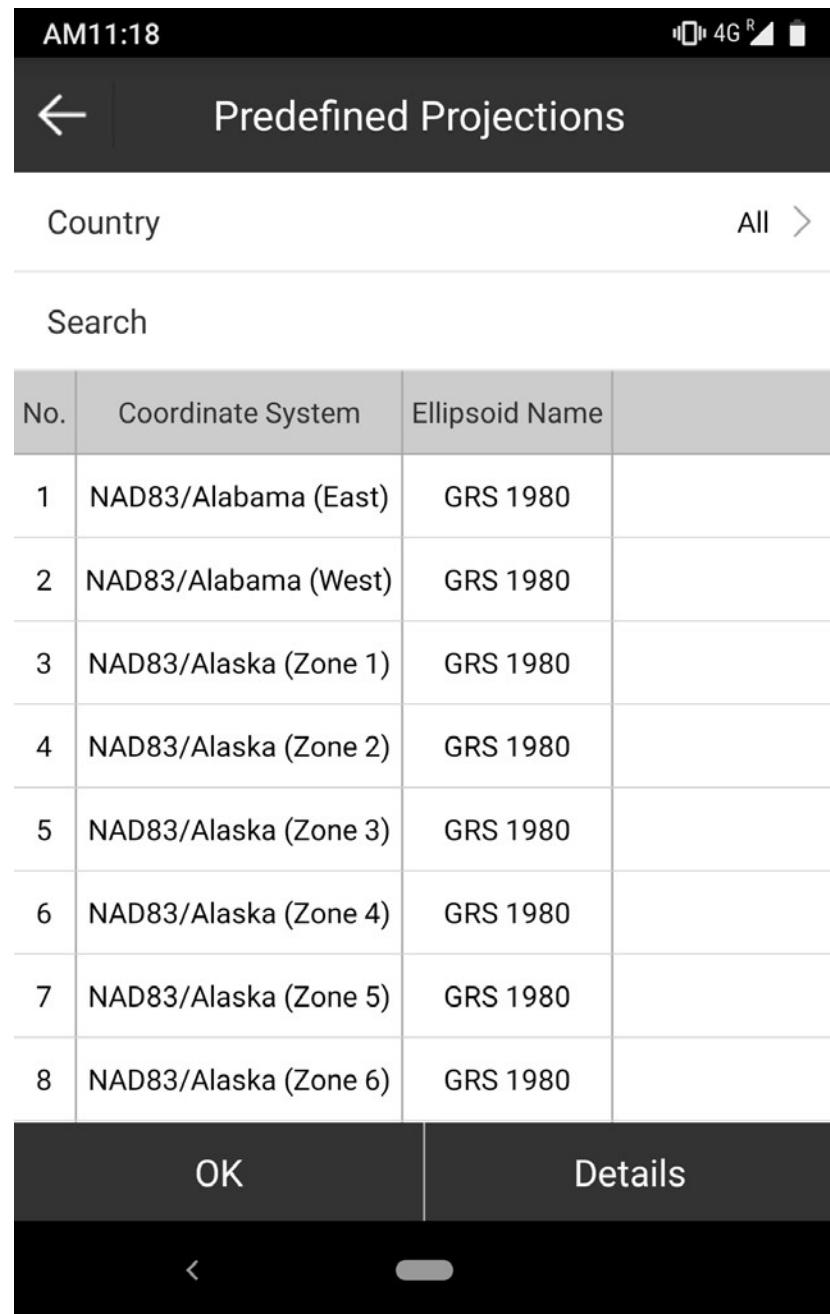


Now click on Use existing tab and define your project settings and Projection Parameter.

A window will appear. You can add your Predefined Projections.



Now click on Predefined Projections tab. A window will appear.



Now you can scroll the window and can select the Coordinate System and its Ellipsoid name.

The screenshot shows a mobile application interface titled "Predefined Projections". The top bar includes the time "AM11:21", signal strength, "4G R", and battery level. Below the title is a search bar labeled "Search". A table lists coordinate systems by number (No.) and name. At the bottom is a footer bar with "OK" and "Details" buttons.

No.	Coordinate System
1928	WGS 84/UTM zone 41N 60-66E
1929	WGS 84/UTM zone 42N 66-72E
1930	WGS 84/UTM zone 43N 72-78E
1931	WGS 84/UTM zone 44N 78-84E
1932	WGS 84/UTM zone 45N 84-90E
1933	WGS 84/UTM zone 46N 90-96E
1934	WGS 84/UTM zone 47N 96-102E
1935	WGS 84/UTM zone 48N 102-108E

OK Details

Now you can choose your Ellipsoid Name and Zone from Predefined list of Coordinate system.

AM11:21 4G R

← Predefined Projections

Country All >

Search

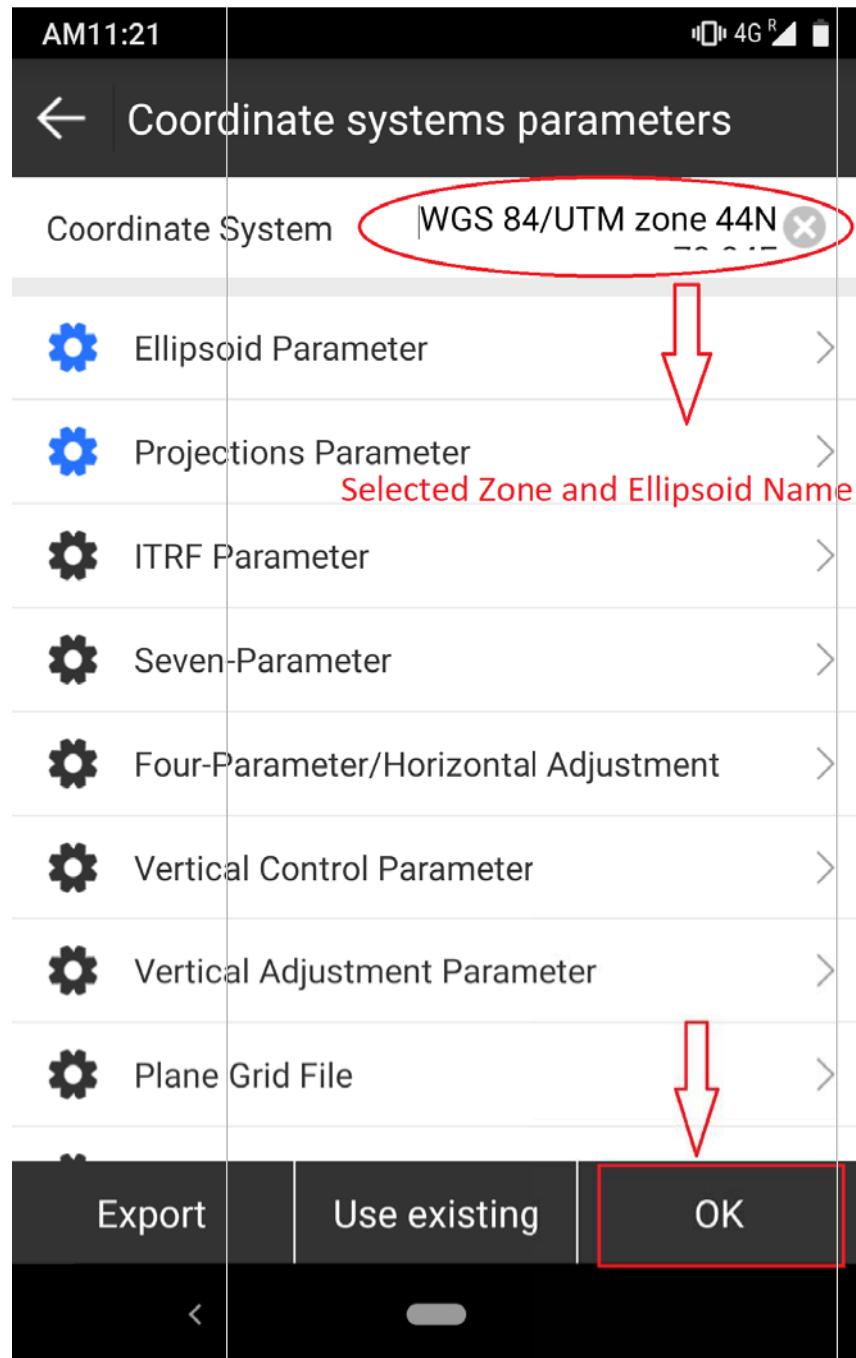
No.	Coordinate System
1928	WGS 84/UTM zone 41N 60-66E
1929	WGS 84/UTM zone 42N 66-72E
1930	WGS 84/UTM zone 43N 72-78E
1931	WGS 84/UTM zone 44N 78-84E
1932	WGS 84/UTM zone 45N 84-90E
1933	WGS 84/UTM zone 46N 90-96E
1934	WGS 84/UTM zone 47N 96-102E
1935	WGS 84/UTM zone 48N 102-108E

OK Details



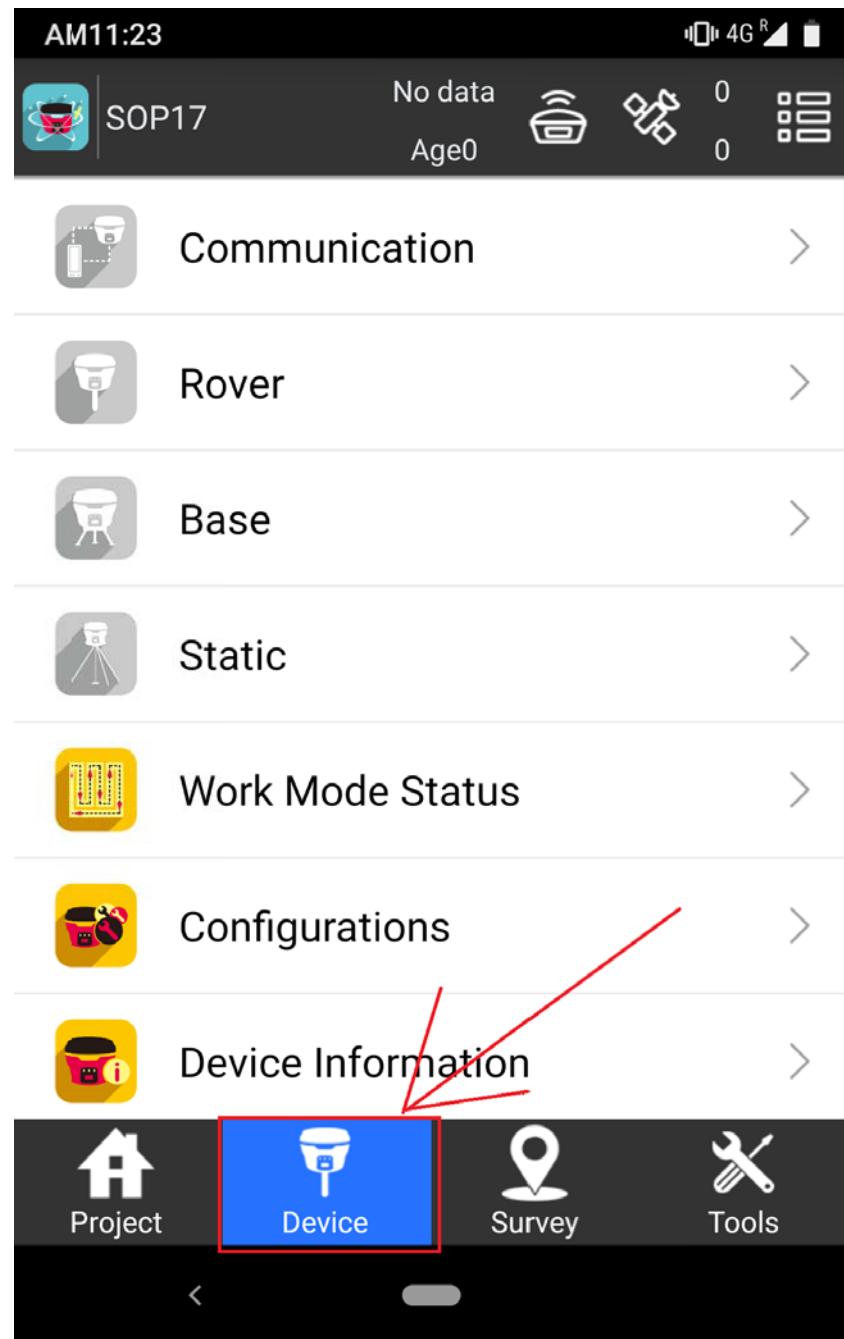
Now press OK.

A window will appear.

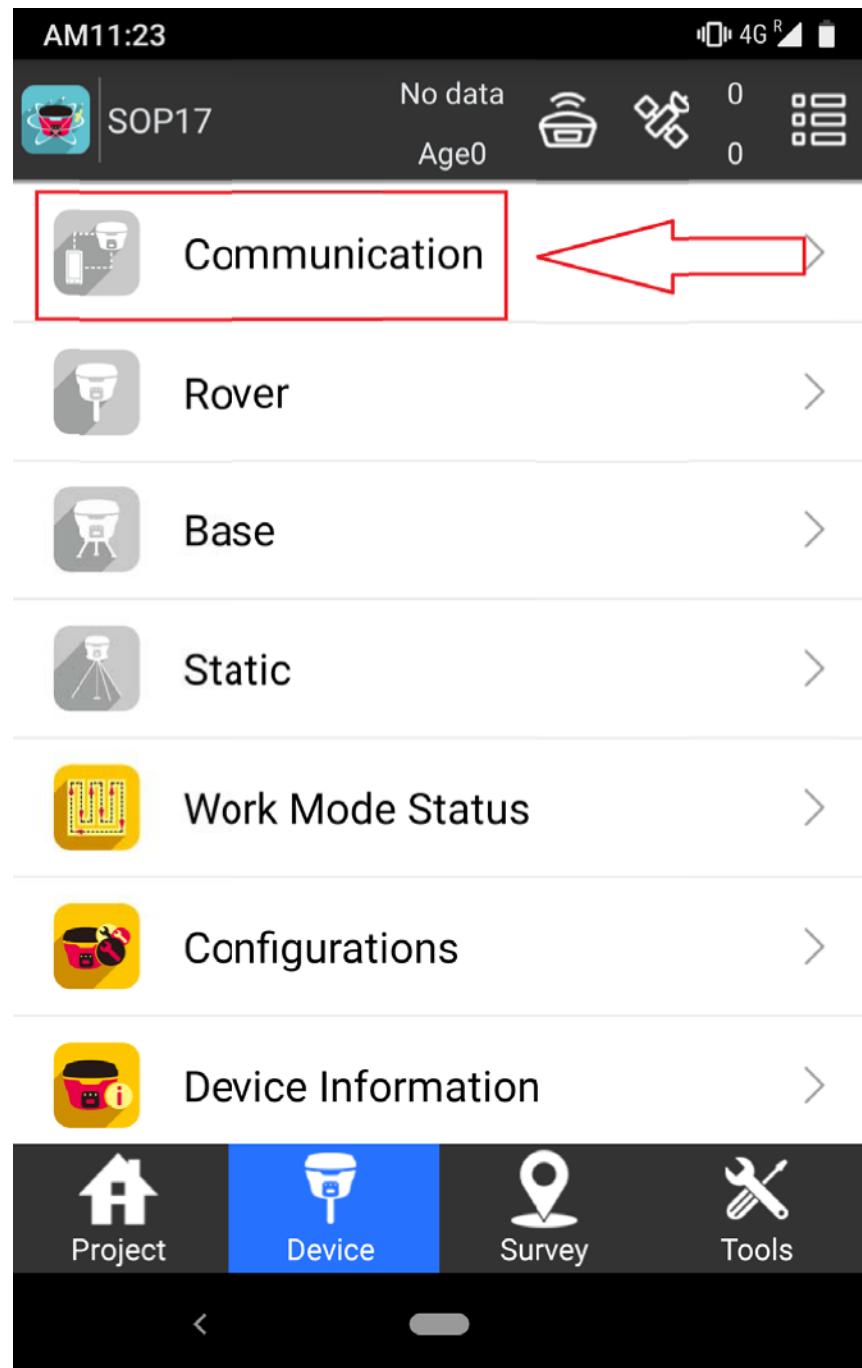


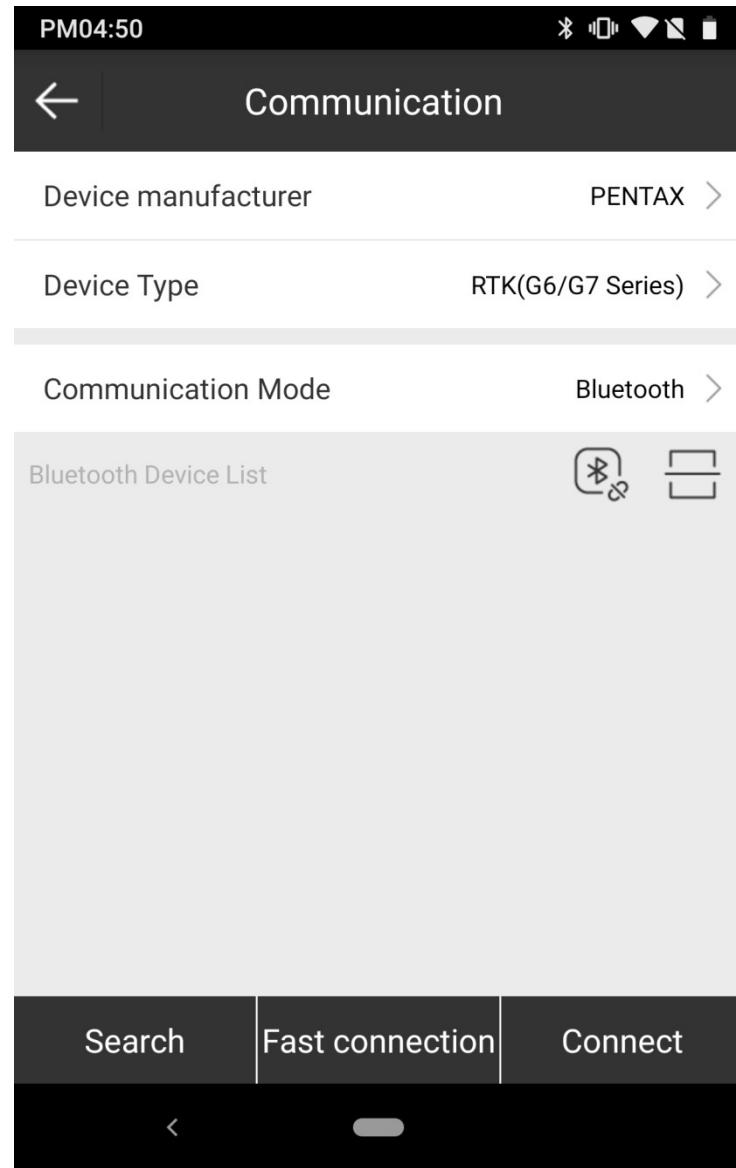
You have successfully selected your Coordinate system and zone. Now press OK.

Now go to Device Section.



Click on Communication tab of Device Section.





Now select Device manufacturer, Device Type and Communication Mode respectively....

PM04:50



Communication

Device manufacturer

PENTAX >

Device Type

RTK(G6/G7 Series) >

Communication Mode

Bluetooth >

Bluetooth Device List



Search

Fast connection

Connect



PM01:55



Communication

Device manufacturer

PENTAX >

Device Type

RTK(G6/G7 Series) >

Communication Mode

Bluetooth >

Bluetooth

Device manufacturer



PENTAX



Other



Search

Fast connection

Connect



PM01:55



Communication

Device manufacturer

PENTAX >

Device Type

RTK(G6/G7 Series) >

Communication Mode

Bluetooth >

Device Type

Bluetooth

RTK(G6/G7 Series)



RTK(G5)



Total Station(X100)

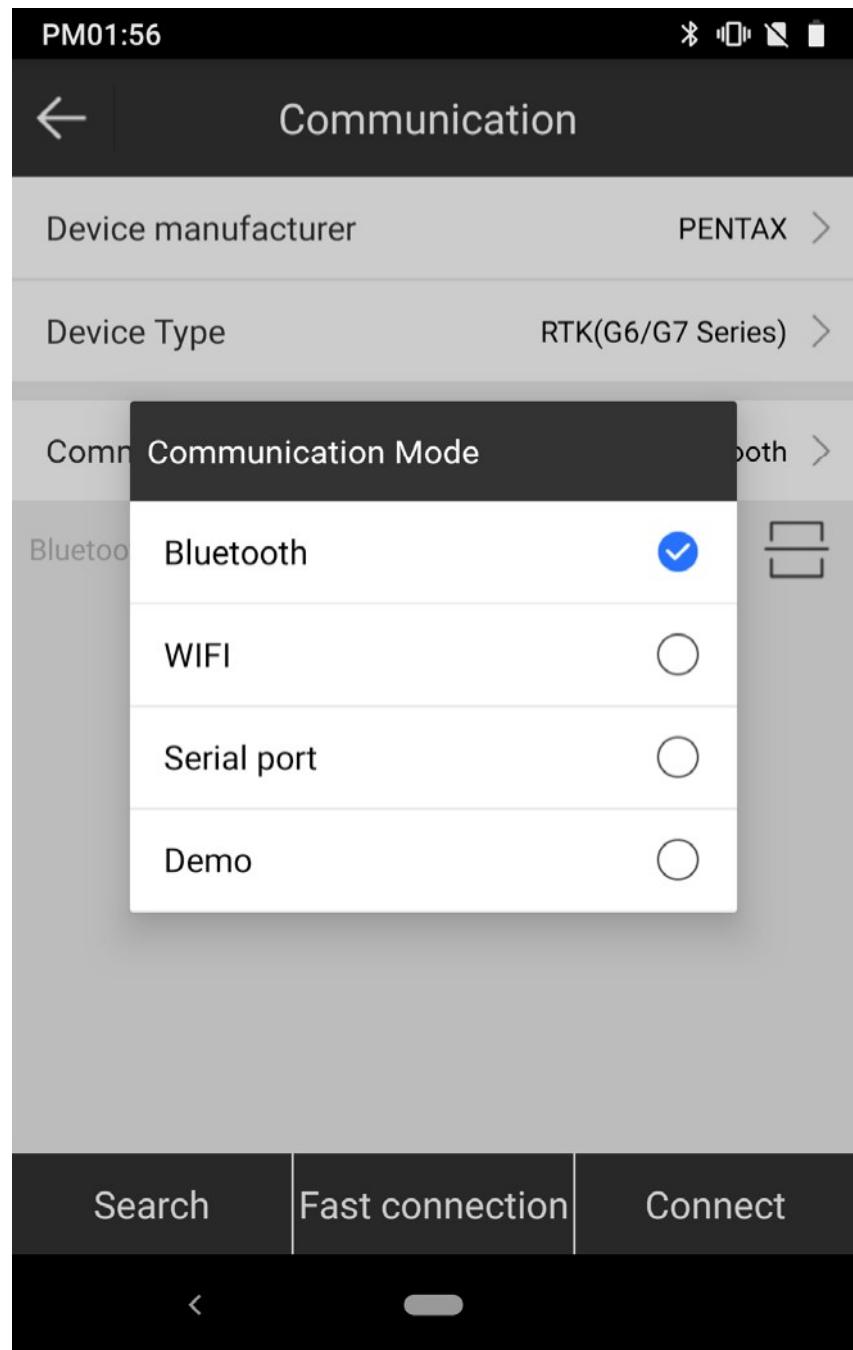


Search

Fast connection

Connect





Now search your Bluetooth device (Receiver) with its serial number.



After click on Search, it will show you the available Bluetooth devices.

AM10:05

4G+ R



Communication

Device manufacturer

PENTAX

Device Type

RTK(G6/G7 Series)

Communication Mode

Bluetooth

Bluetooth Device List



Android TV

D4:AB:CD:75:06:4A

DESKTOP-14LSRNF

D8:3B:BF:35:D9:A4

PHZ001J1

74:7A:90:E5:C5:6C

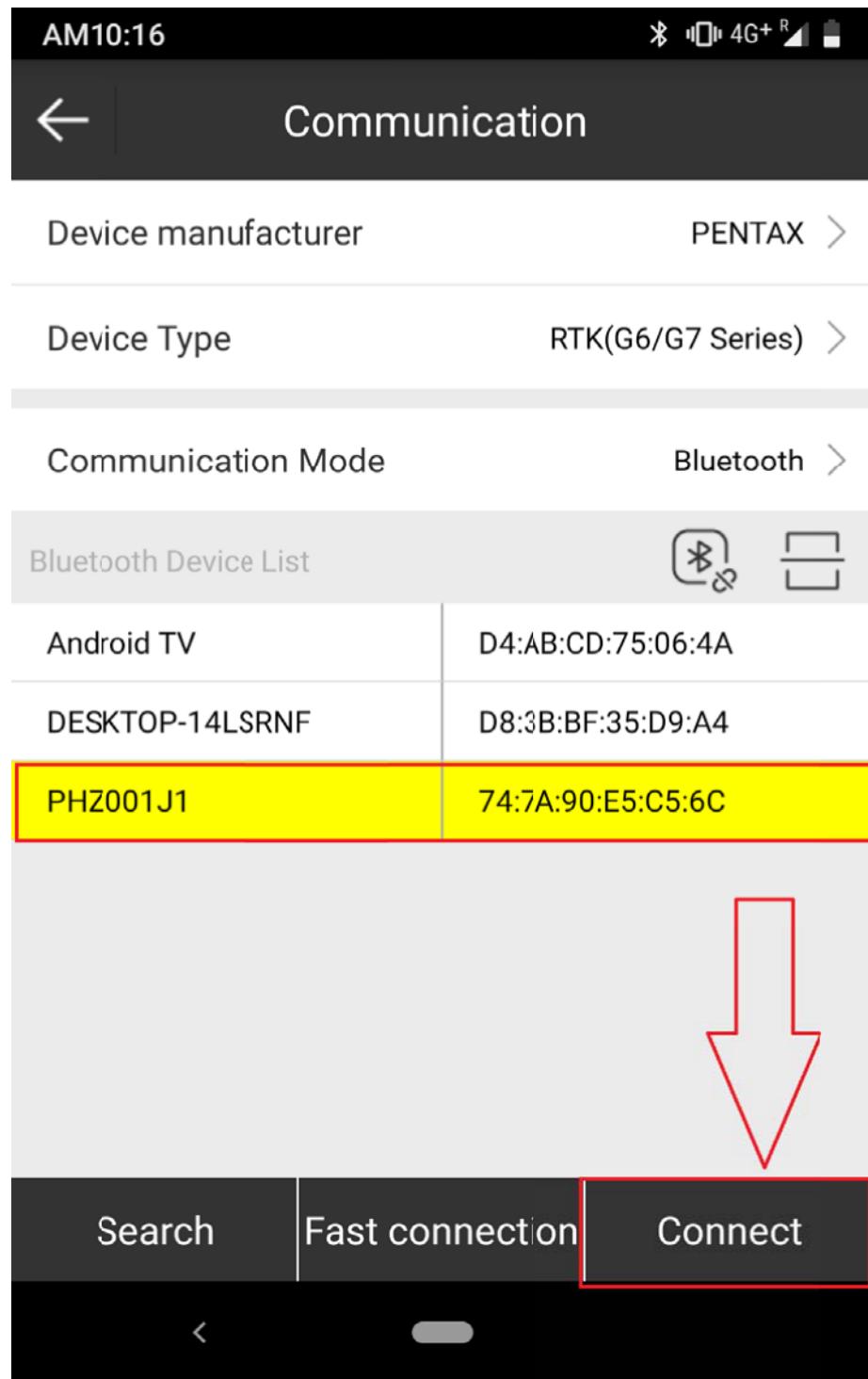
Searching...

Stop

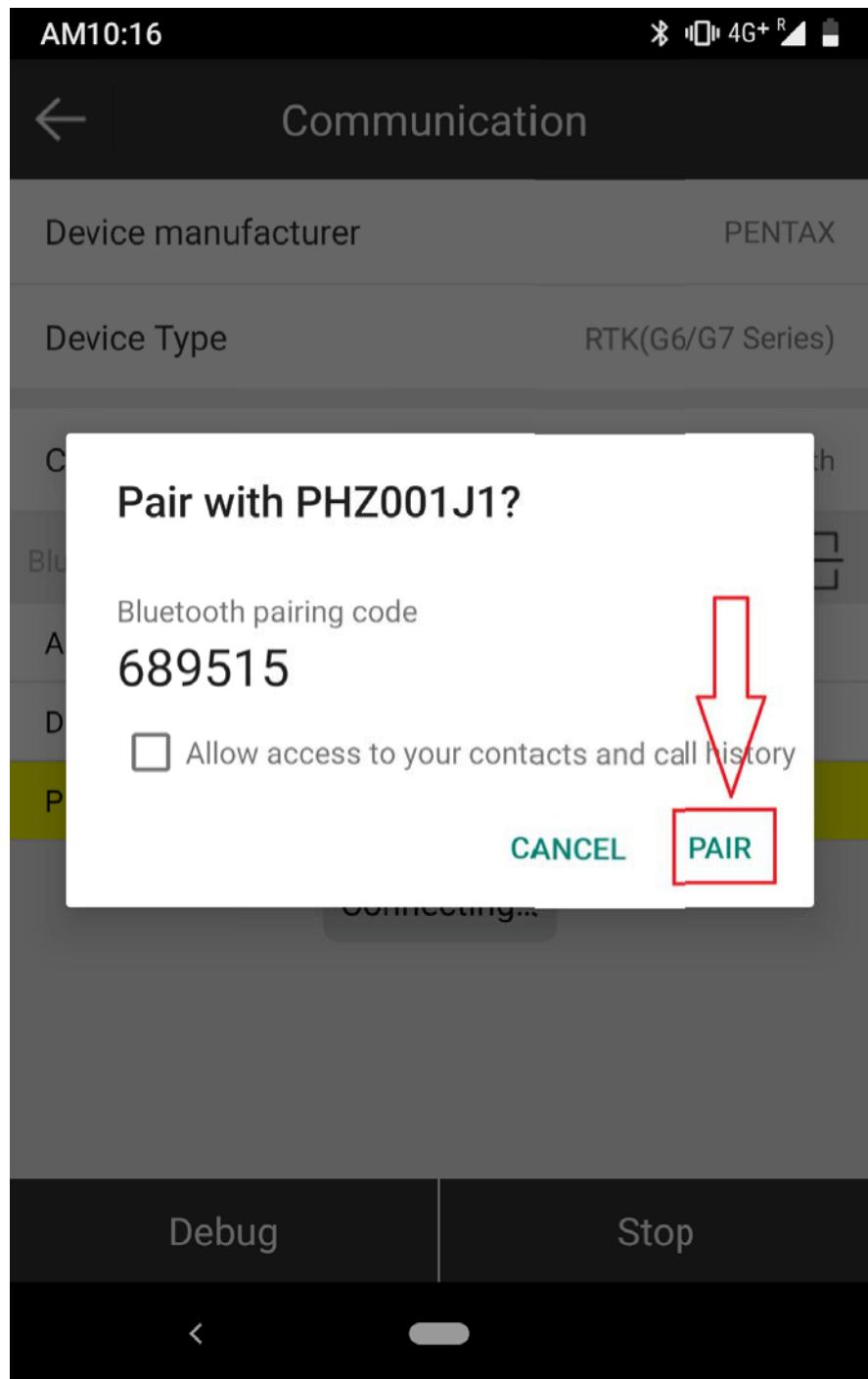
Connect



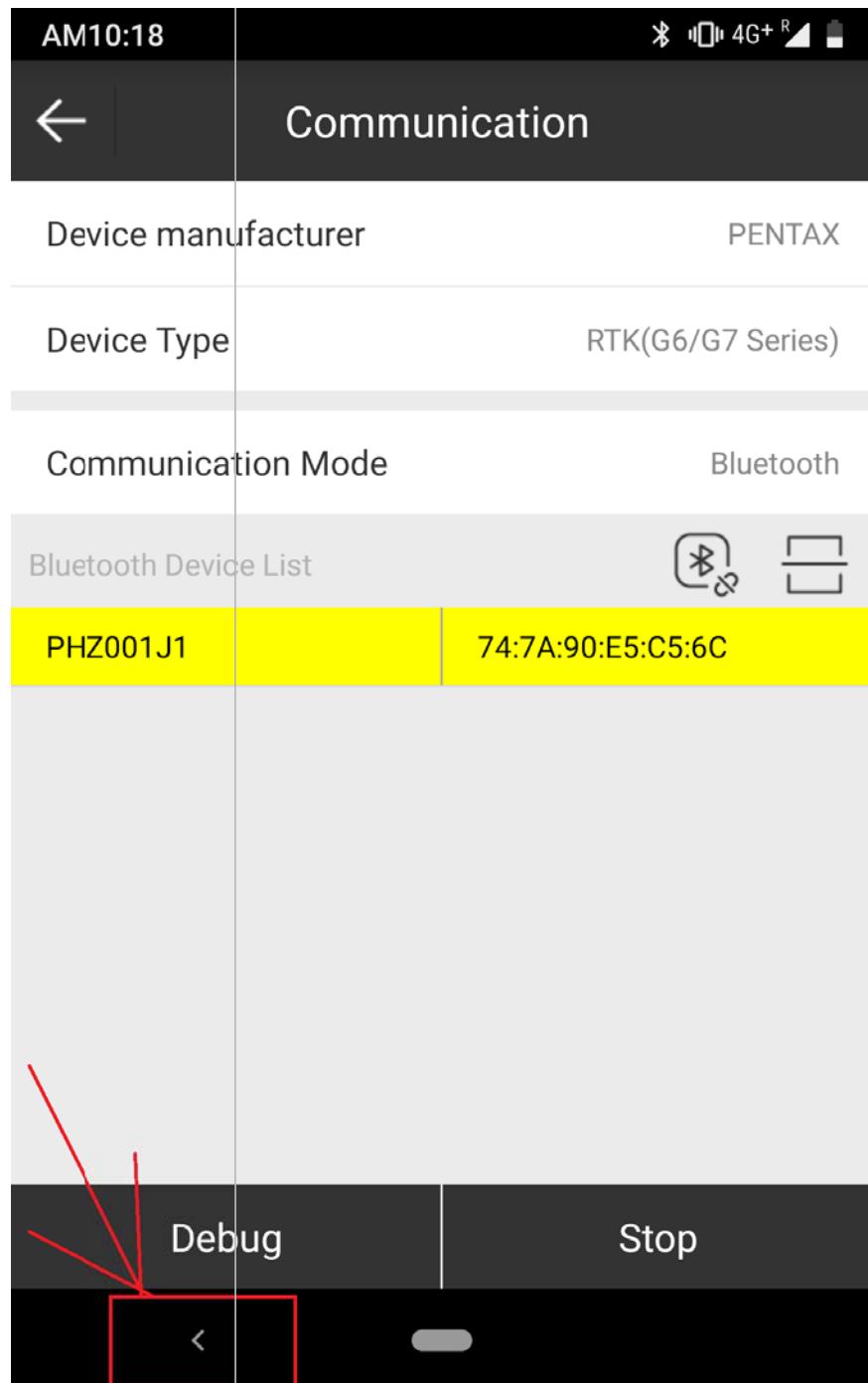
Now connect the GNSS Receiver via Bluetooth.



Select the Device from Bluetooth Device list and click on Connect button.

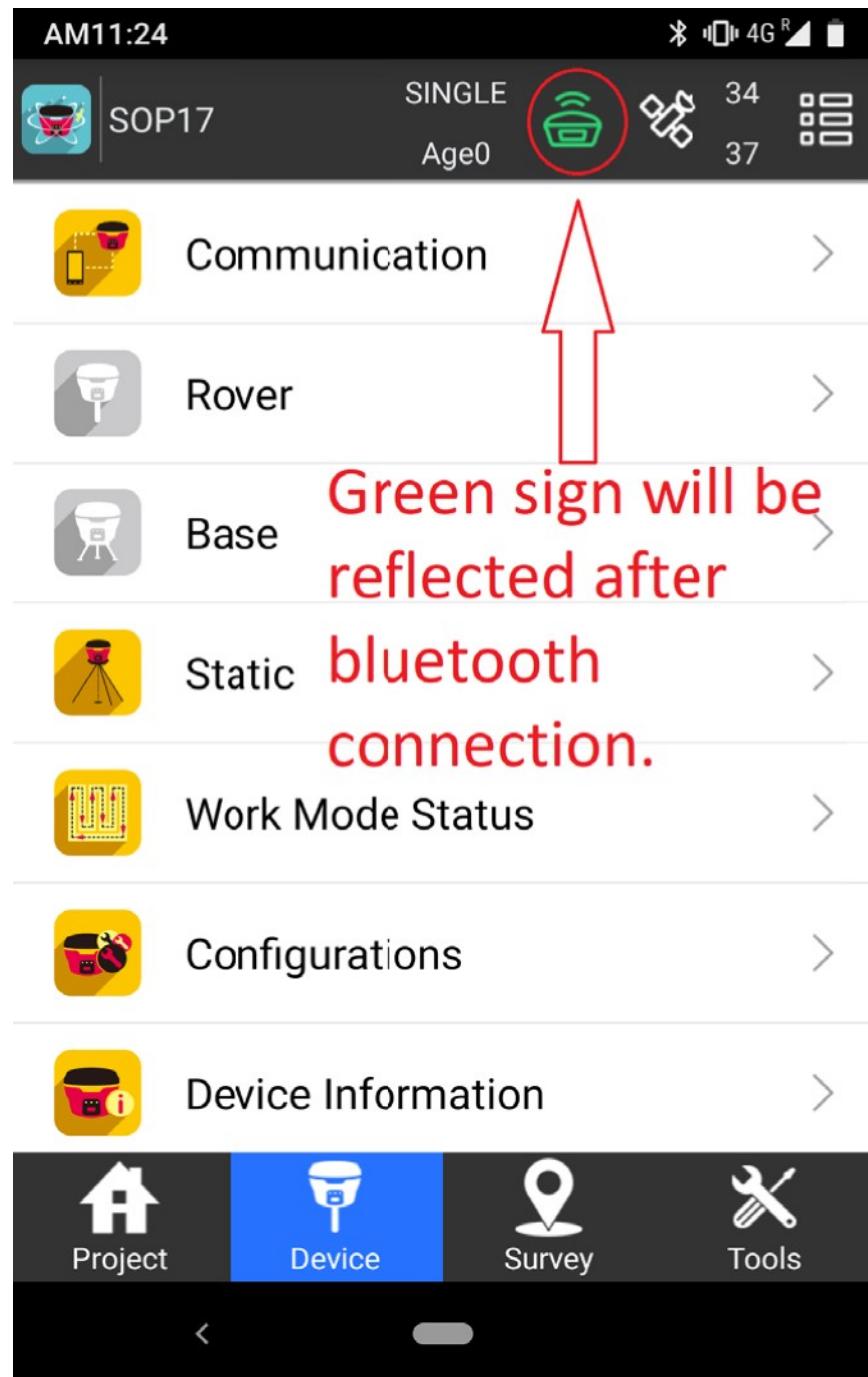


Now pair your Bluetooth device with Bluetooth pairing code.

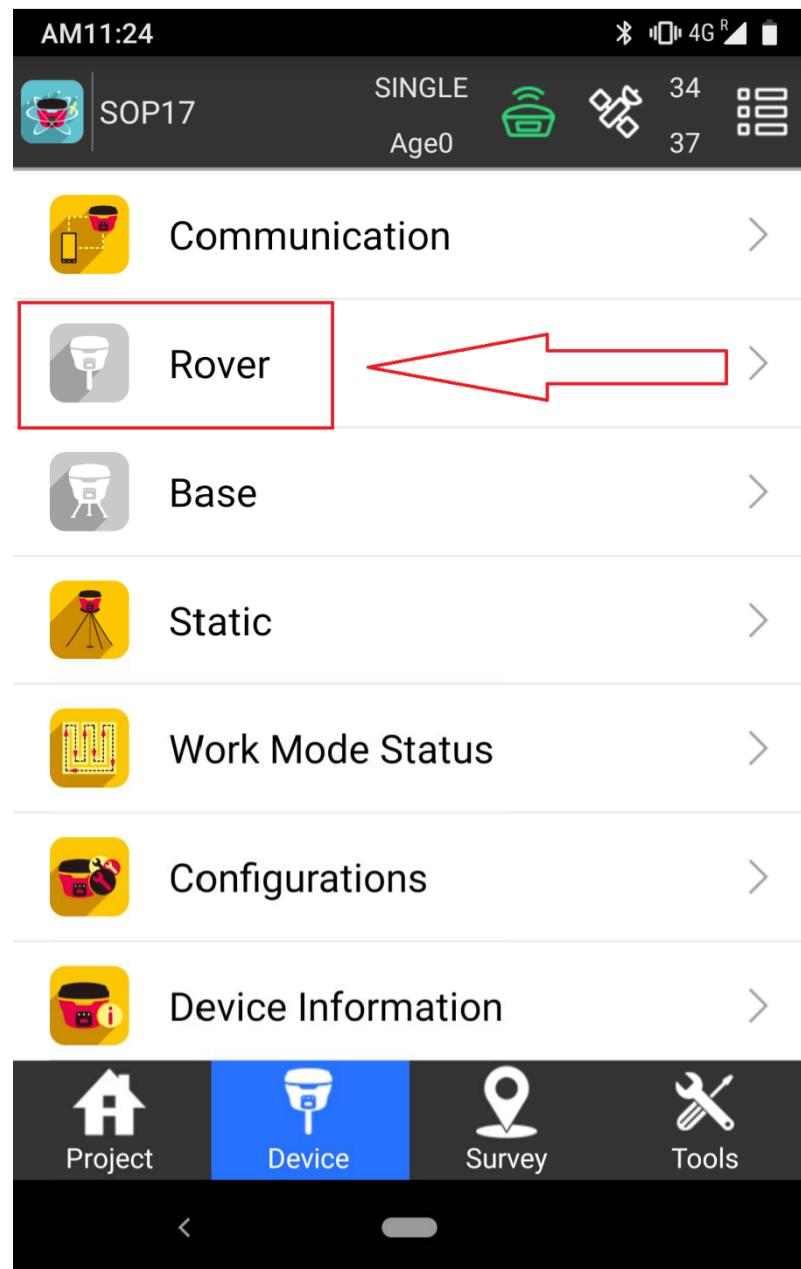


Now press the back button.

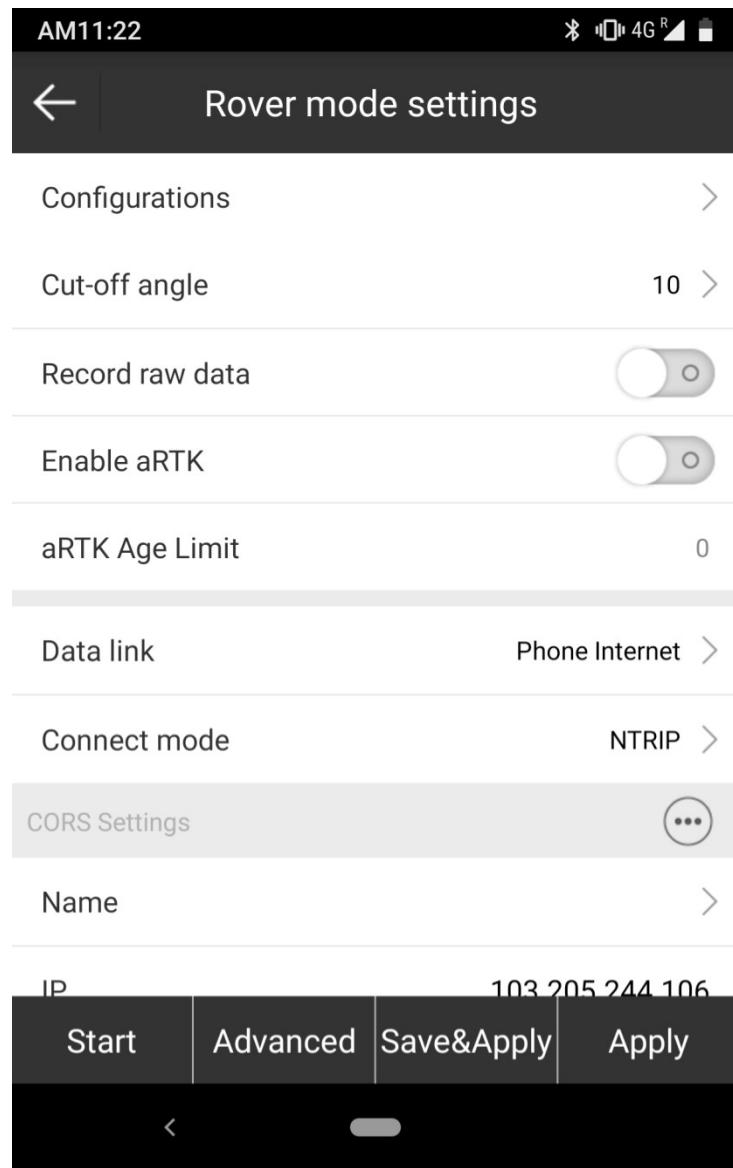
Receiver is connected with controller now via bluetooth.



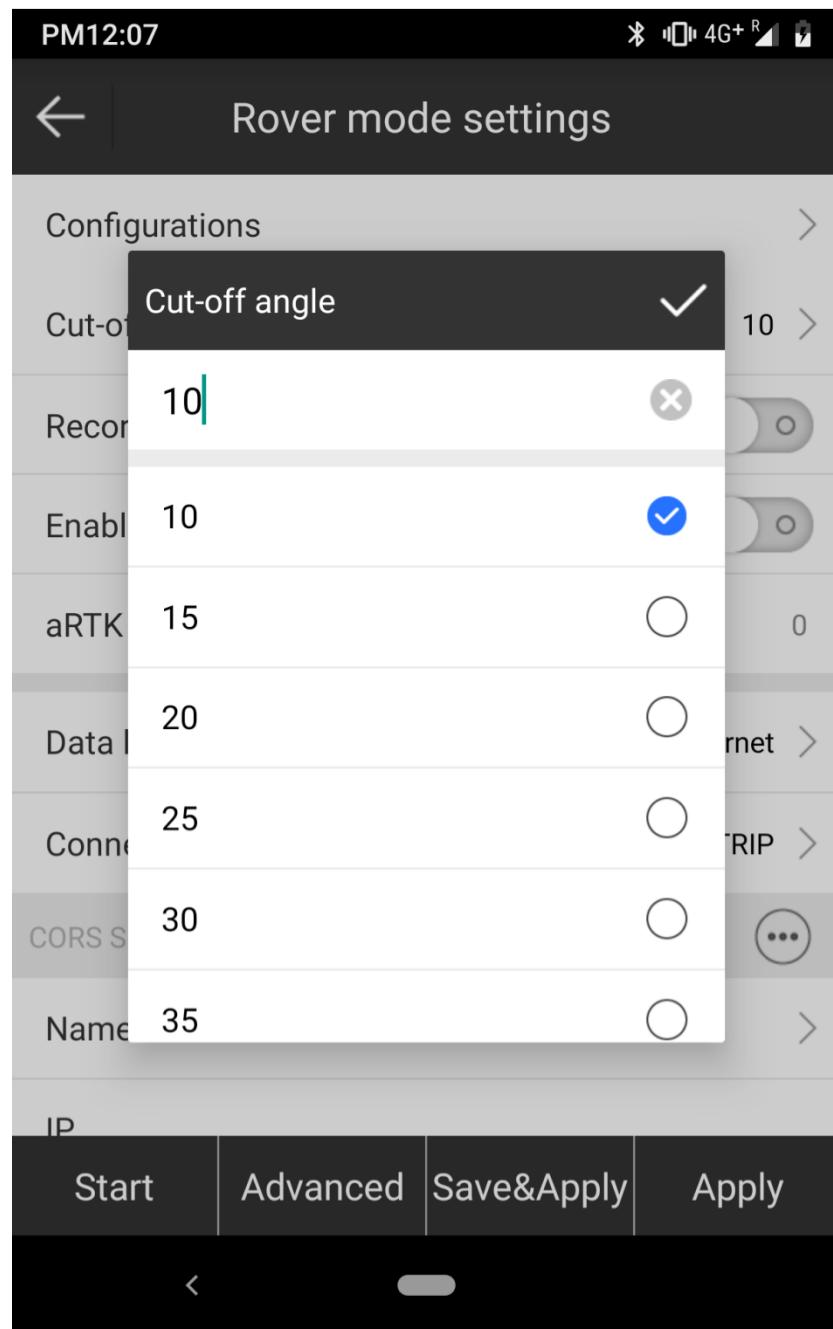
Now go to the Rover setting.



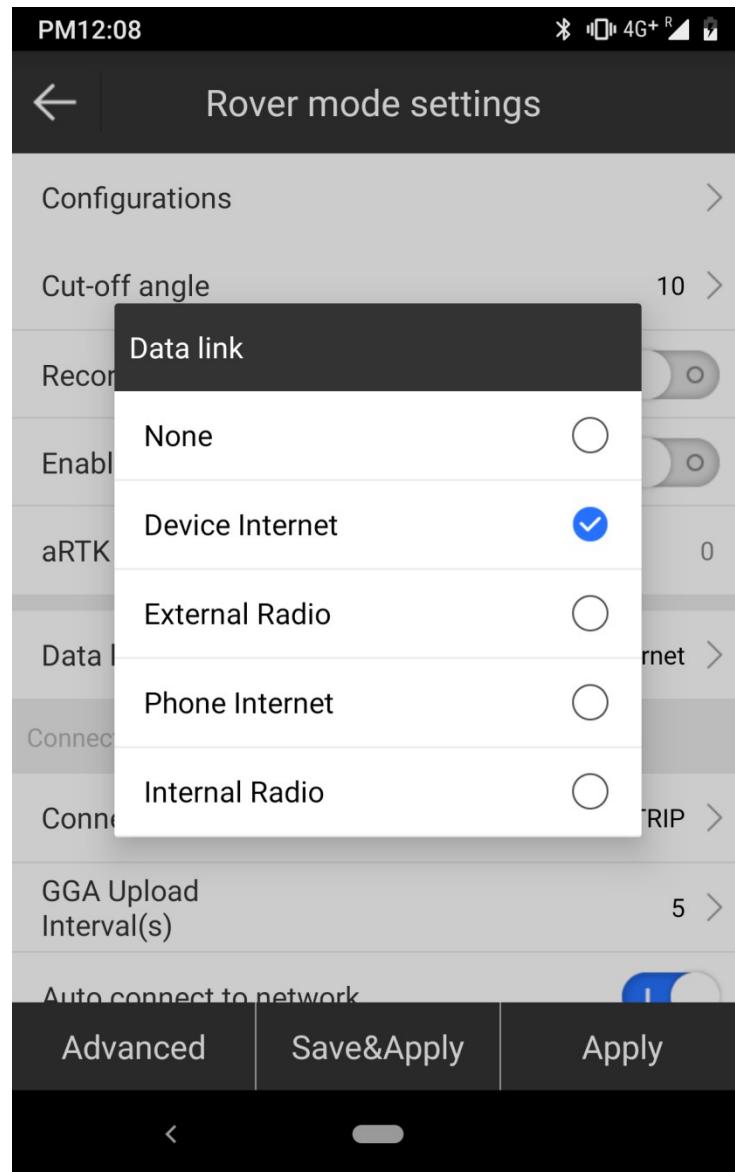
A window will appear.



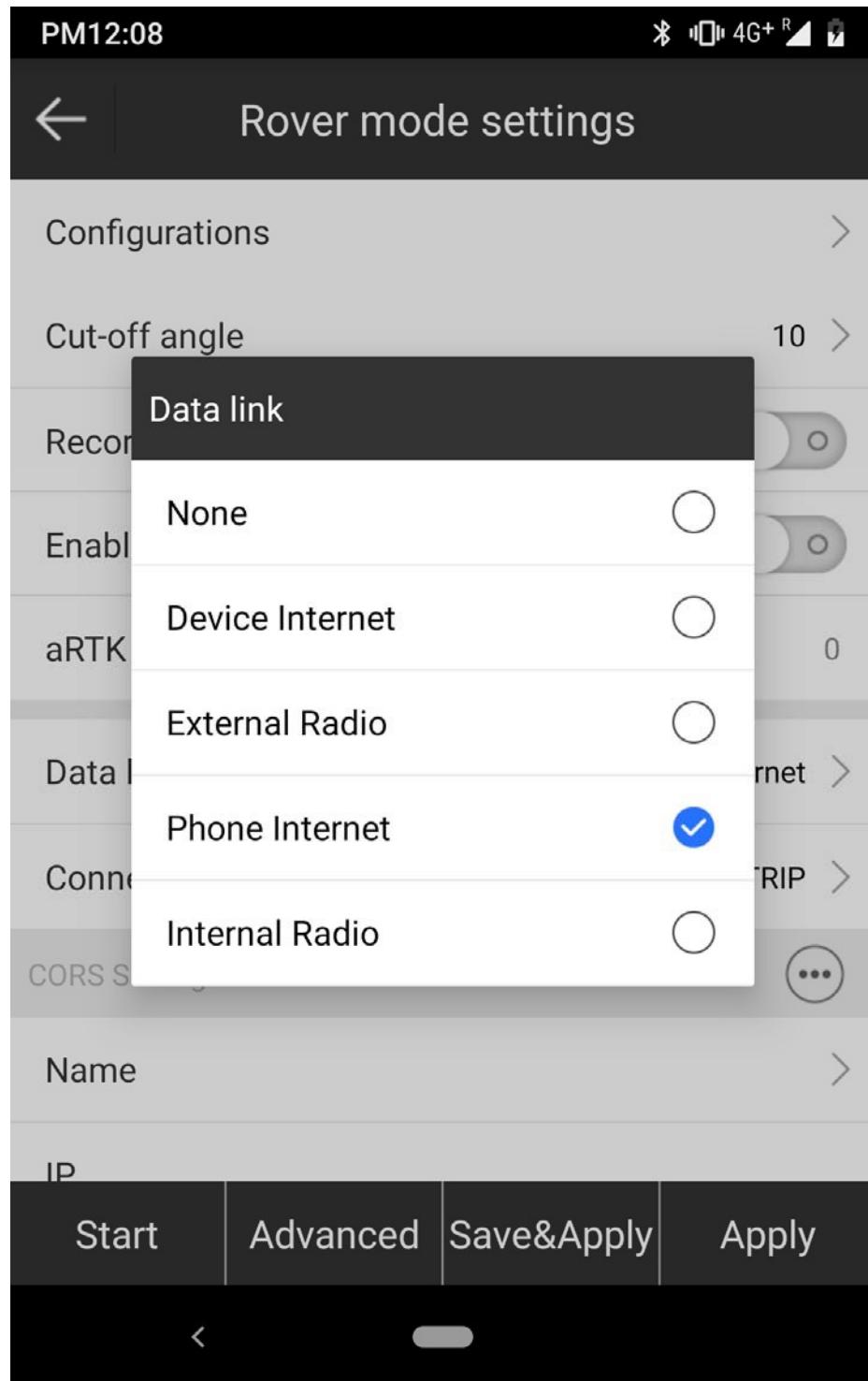
In Rover Mode setting window go to Cut-off angle tab and choose elevation mask angle according to your choice.



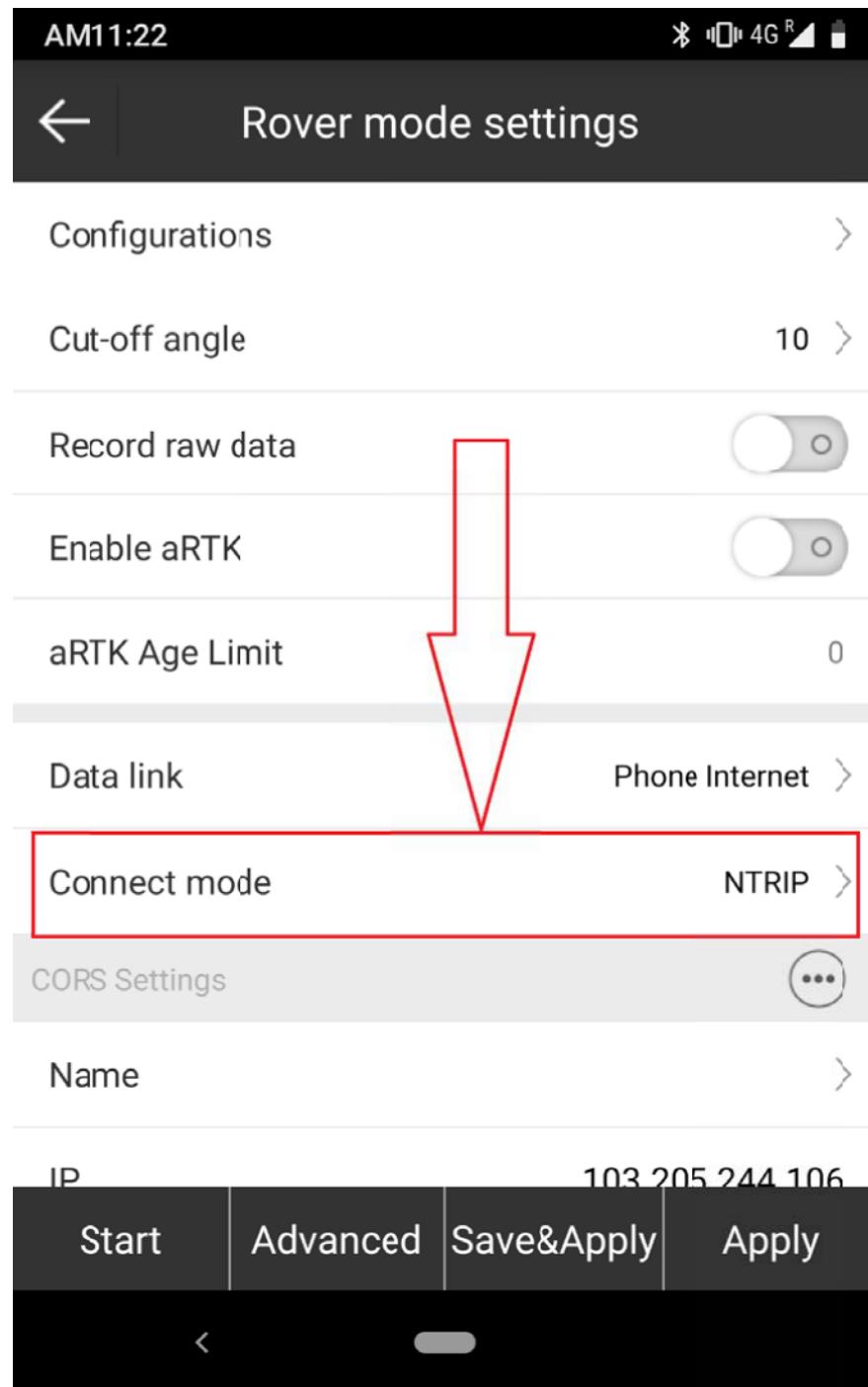
Now go to Data link Section and select which type of internet connectivity you want to provide. Whether you want to select the Phone Internet option or Device Internet option. Device Internet means SIM is entered in Receiver and Phone Internet means SIM is entered in your Controller.



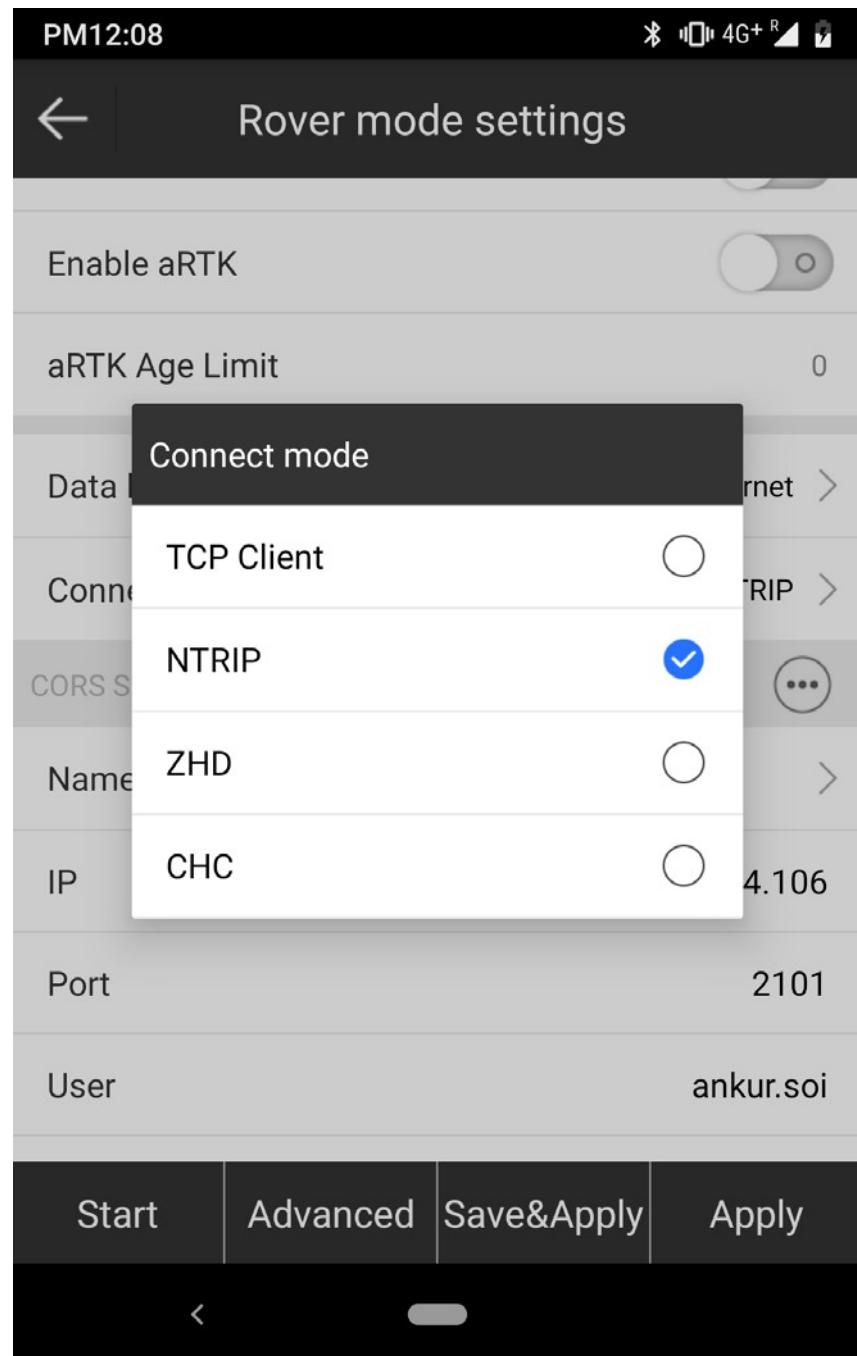
If you are using the SIM in controller then select Phone Internet Option.



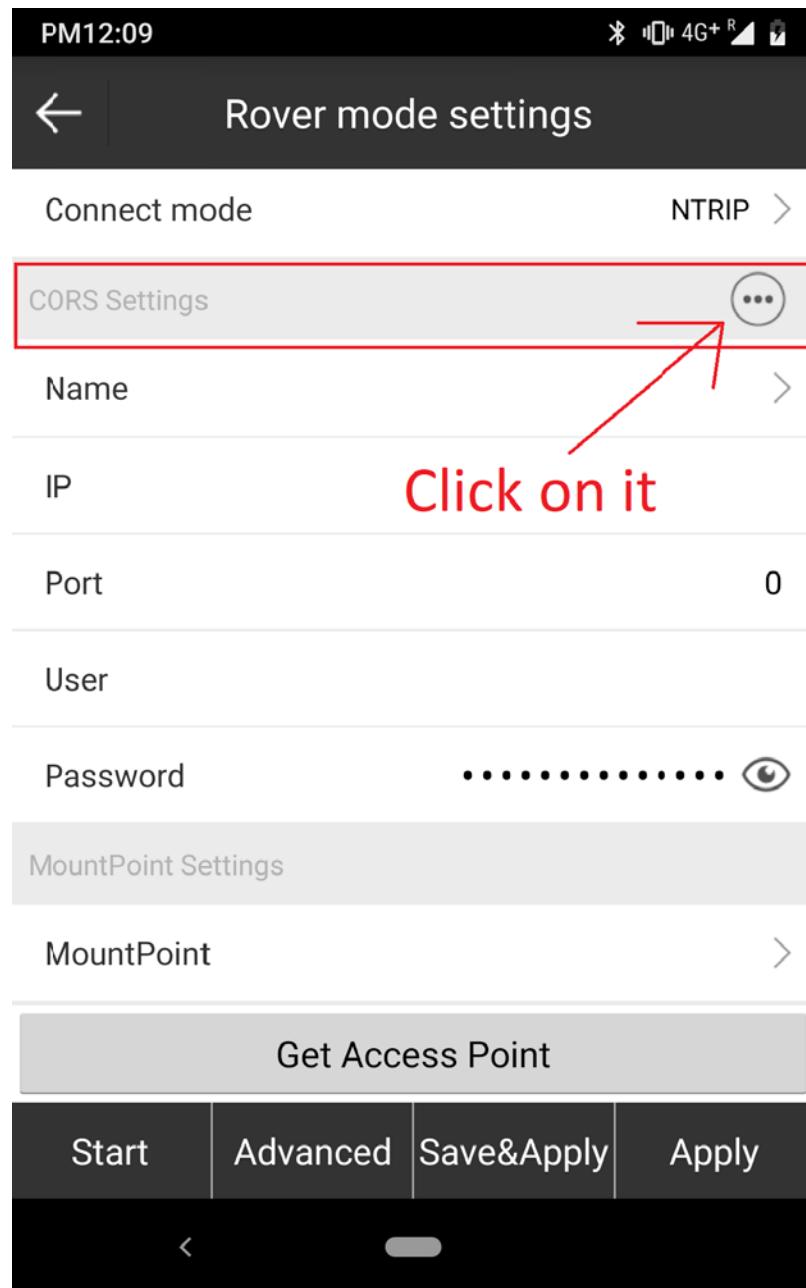
Now go to the Connect mode option..



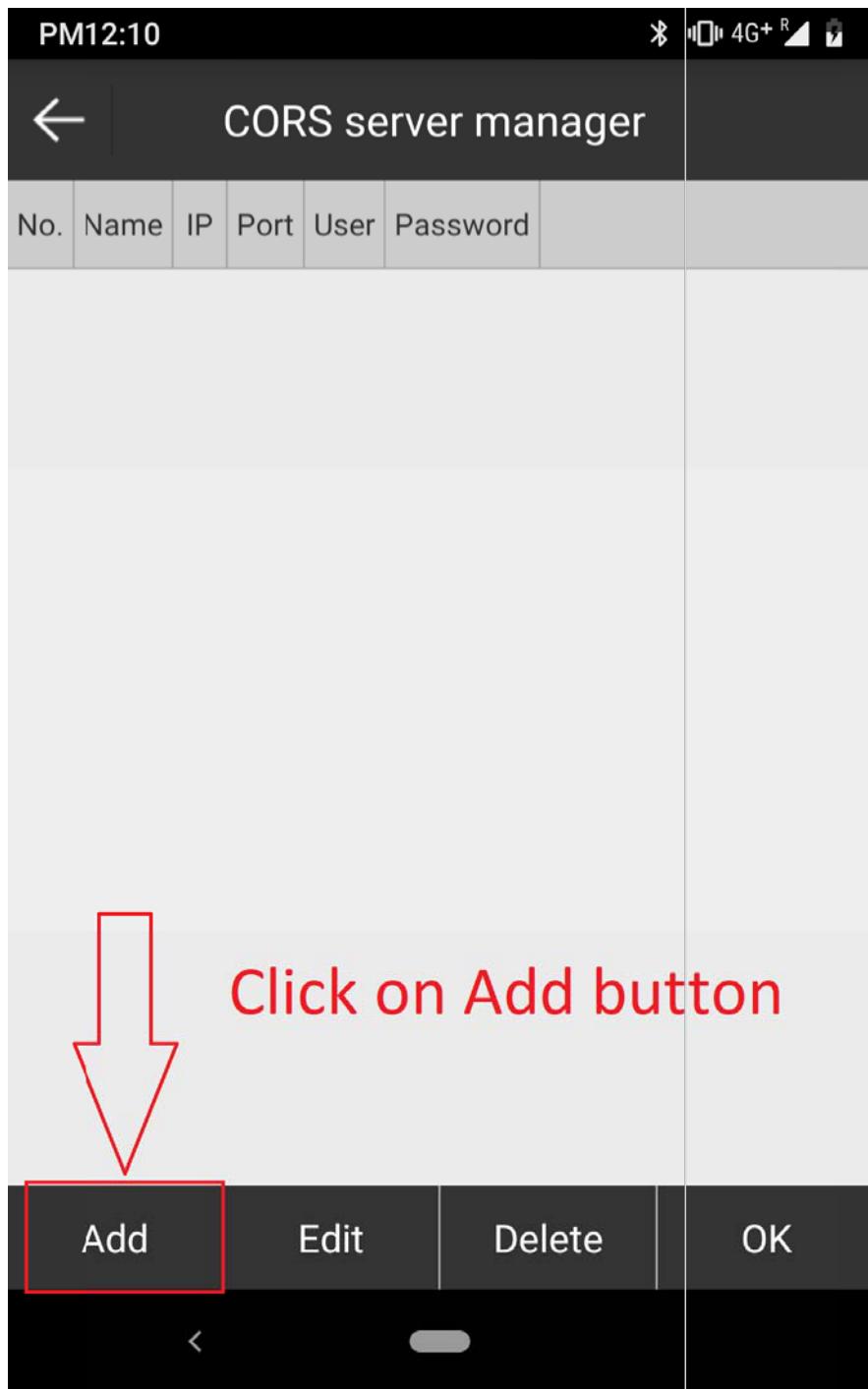
Now choose the option NTRIP from the list...

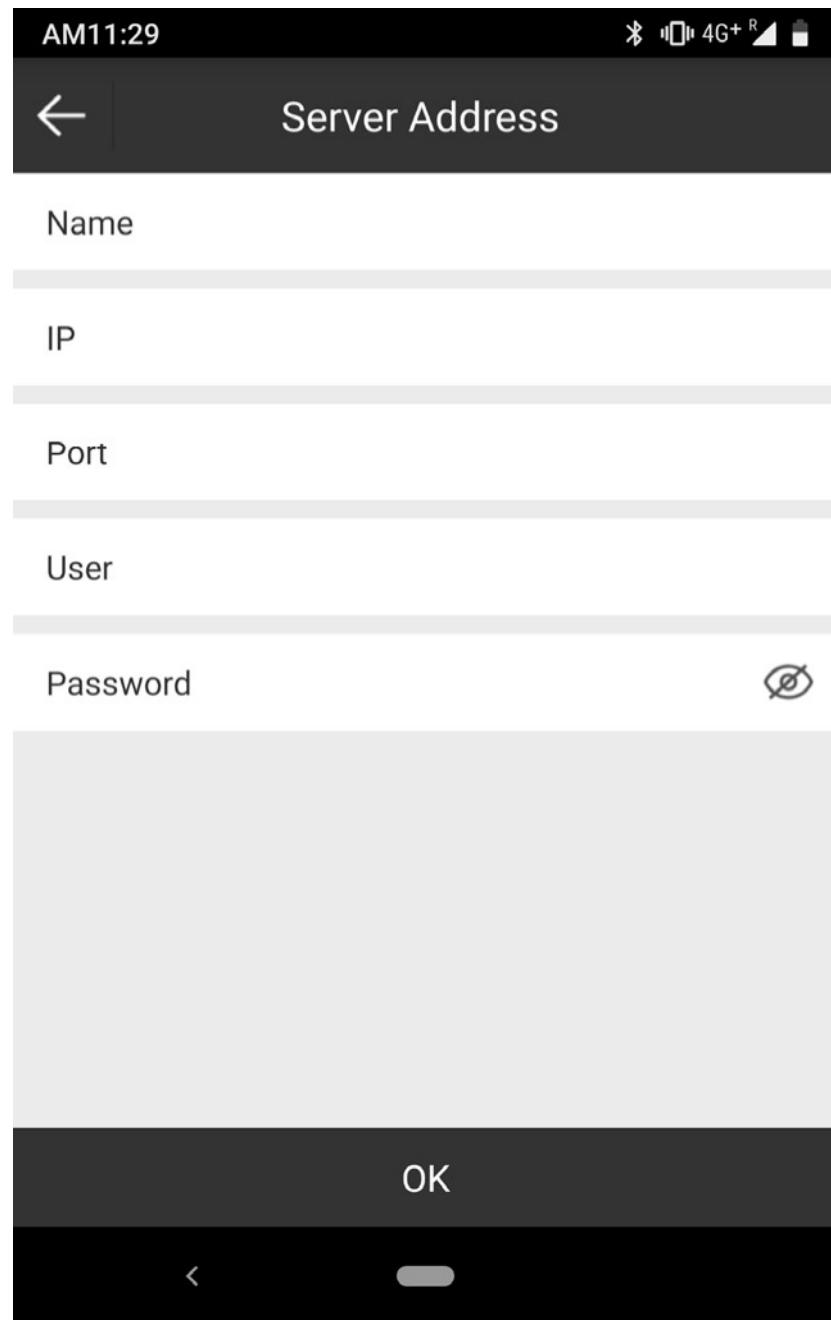


Now Select the Login credentials option.

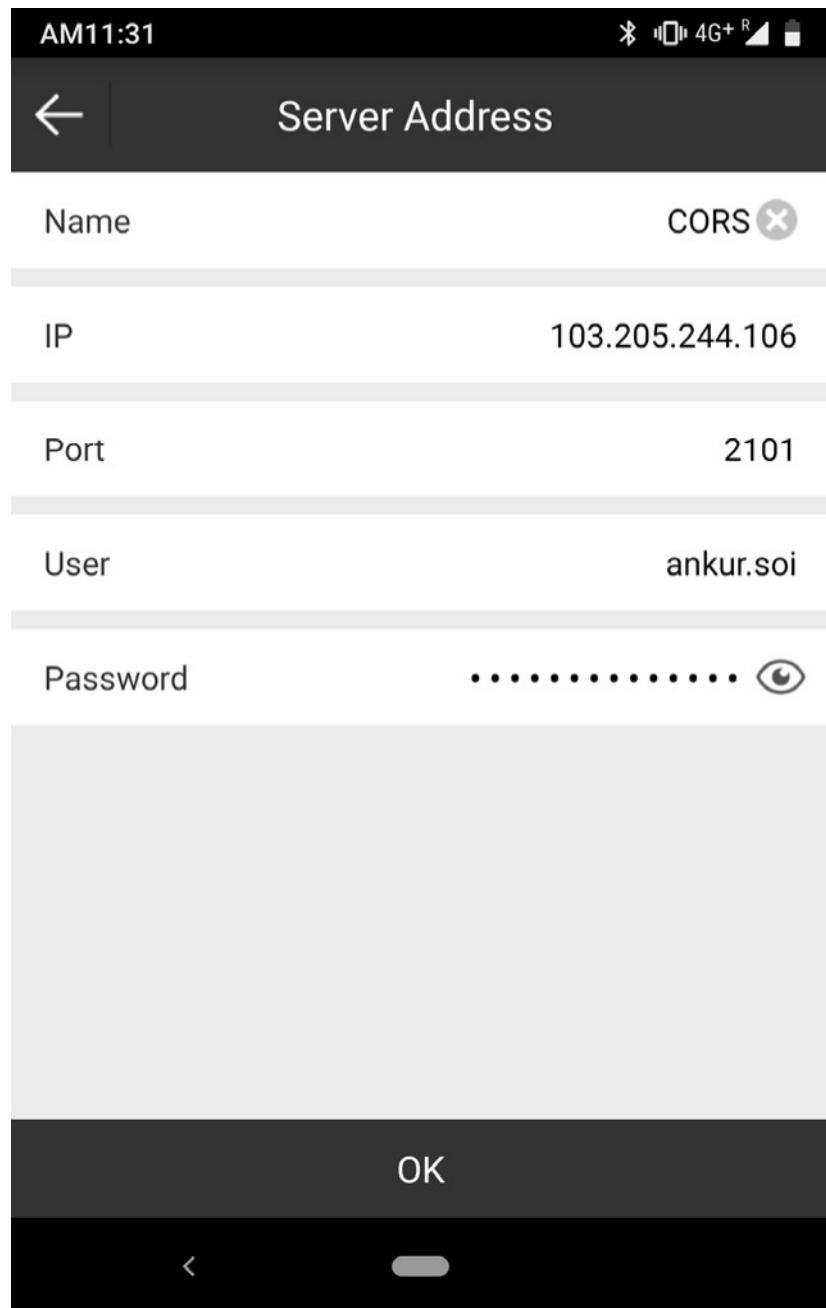


A new window will appear.





Now fill your Login Credentials as provided by Network RTK Service provider.



After filling the login credentials press OK.

AM11:31

4G+ R

← CORS server manager

No.	Name	IP	Port	User	Password	
1	CORS	103.205.244.106	2101	ankur.soi	*****	



select your name

Add | Edit | Delete | OK

< -

After selecting your name it will be highlighted in yellow color.

AM11:31

4G+ R

← CORS server manager

No.	Name	IP	Port	User	Password	
1	CORS	103.205.244.106	2101	ankur.soi	*****	

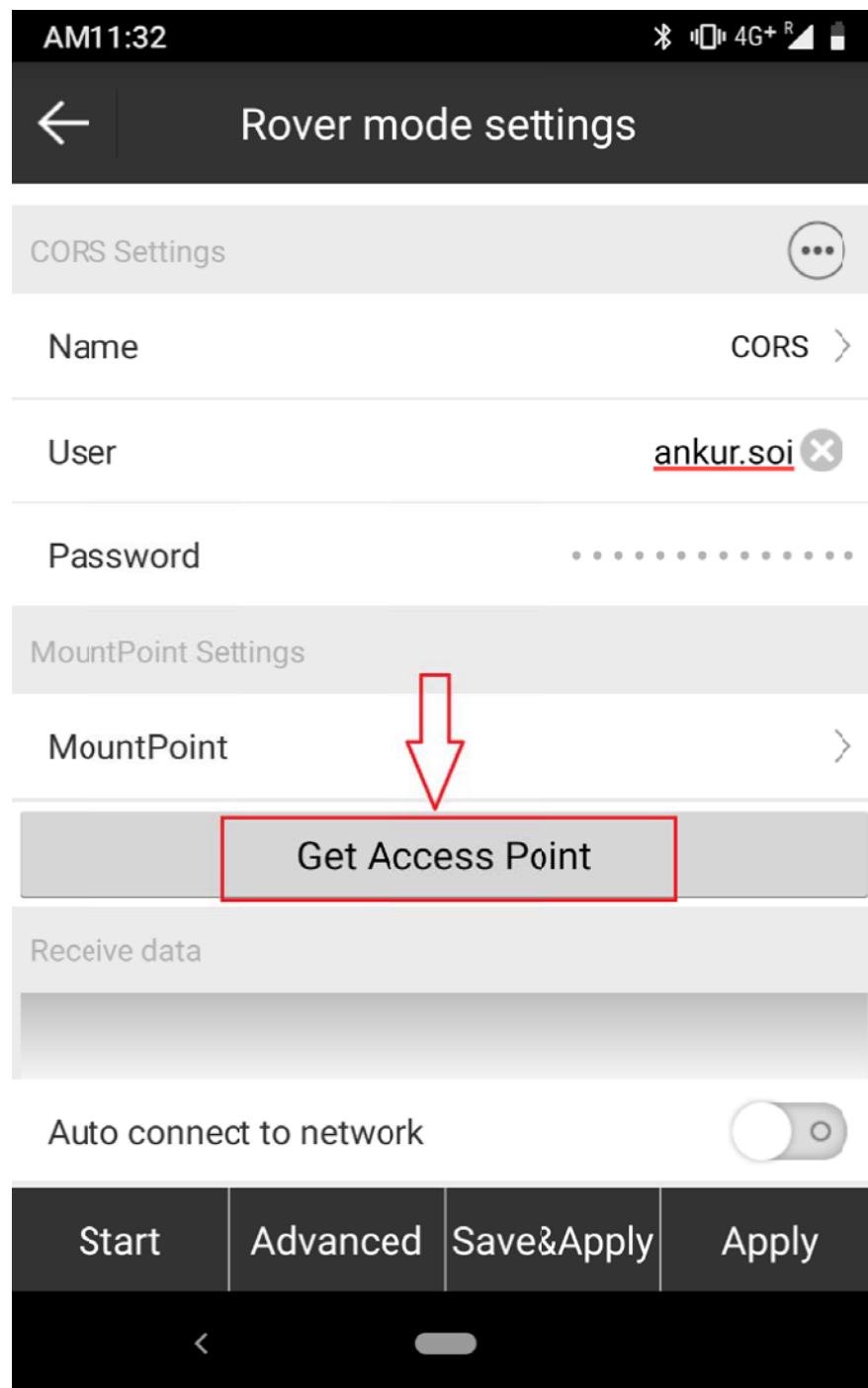
Press OK

OK

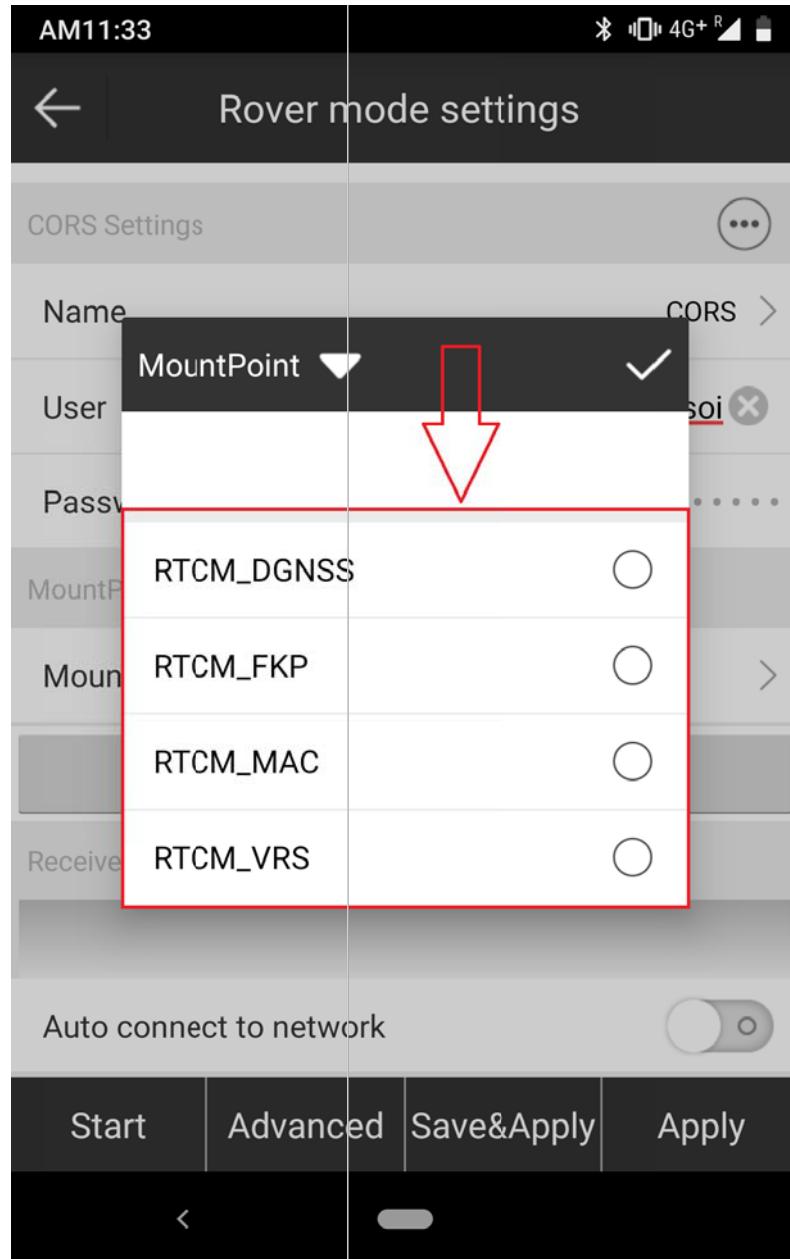
Add Edit Delete



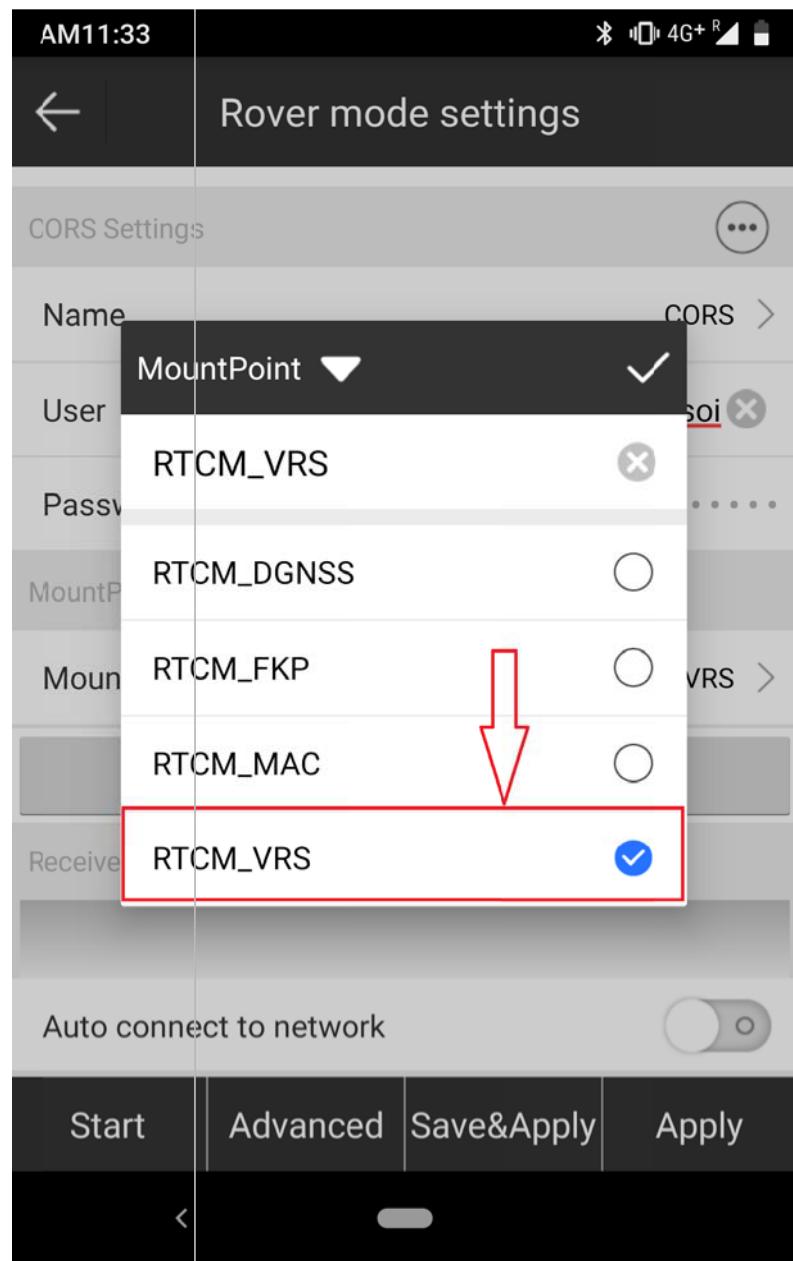
Now click on Get Access Point button.



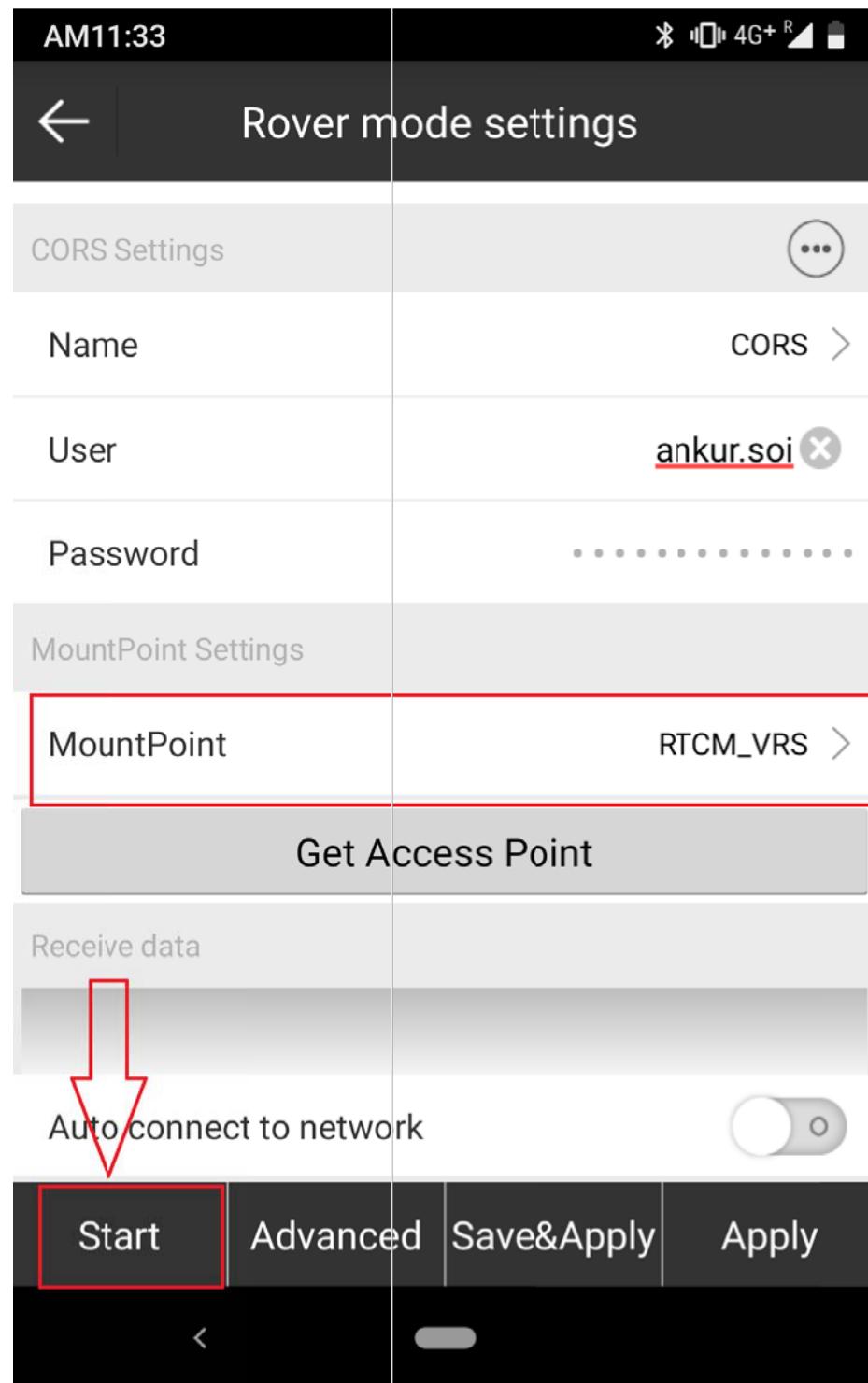
In a new window MountPoint list will appear. Choose appropriate MountPoint accordingly.



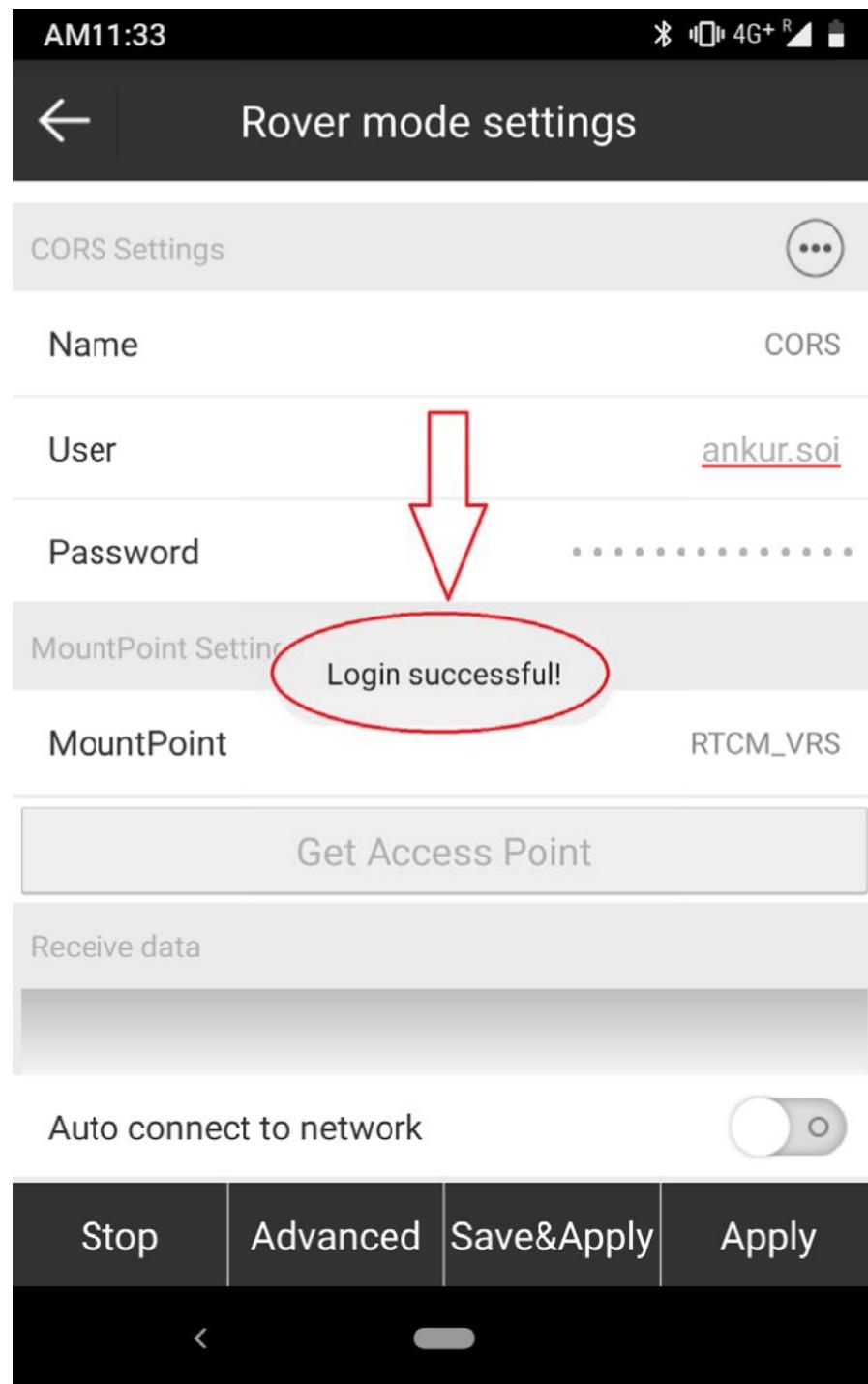
e.g: select RTCM_VRS from the MountPoint list.



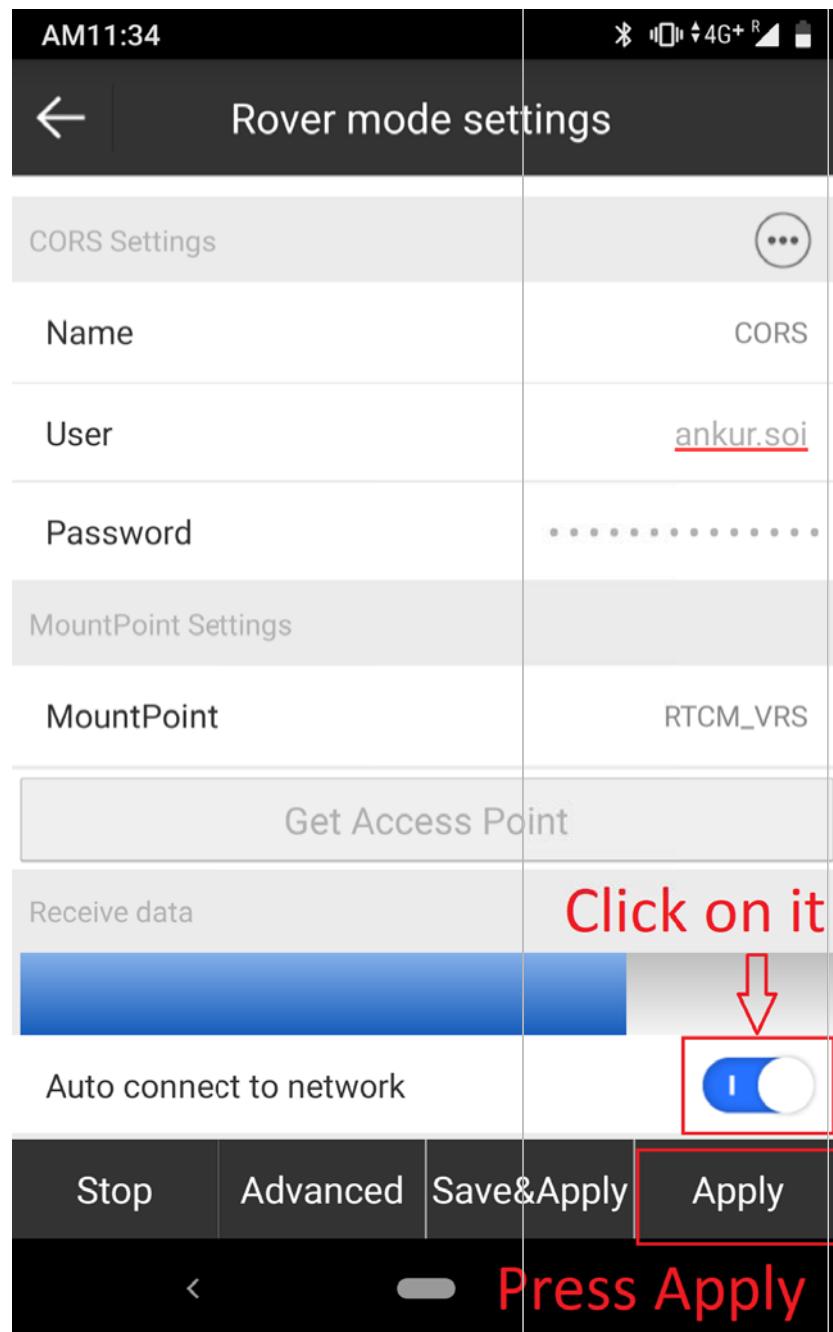
You have selected your appropriate MountPoint. Now press Start.

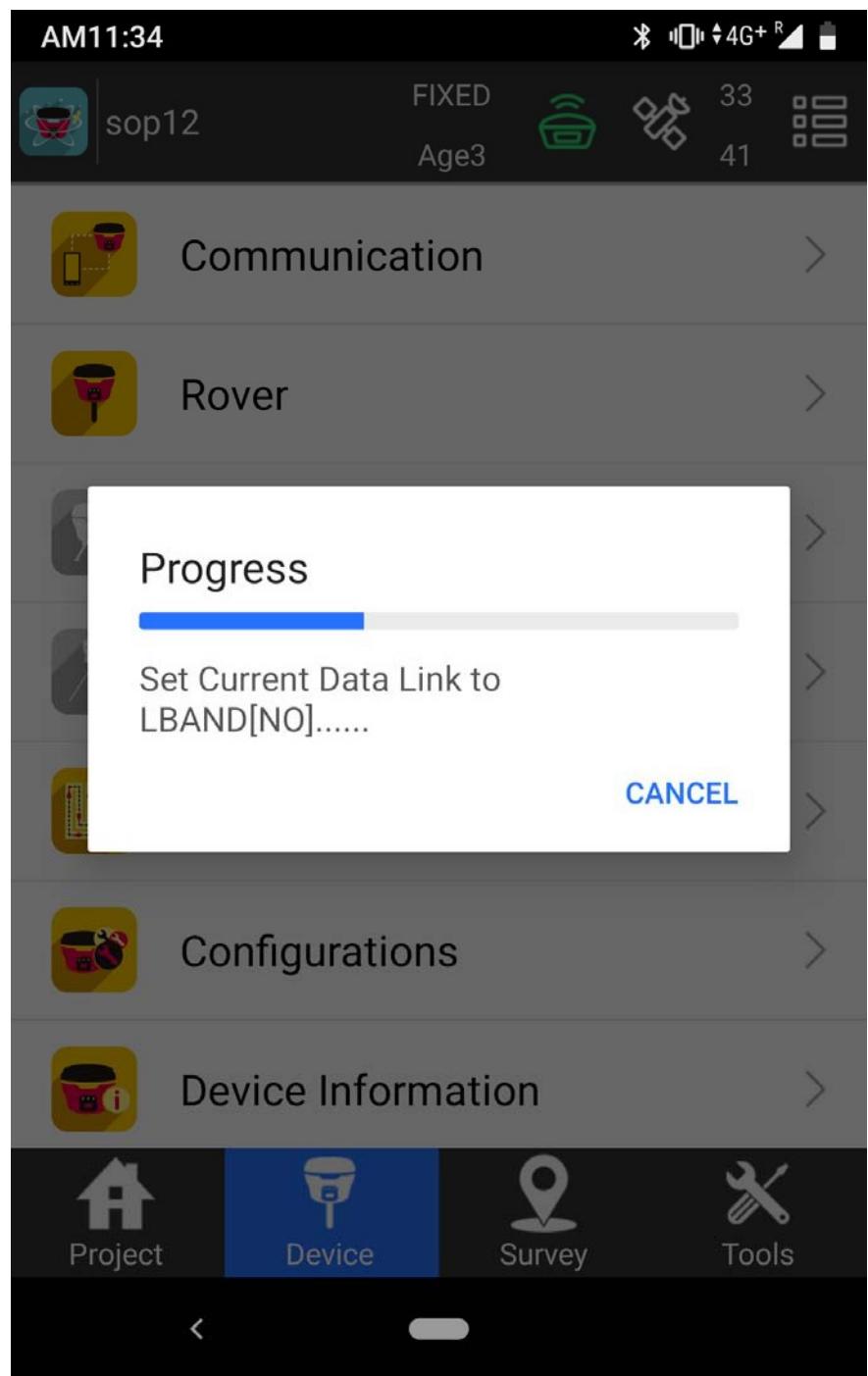


You Login is successful now.

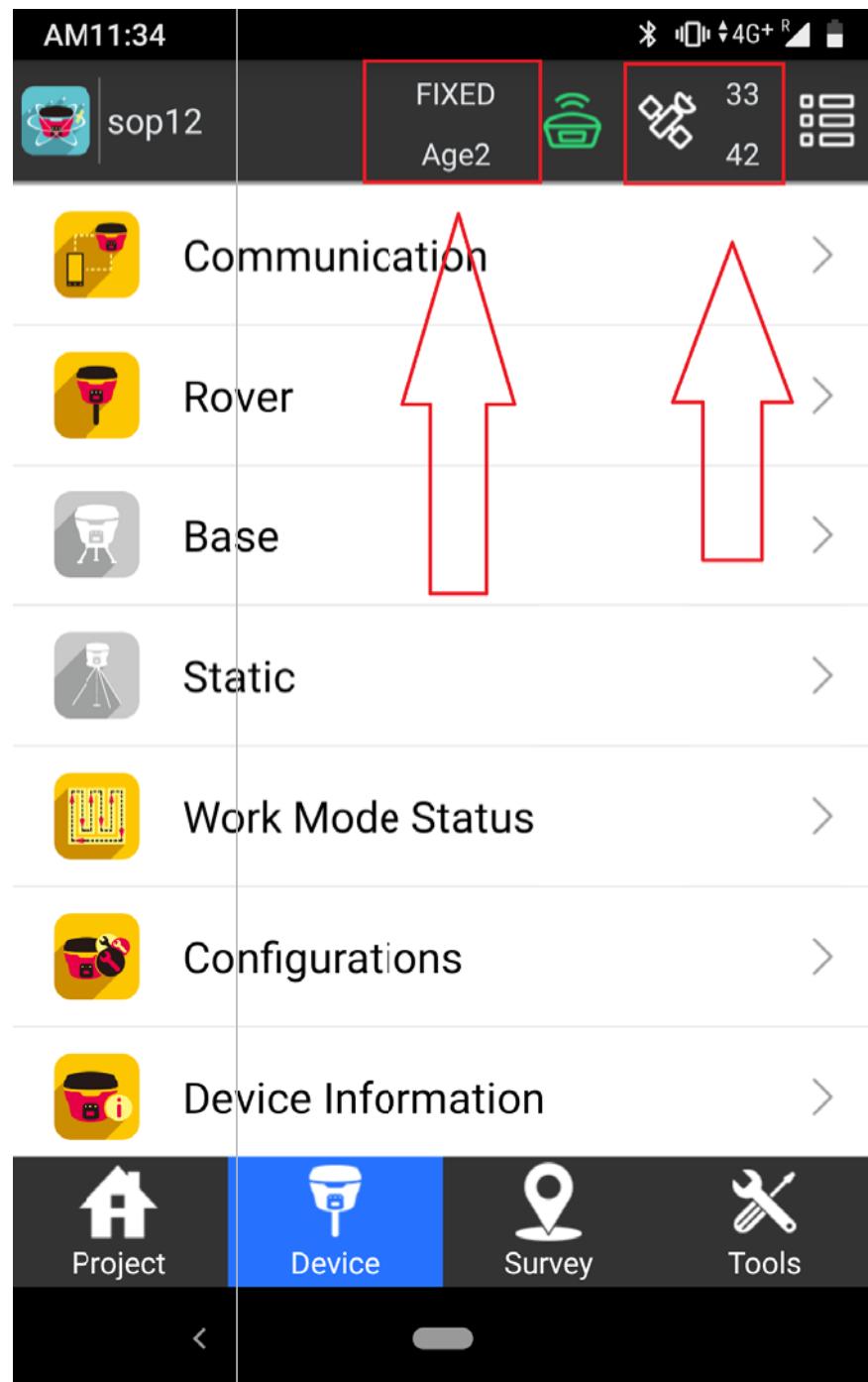


If you select Auto connect to network. It will automatically connect the available internet network. Otherwise you need to press start and stop button again and again to select the internet option.

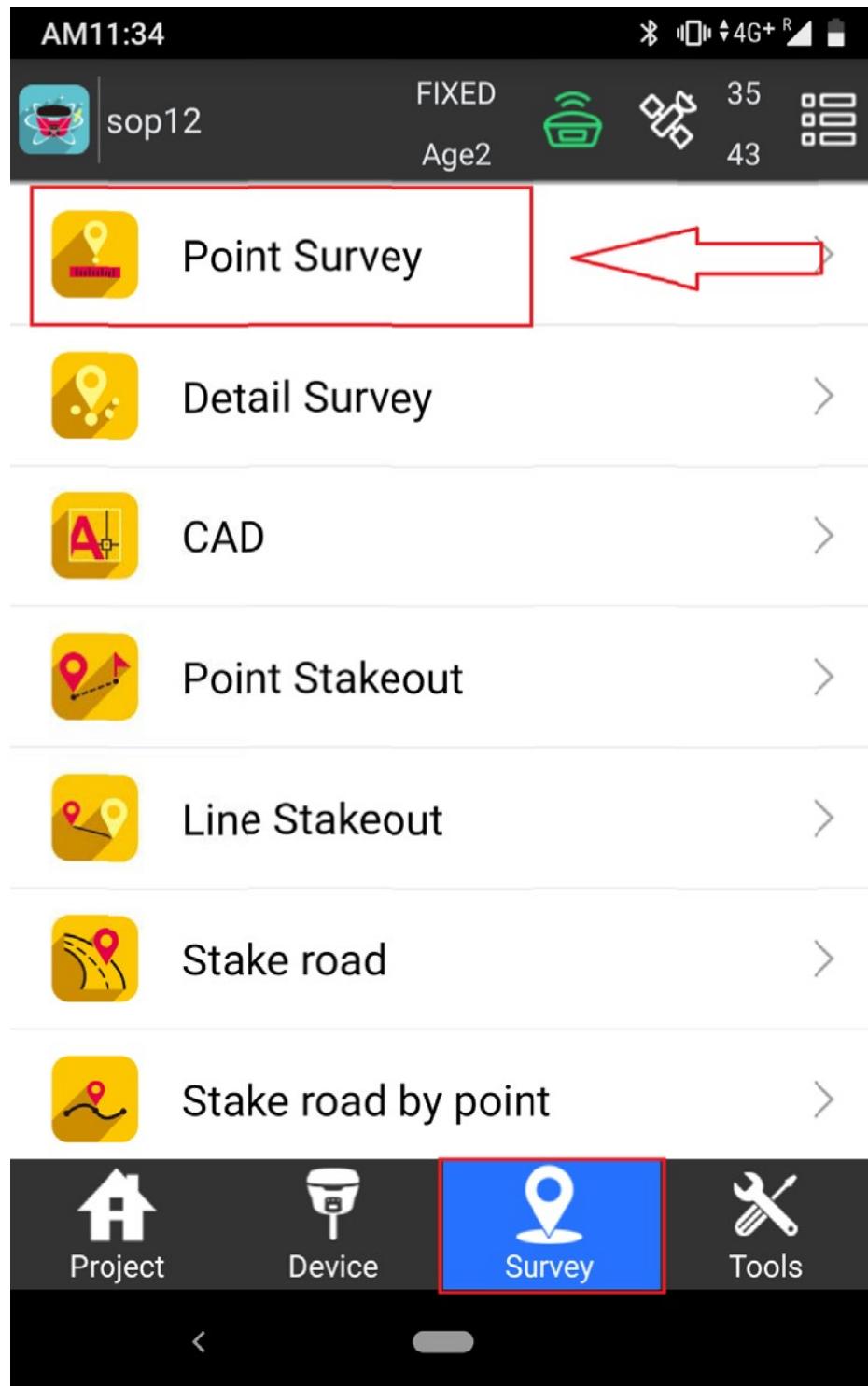




After selected the MountPoint, Solution type status and Number of available satellites will be highlighted.

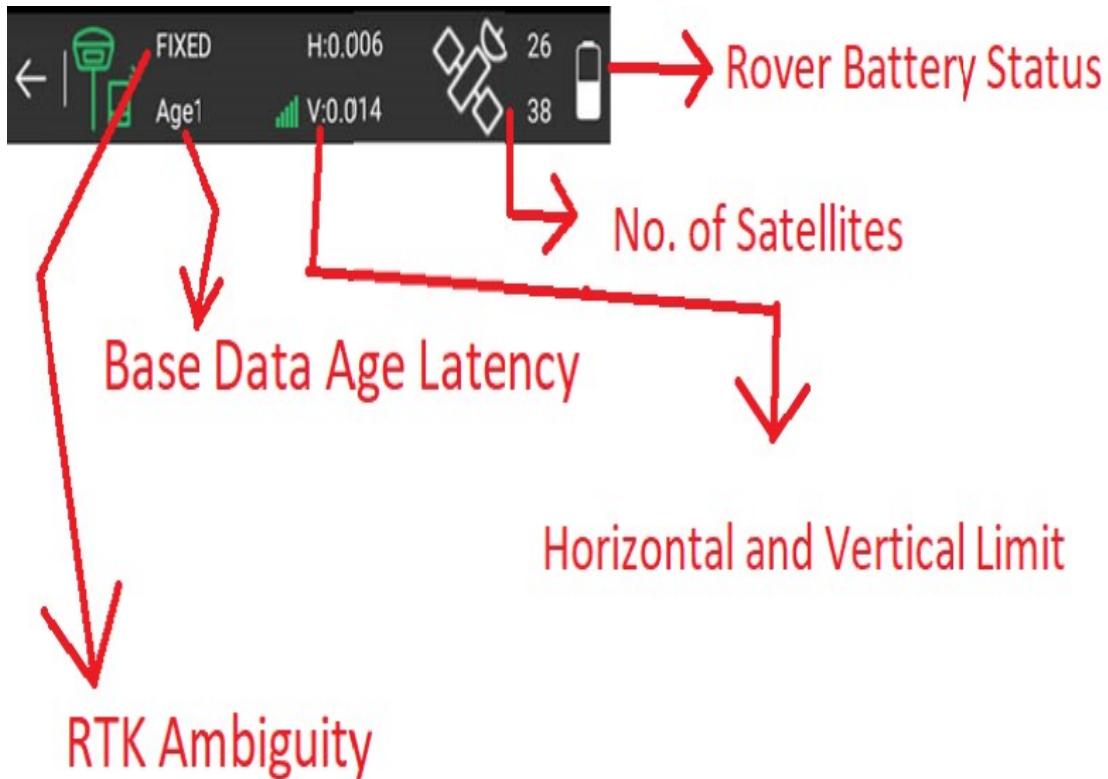


Now you are ready to do the survey. Go to the Survey section and select Point Survey.



A window will appear.

Here we can see small icons.



Points to be considered during RTK Survey:

➤ **F DOP**

1. GPS only <3
2. Multi constellation <1.5

➤ **No. s of Satellites**

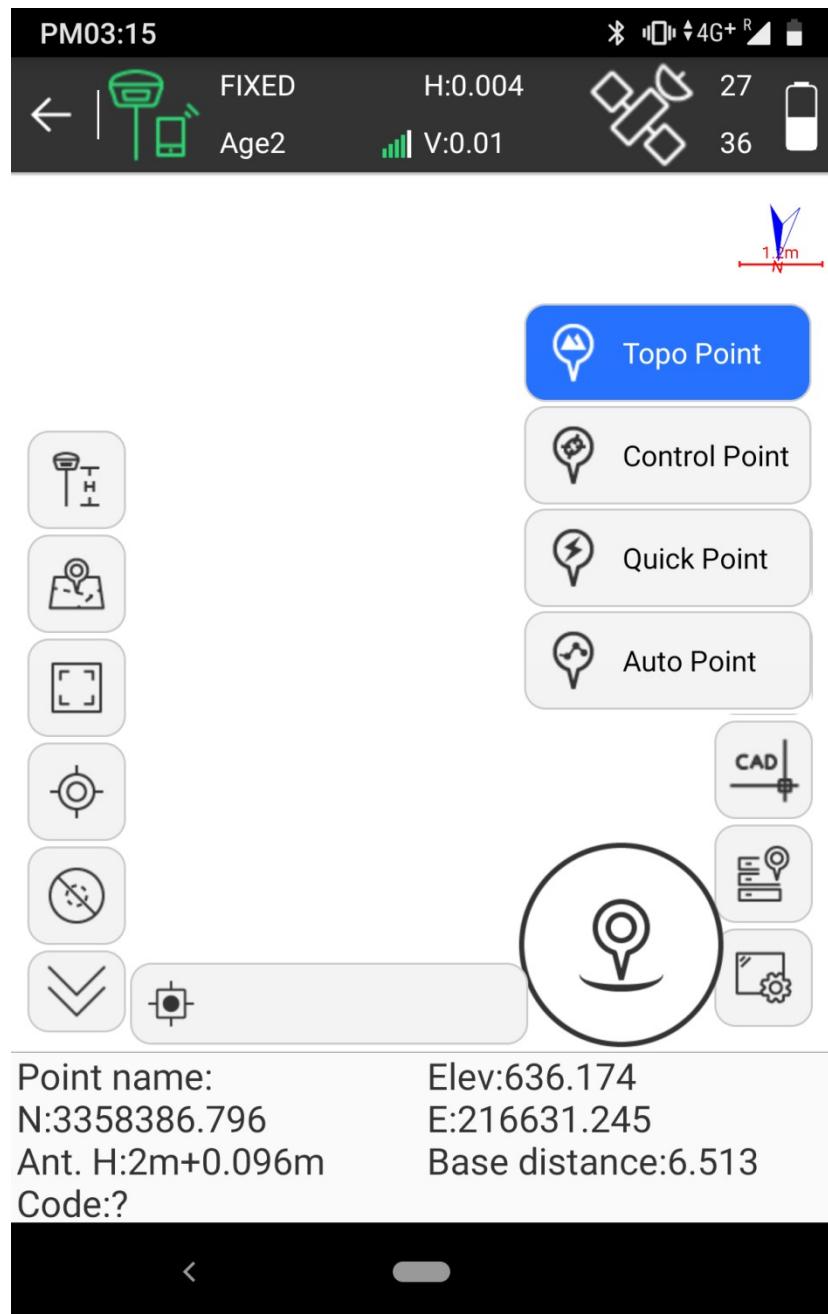
1. GPS only > 6
2. Multi constellation > 12

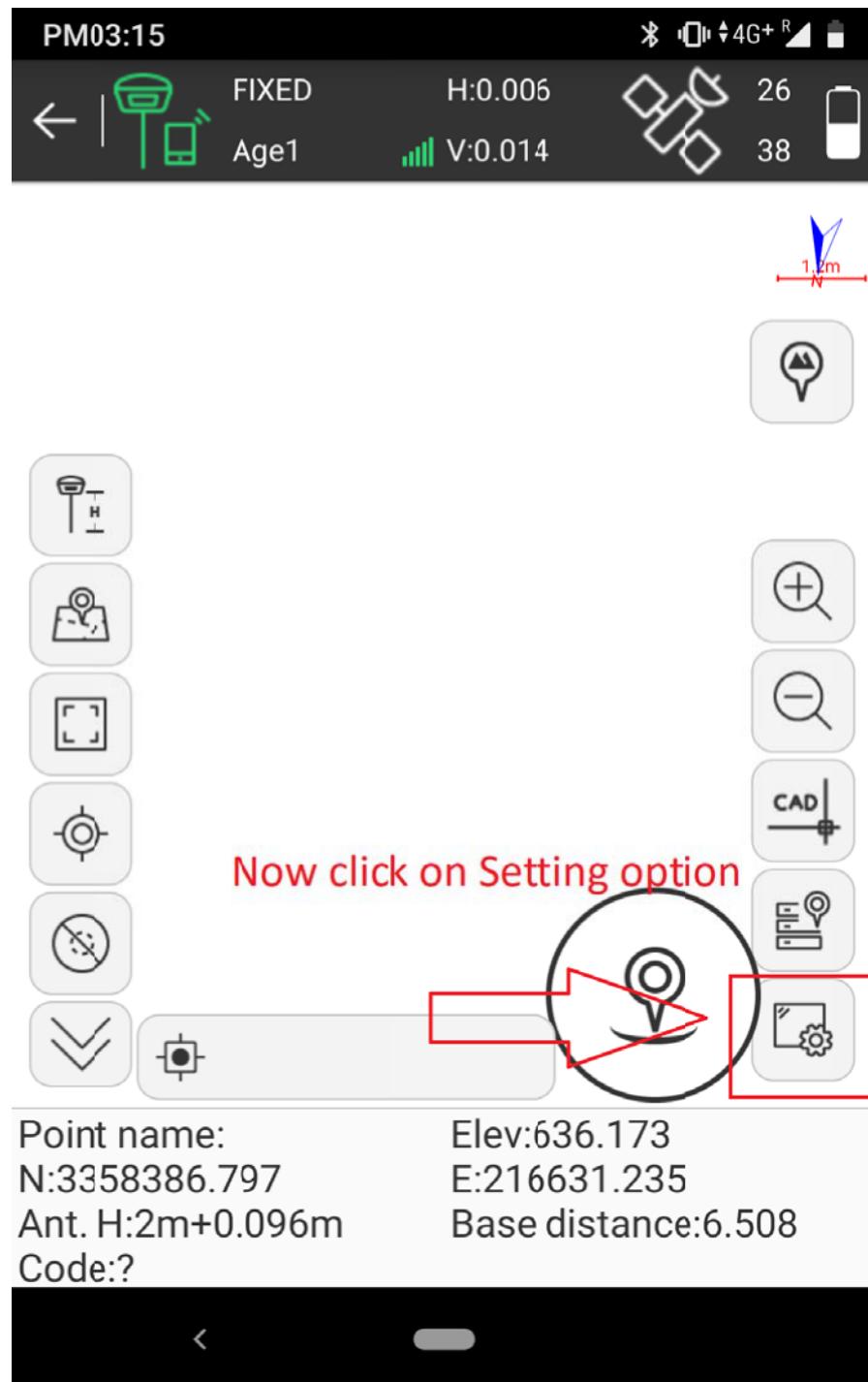
➤ **Solution type must be FIXED only.**

➤ **Base Data Age should not be less than 1 sec.**

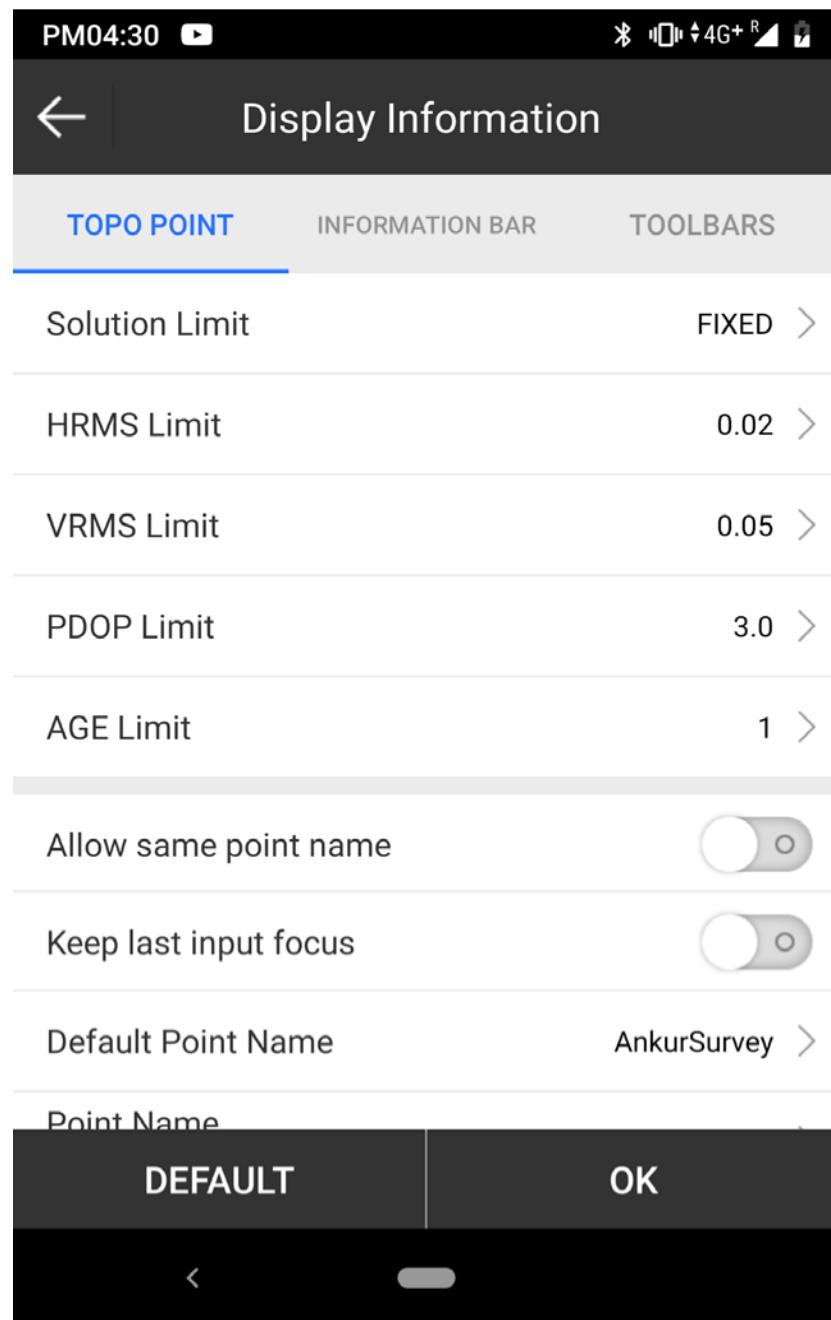


Select the TOPO point.

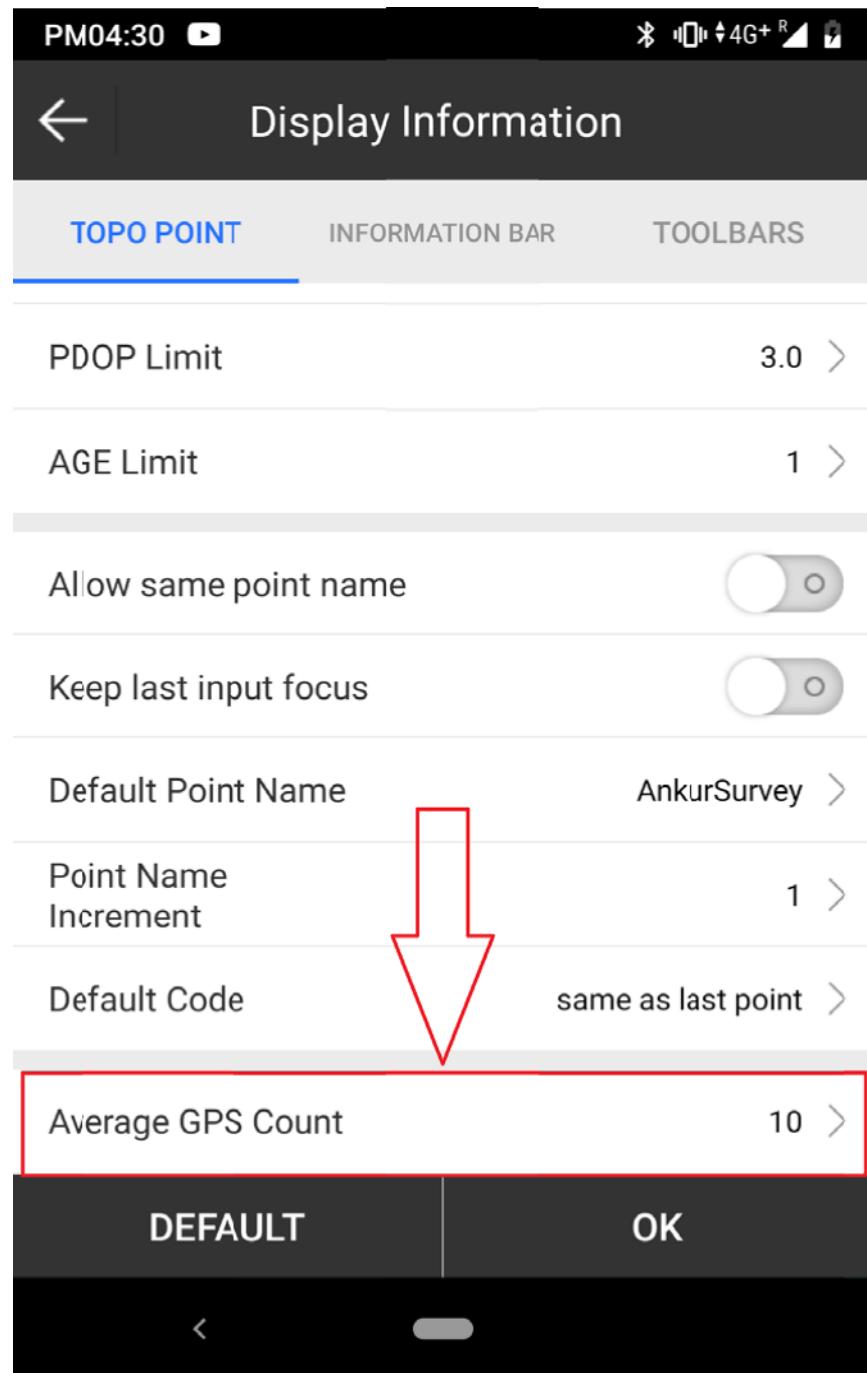


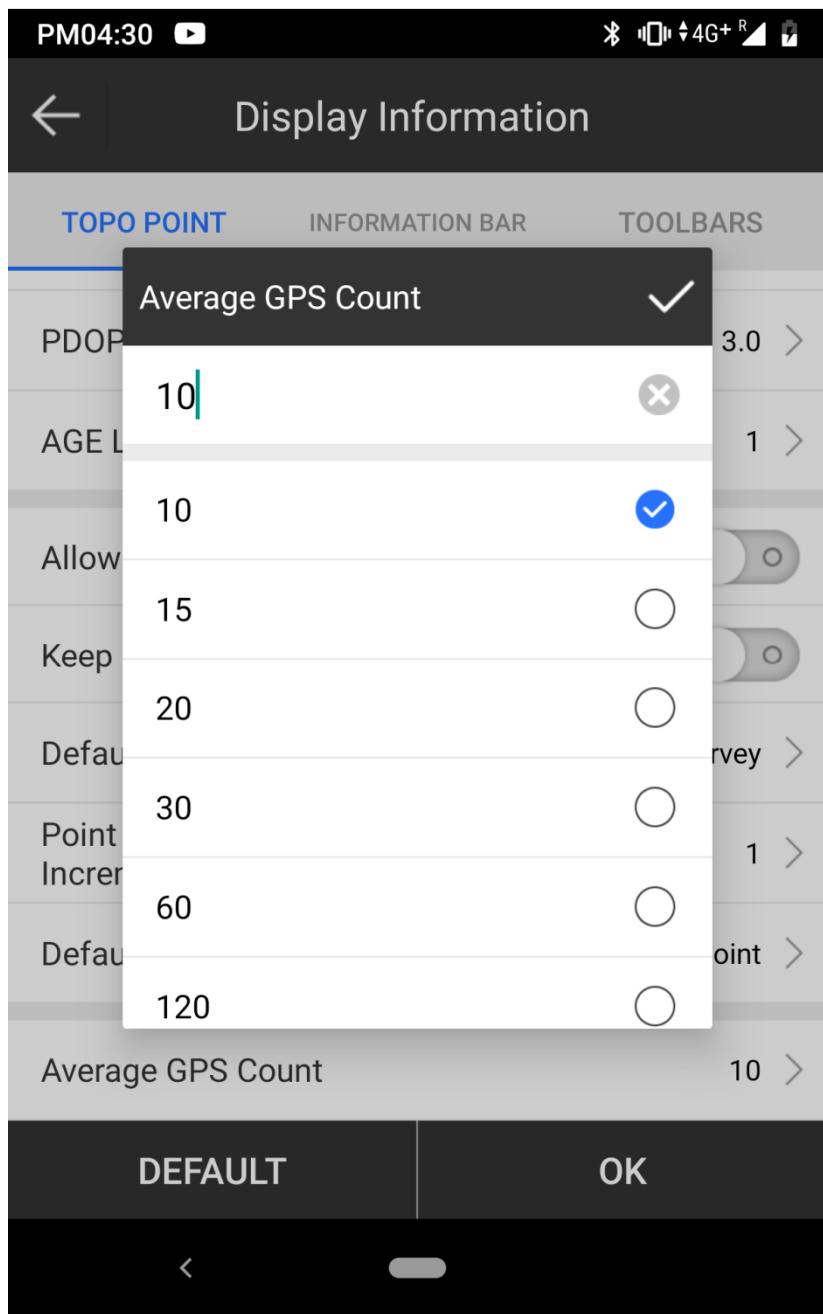


You can select the Limit according to your choice.

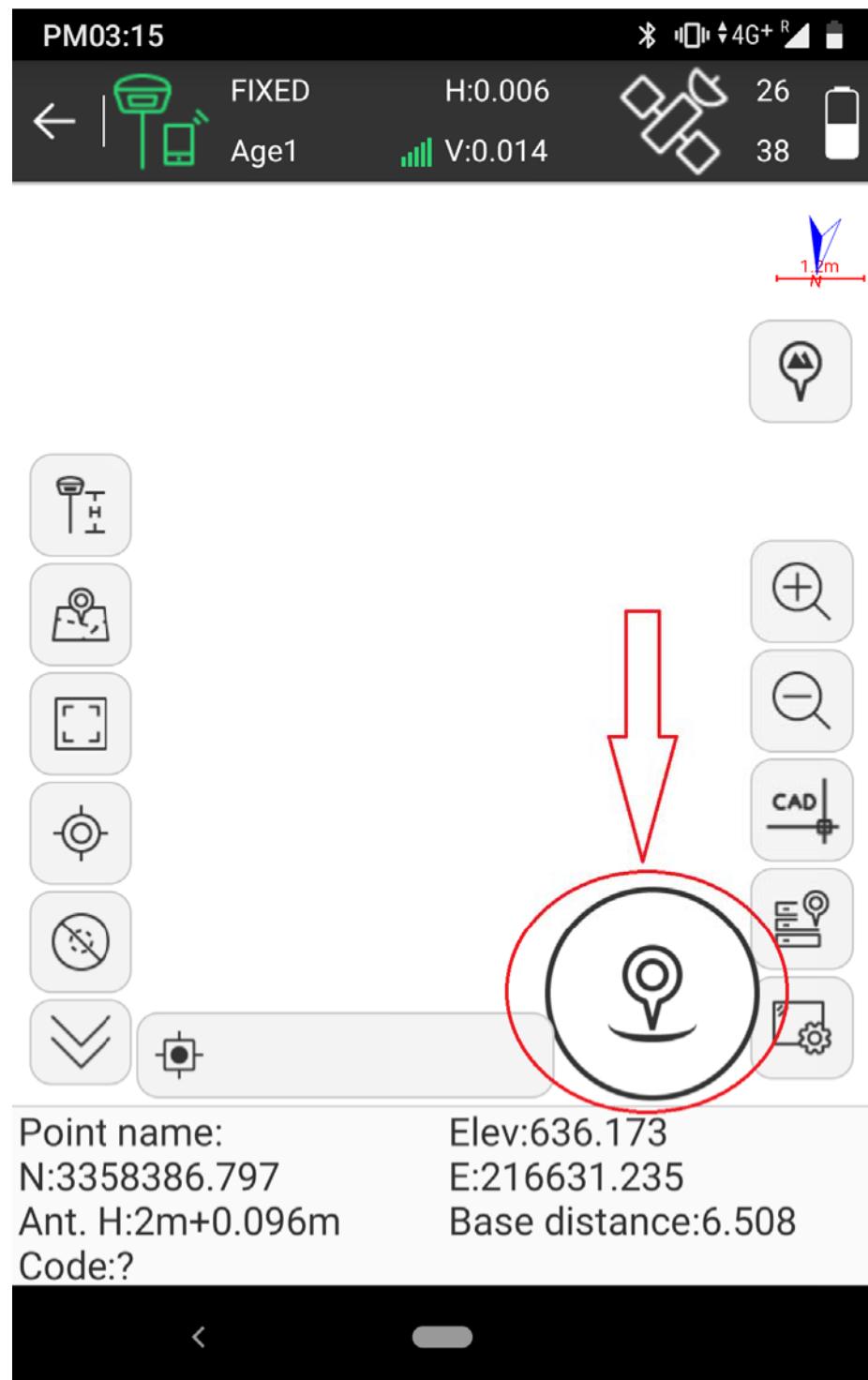


Now you can select the Average GPS Count according to your choice.
Average GPS Count means it will find out the average of number of observations.

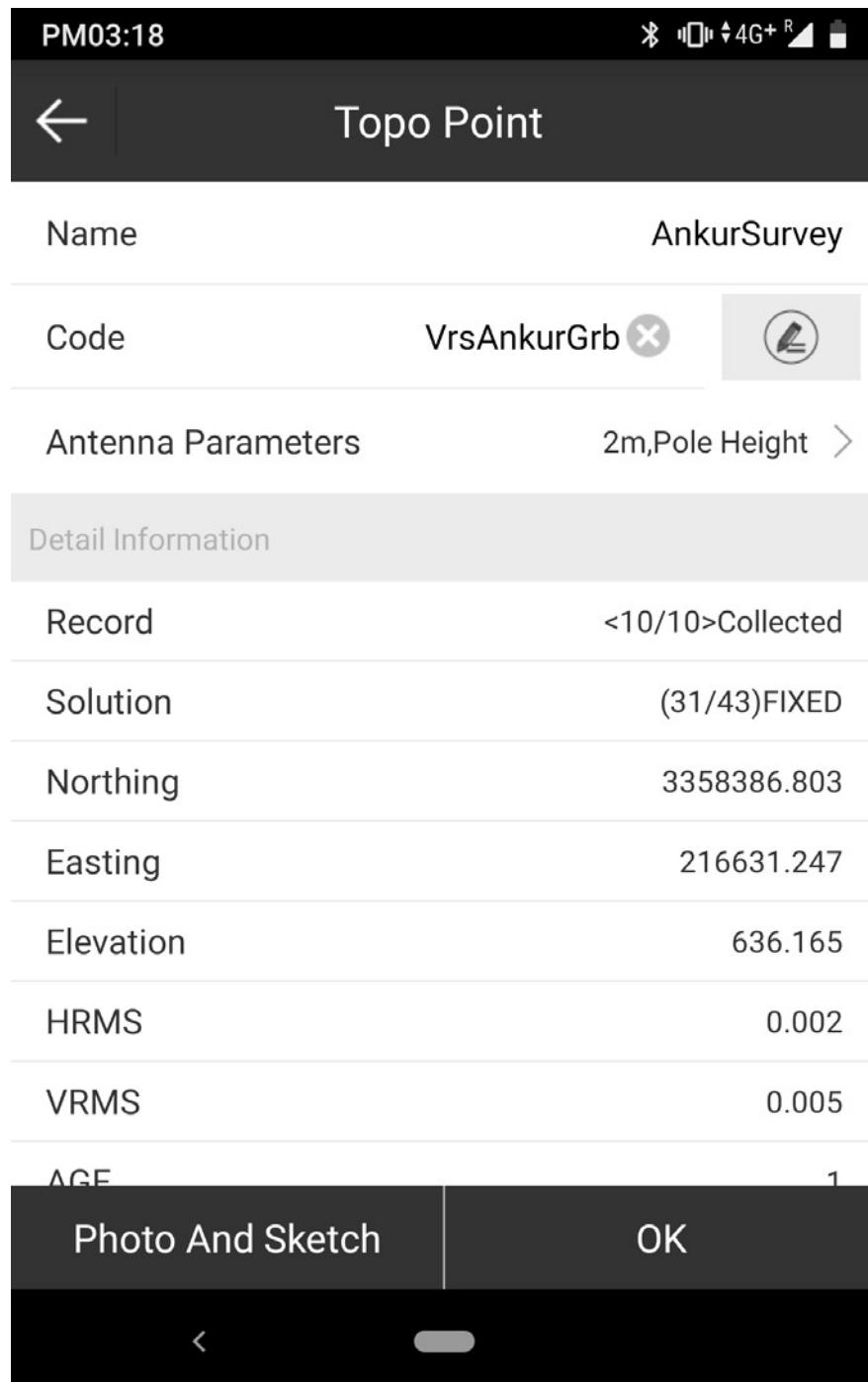




Now click on the highlighted circle.



Topo Point window will open. You can select the name, code, Height of the antenna according to your choice.



PM03:19 4G+ R

Topo Point

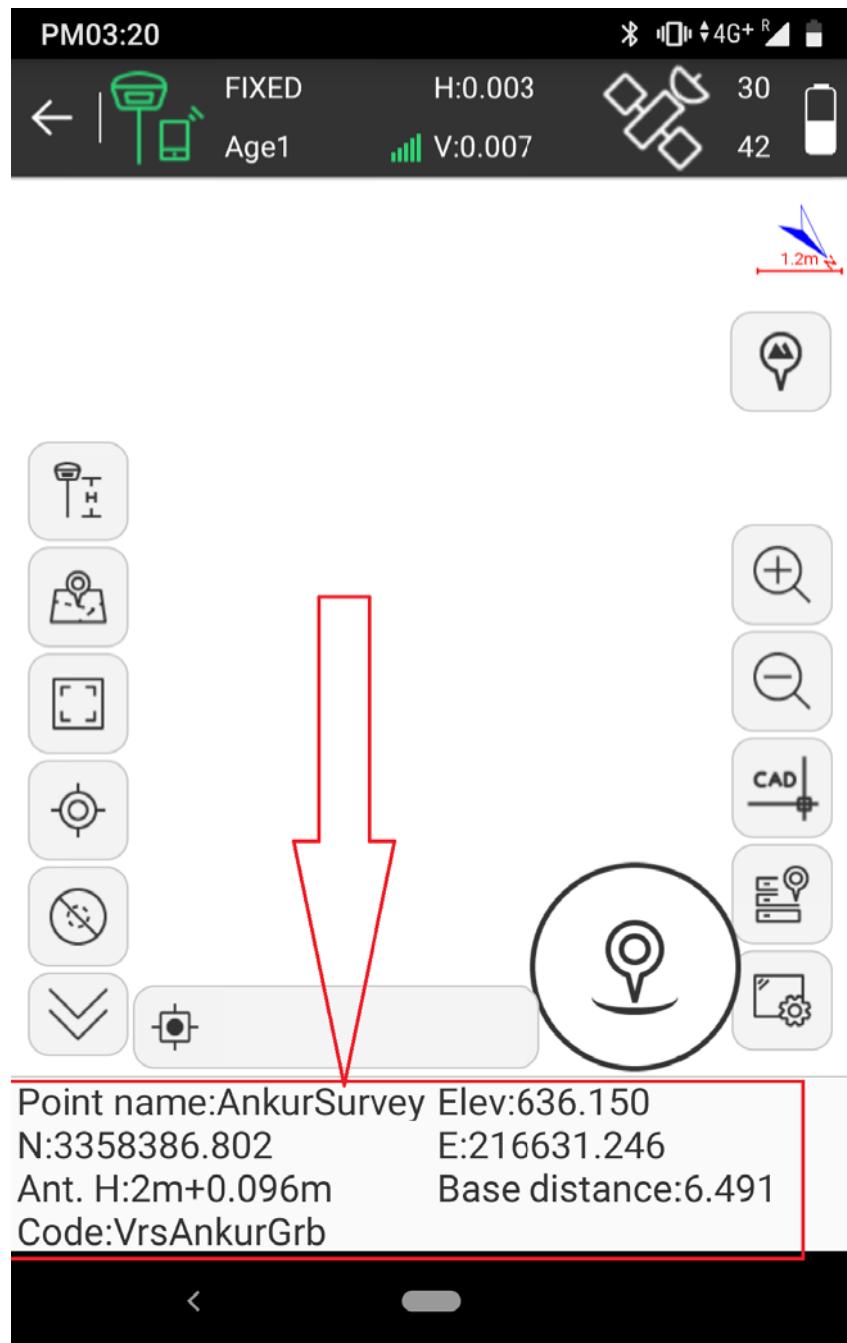
Northing	3358386.803
Easting	216631.247
Elevation	636.165
HRMS	0.002
VRMS	0.005
AGE	1
Distance from last point	?
Longitude	E78°03'10.6493"
Latitude	N30°19'26.96"
Altitude	636.165
Local Time	15:18:31.000
Local Date	2022-03-09
Base Distance	6.504

Photo And Sketch OK

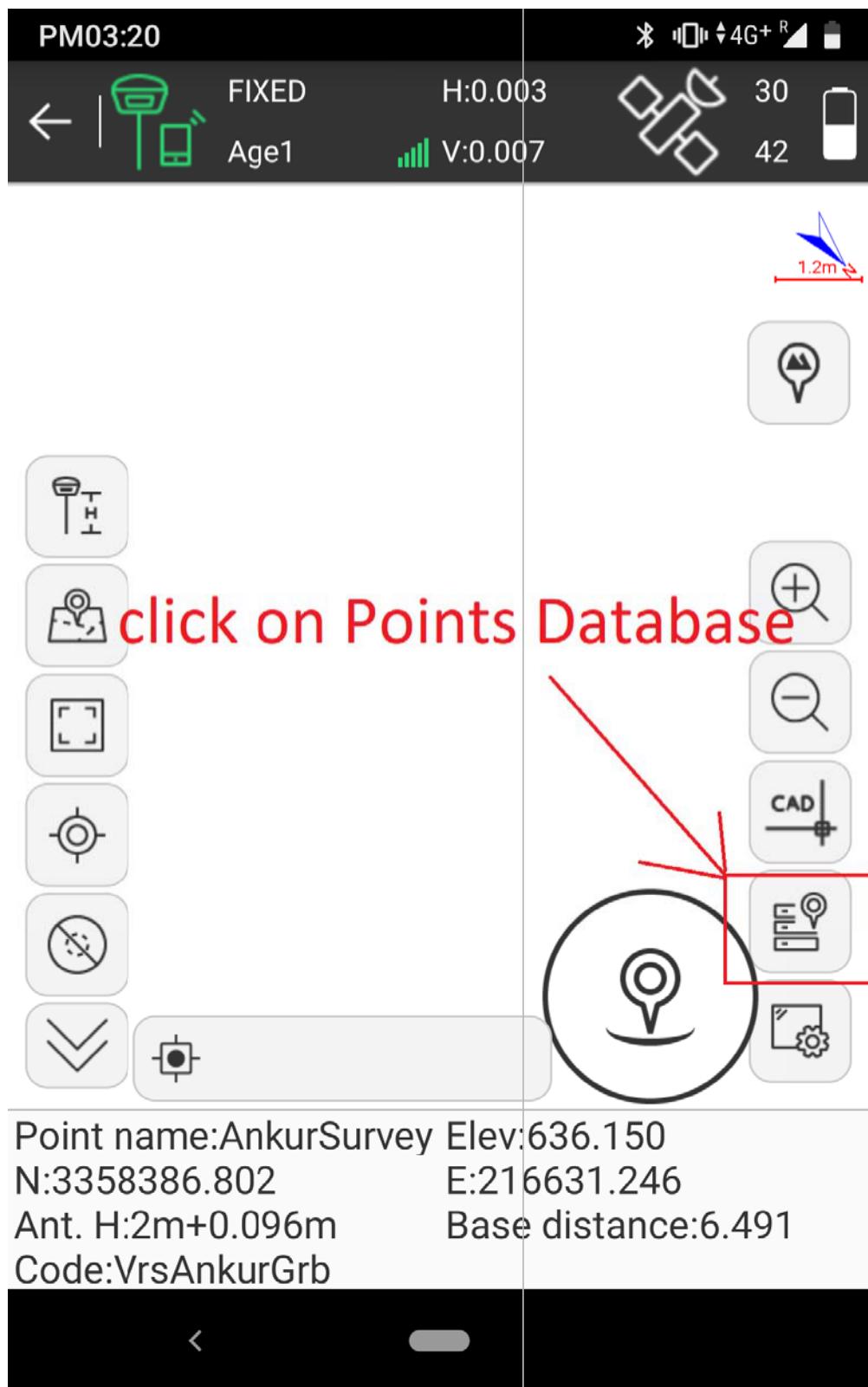
< >

Now press OK.

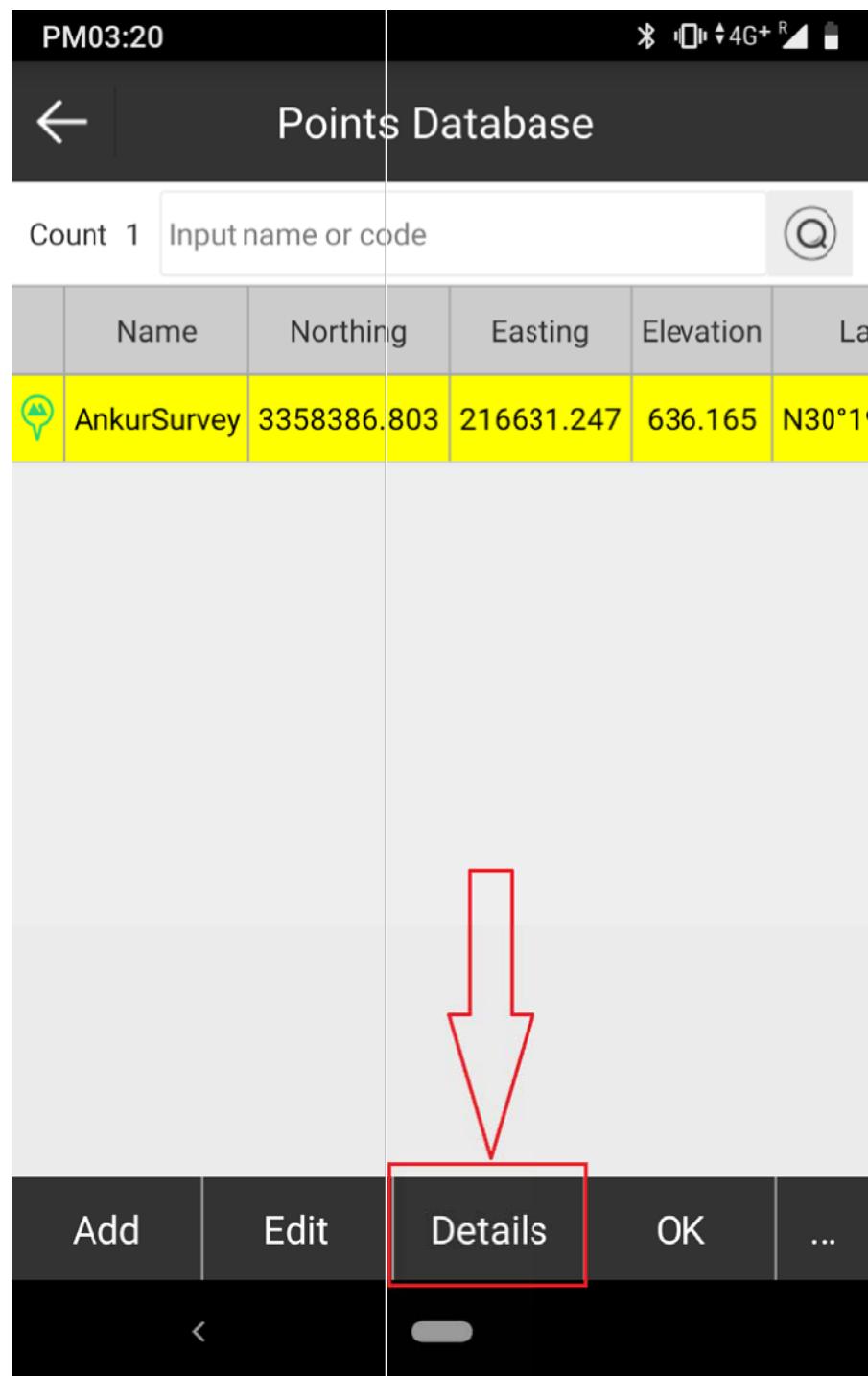
Your observed point detail will be highlighted.



Now you can see your observed point details in Points Database.



A window will open. You can select the Point name and find out the details of observed point.



PM03:21

Bluetooth 4G+ R



Point Details

Title	Content
Point Name	AnkurSurvey
Code	VrsAnkurGrb
Latitude	N30°19'26.96"
Longitude	E78°03'10.6493"
Altitude	636.165
Northing	3358386.803
Easting	216631.247
Elevation	636.165
X	1140766.753
Y	5391384.25

Photo And Sketch



PM03:21

* 4G+ R



Point Details

Title	Content
Z	3201763.975
Type	Survey Point
Record Mode	Topo Point
Used satellites	31
Tracked satellites	43
HRMS	0.0024
VRMS	0.0054
PDOP	0.9
HDOP	0.5
VDOP	0.7
Solution Status	FIXED
Photo And Sketch	

PM03:21

4G+ R

Point Details

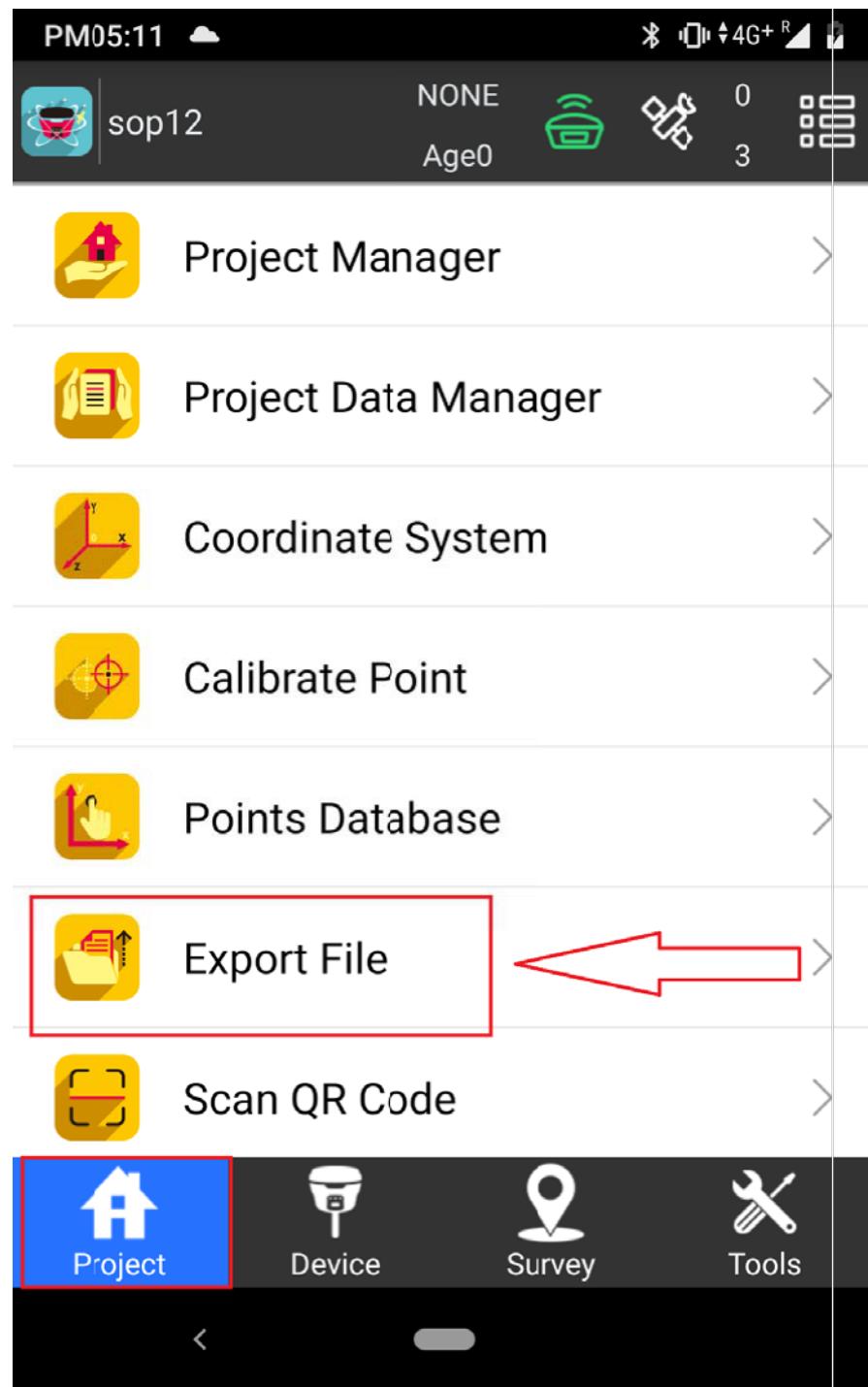
Title	Content
UTC time	09:48:31.000
Base_Distance	6.504
Measuring type	Pole Height
Measuring height	2
Antenna Height	2.096
Base ID	1432
Base Latitude	N30°19'26.9903"
Base Longitude	E78°03'10.5393"
Base Altitude	632.534
Inclination correction	No

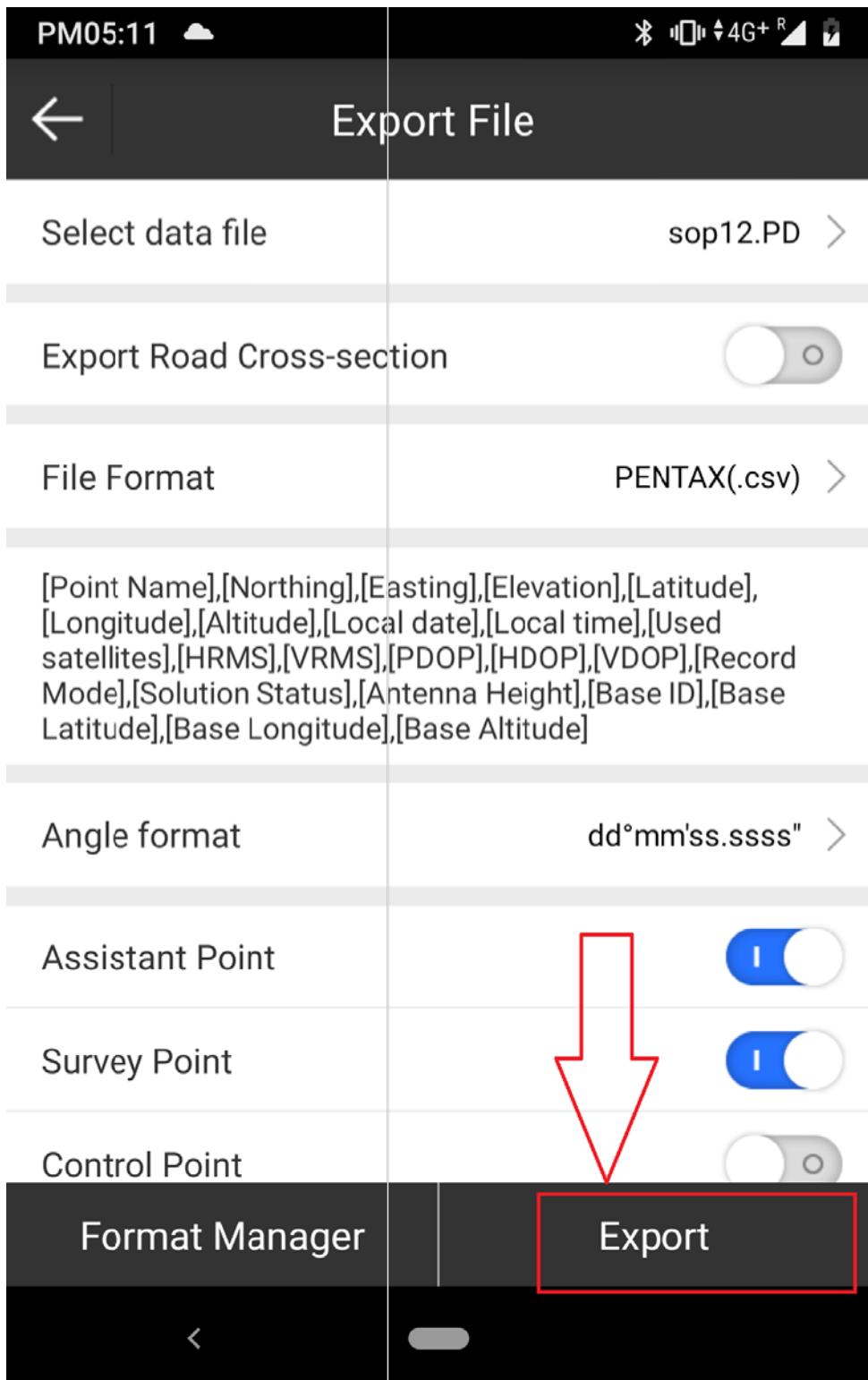
Photo And Sketch

< >

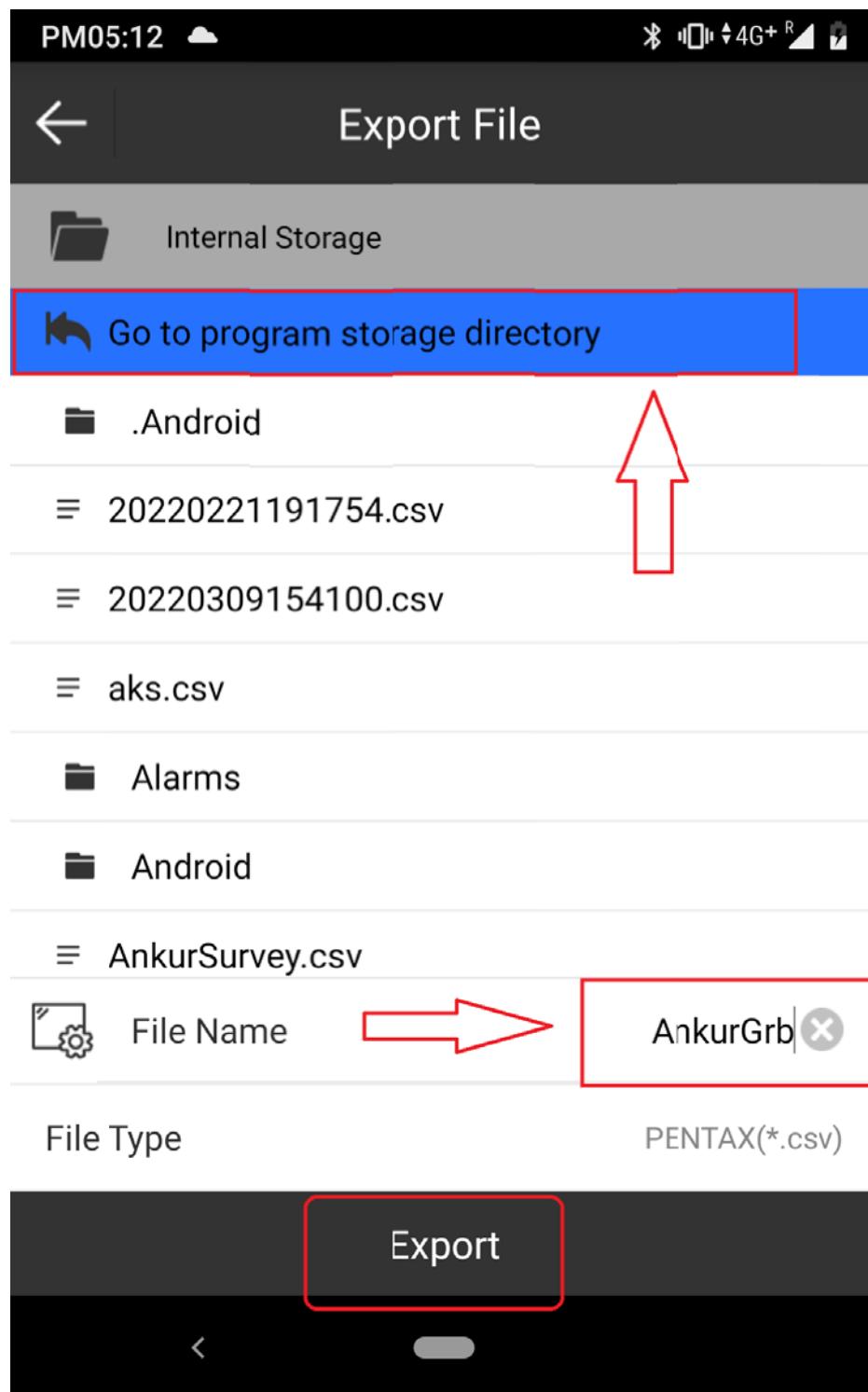
You can also Export the data in *.csv format.

Go to Project → Export File

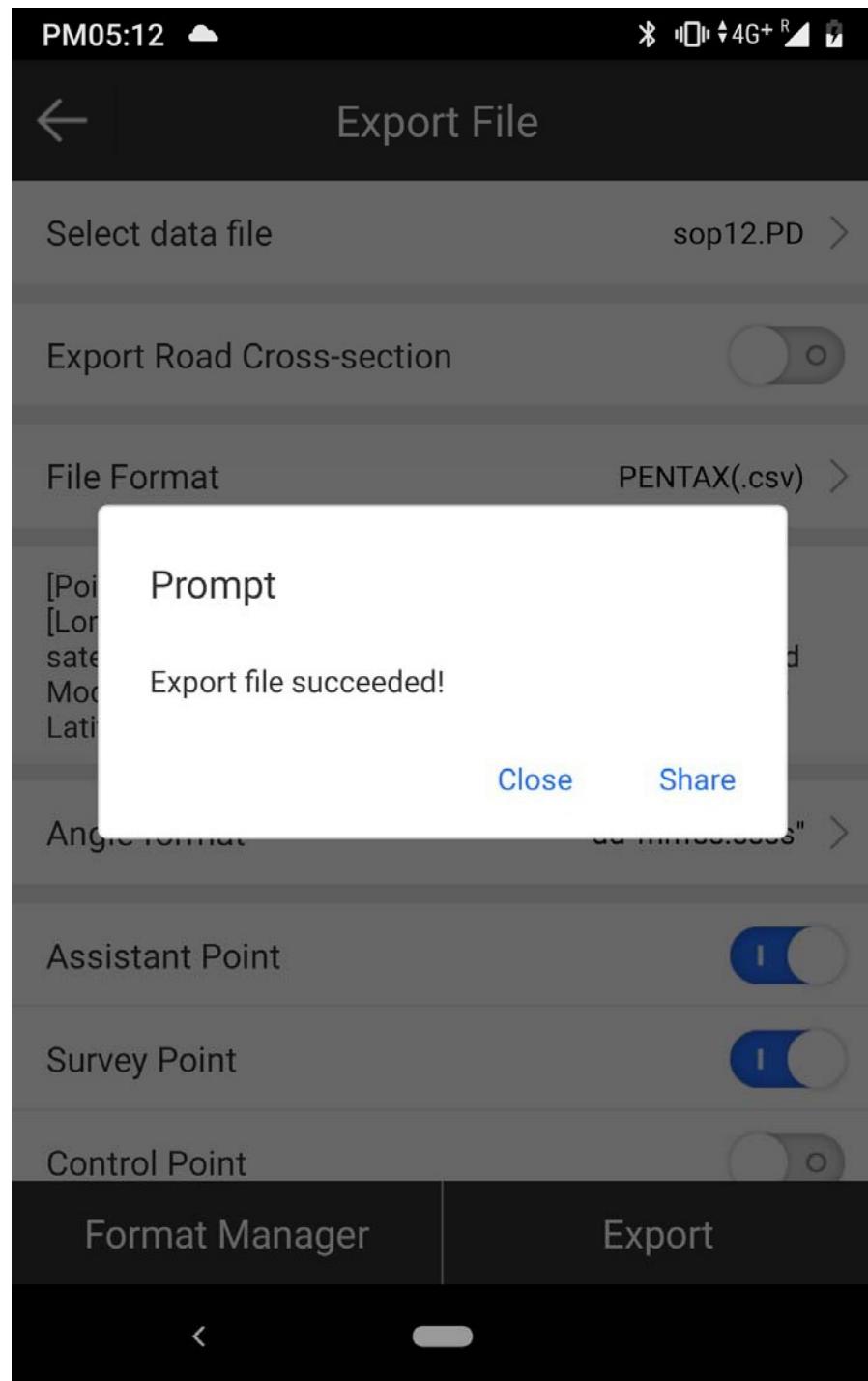




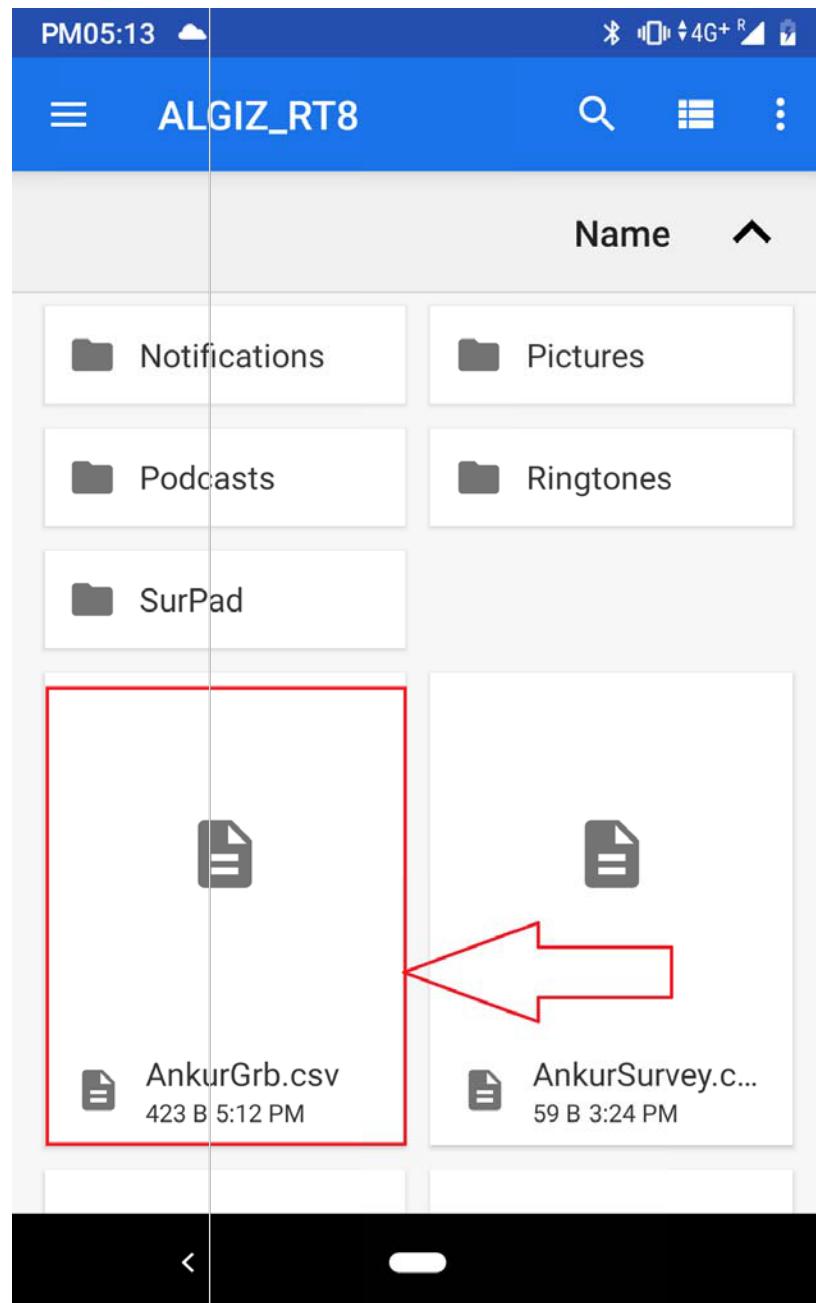
After click on Export, Select the path from the list where you want to save your file and enter name of your file and click on Export button.



You file has exported at your given path.



Now open that path where you saved your file.



Now open your file.

PM05:14

Read Only - To make changes, save a copy of this file into a Microsoft Office file f...

