



Bhuvan HFA app

ISRO's location based services to geo-tag and monitor construction stage of house under Housing For All scheme in India

Ministry of Housing and Urban Poverty Alleviation
Government of India

National Remote Sensing Centre
Indian Space Research Organisation
Government of India

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1 Introduction

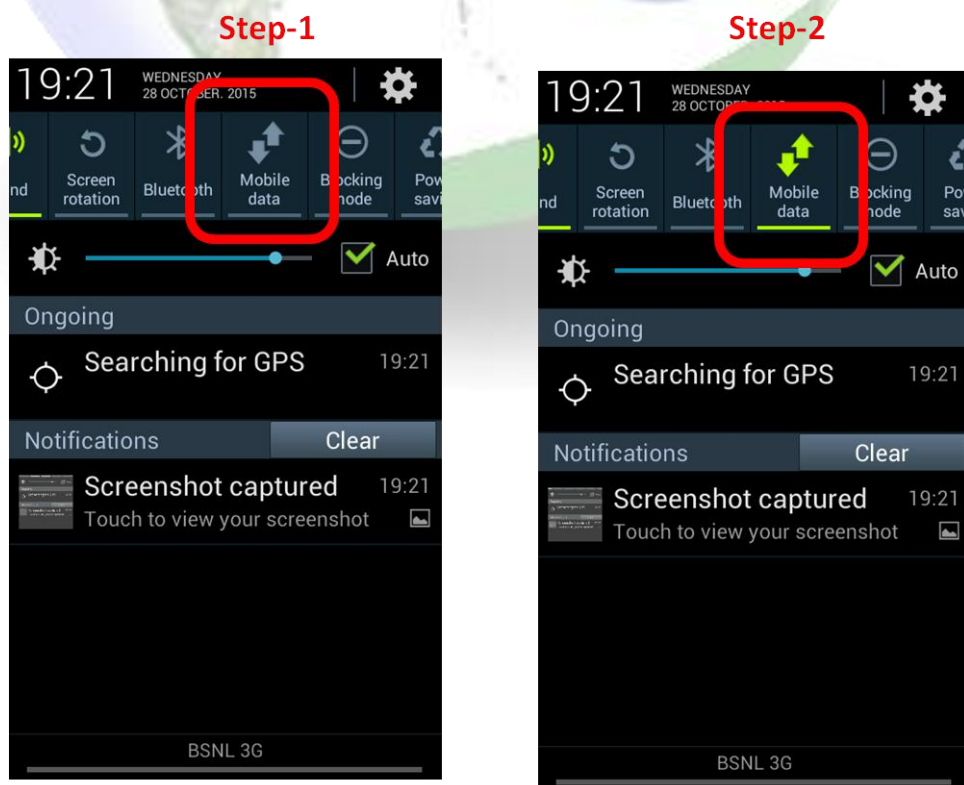
Bhuvan HFA App is a user-friendly mobile application which enables to collect and report geo-tagged information and monitor different stages of the houses construction for which are under Housing For All scheme. This mobile app will provide a platform to control crowd sourcing to build spatial database on Bhuvan Geo-platform.

2 Data connectivity

The mobile data connectivity is required to download the mobile application (Bhuvan HFA app), also essential to send collected data to Bhuvan HFA server and download beneficiary data in the mobile device. The following are the step to enable mobile data.

Step-1: Tap the Home screen from top and swipe down. The user gets pop-down screen, which has provision to switch-on the mobile data connectivity.

Step-2: Tap on the Mobile Data button to switch-on.



3 Download and Installation of Mobile app

There are very simple steps to download and install the Bhuvan HFA mobile app. The user can download the mobile app from Bhuvan Geo-platform using web browser in mobile and key-in the URL as mentioned below and click on enter key. The installation requires to allow installation of apps from unknown sources and after installation, it can be disabled.

http://bhuvan3.nrsc.gov.in/bhuvanapp/bhuvanapp_hfa.php

The bhuvanHFA_v1.apk file starts download into download folder in the internal storage. On double click over the file (apk file), the app gets installed. The following are the steps to download and install the application.

Step-1: Open web browser in the mobile.

Step-2: Key-in the URL (given above)

Step-3: Tap on the top of the screen and scroll down to get drop down screen and user can visualize download status.

Step-4: On completion of download, user can tap on the download complete icon to initiate action for installation of the app.

Step-5: A confirmation box appears to start installation.

Step-6: Click on Install to start installation

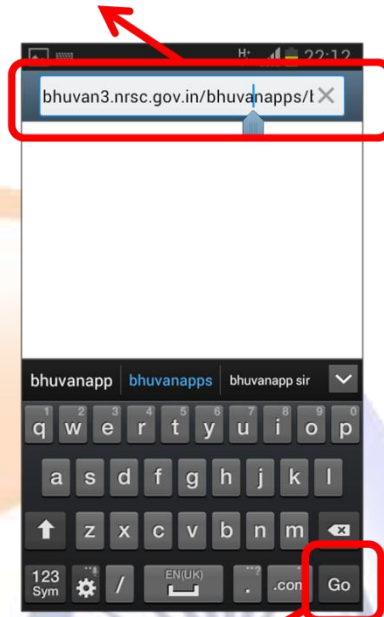
Step-7: Click on Done to complete installation process.

Step-2: Key-in the URL -

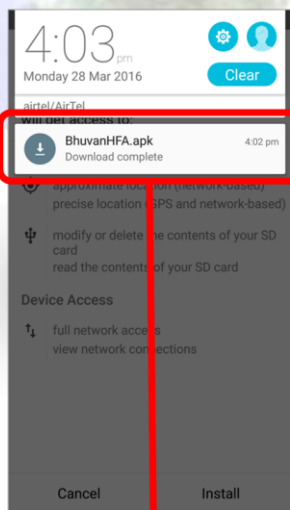
http://bhuvan3.nrsc.gov.in/bhuvanapp/bhuvanapp_hfa.php.



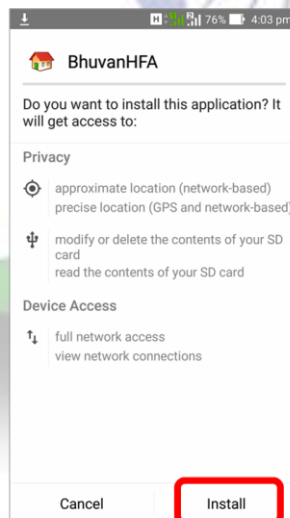
Step-1: Click on Browser button



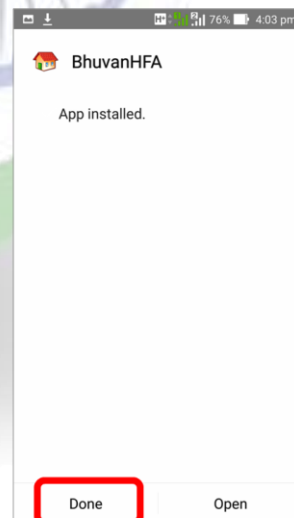
Step-3: Click on Go button



Step-4: Tap on the app to initiate installation after completion of download



Step-5: Click on Install



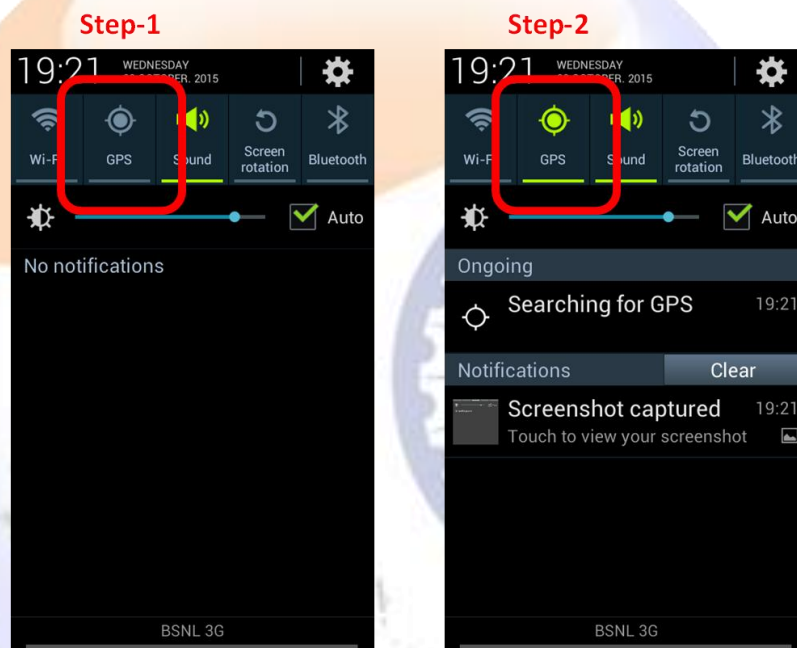
Step-6: Click on Done to complete installation

4 Mobile GPS

The Mobile GPS is used to automatically acquire location information in the form of longitude and latitude, the GPS receiver in the mobile must be switched-on before open the mobile app. The following are the step to enable GPS receiver receive data.

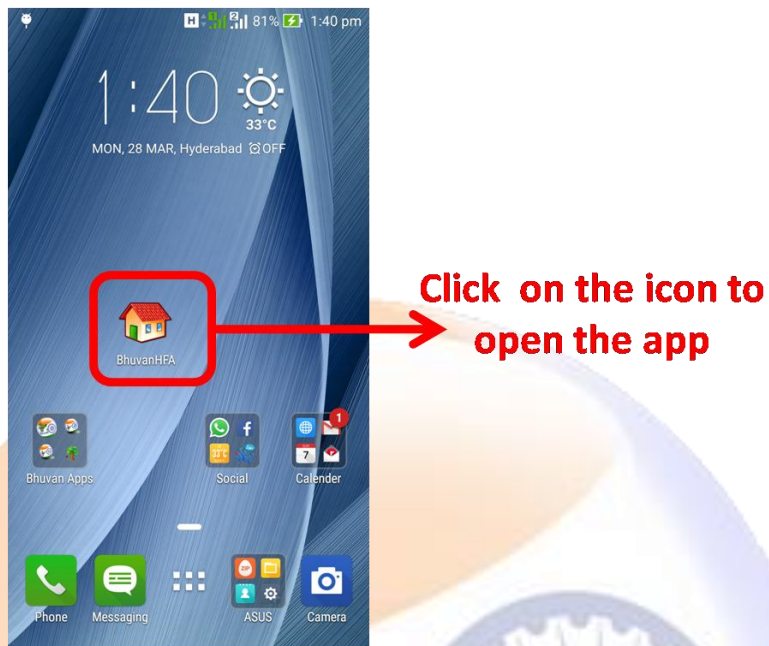
Step-1: Tap the Home screen from top and swipe down. The user gets pop-down screen, which has provision to switch-on the mobile GPS receiver.

Step-2: Tap on the GPS button to switch-on.



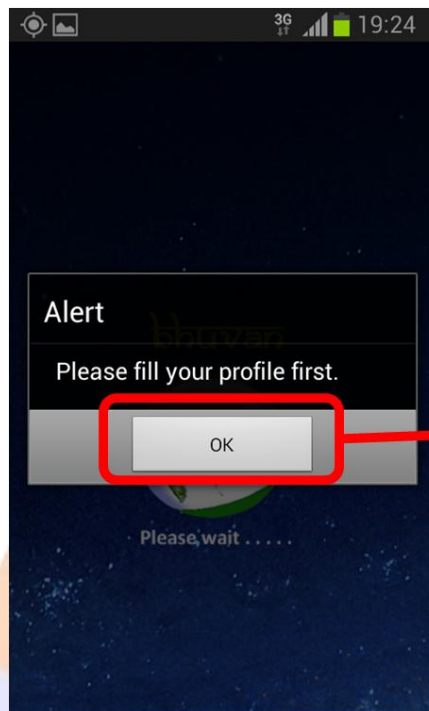
5 Open Bhuvan HFA mobile app

The Bhuvan HFA mobile application can be seen in the list of apps and can be brought to home screen by tap on the icon for 2 seconds. The user needs to tap on the icon to open the app in the mobile device.



6 User Profile

The profile page consists of basic observers' parameter details such as User ID, Name, Mobile number and Organisation. The profile filling is One Time Activity by the observer. These parameters are tagged with each observation. The User ID can be individual identification ID among a team. The ID can be used for query / search of individual points from the geo-spatial database. This can be used to monitor day-to-day activities of an observer on Bhuvan geo-platform. Along with above said parameters, user will be selecting the State, District and town to download beneficiary data of the town to be used for geo-tagging.



Step-1 : Click on “Ok” button to open profile page of the app

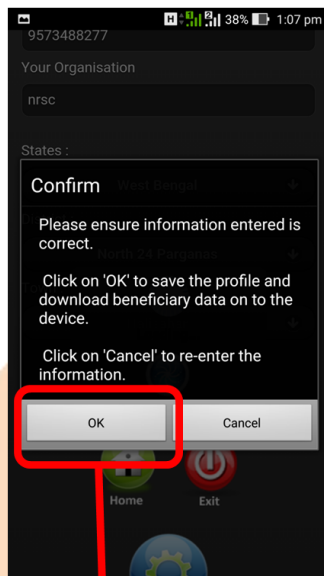
The profile page of the bhuvan hfa app. It has a dark background with yellow text for the header "bhuvan hfa" and "Your Profile". Below the header, there is a "UU-ID:- 5cc368401d416679" in yellow. Then, there are labels for "State Name:", "District Name:", and "Town or City Name:" in yellow. Below these are input fields for "User ID" (nrsc001), "Your Name" (Lesslie), "Your Mobile Number" (9573488277), and "Your Organisation" (nrsc). Below these are three dropdown menus: "States :" (West Bengal), "District :" (North 24 Parganas), and "Town :" (Select the Town). At the bottom, there is a circular logo and the text "Herdato Box".

Step-2: Key-in basic observer profile details

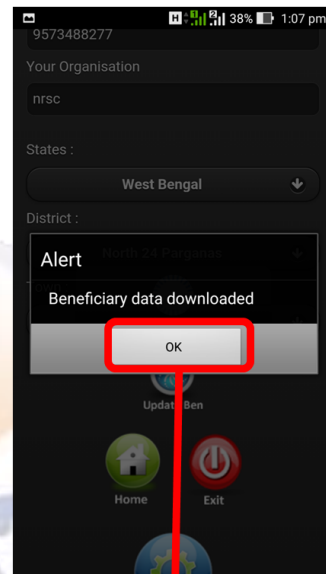
Step-3: Select state and district drop down

Step-4: Select district and town drop down

Step-5: Select town from drop down



Step-6: Click on "Ok" to confirm info entered are correct and download Beneficiary data



Step-7: Click on "Ok" to move to collection page

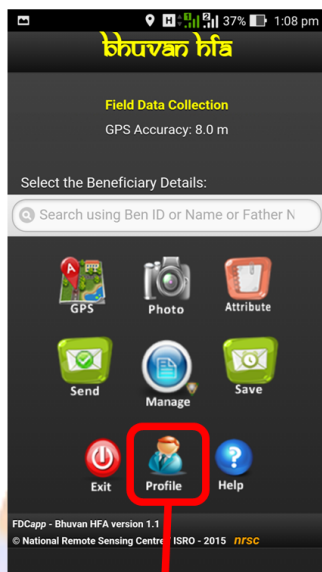
To editing the profile parameters user can follow steps.

Step-1: Click on Profile icon in the main page of the app.

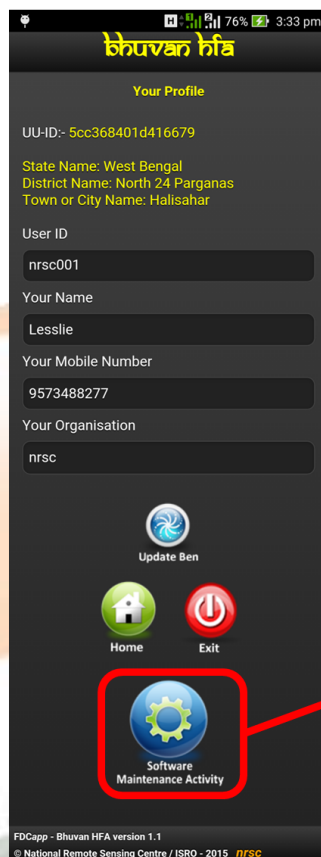
Step-2: Click on "Software Maintenance Activity" icon.

Step-3: Click on "Reset Configuration" icon.

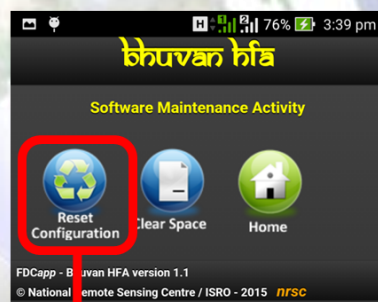
Step-4: Click on "Ok" to reset the software database, provision to re-enter the user profile and download beneficiary data. The step closes the software and user has to open the app manually. To re-enter the profile parameters follow steps of earlier session.



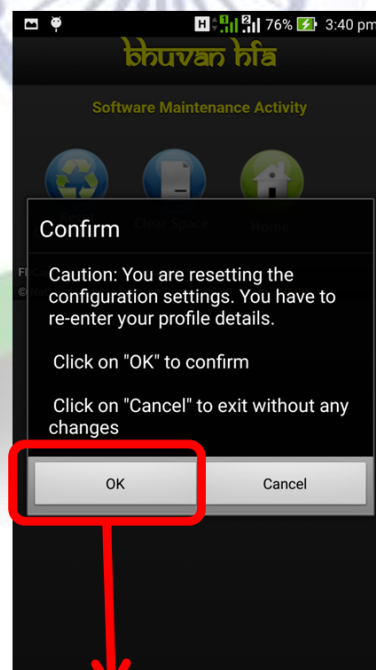
Step-1: Click on Profile button



Step-2: Click on Software Maintenance Activity button



Step-3: Click on "Reset Configuration" button



Step-4: Click on "Ok", An alert appears "The app configuration is reset, requires a restart" Click on "Ok" and reopen the app for filling in the profile.

7 Data collection overview points

The Internet connectivity is not required during data collection process. The internet connection or Wi-Fi with internet is necessary only to upload the data from mobile to the BHUVAN HFA server and filling user profile. In case of unavailability of internet in field, the collected information can be saved in the mobile and it can be uploaded to Bhuvan HFA server using send later option.

For operational convenience the users can collect data, save and view for any correction in attributes using Send Later of Manage option. The uploaded data will be systematically stored in the Bhuvan HFA server of NRSC.

The user is advised to ensure GPS is switched-on with high accuracy before opening the app.

The step by step procedure for using the app is given below. There are four main tasks in this app are 1) GPS capture, 2) Taking photograph of the building (two photographs of the club), 3) Adding information about the house construction and 4) Sending the collected information to Bhuvan HFA server, either immediately or later.

8 Data collection and Upload

The step by step procedure for using the app is given below. There are four main tasks in this app are 1) Select appropriate beneficiary, 2) GPS capture, 3) Taking photograph of the building (two photographs of the House), 4) Adding information about the house construction and 5) Sending the collected information to Bhuvan HFA server, either immediately or later.

8.1 Selection of Beneficiary detail:

Step 1: The user has to select the beneficiary name for which the observation needs to be collected. The beneficiary name, Id, fathers name or address can key-in to fetch list of word that match from the beneficiary database.

Step-2: Key-in the any one of four mentioned parameters in list view box.

Step-3: A list of beneficiaries appears which matches with key-word and select the appropriate beneficiary.

Step-4: All the parameters of the selected beneficiary is displayed in the confirmation box.

Step-5: Click on "OK" to confirm the selected beneficiary details match with house parameters.

Step-6: Click on "Cancel" to re-select appropriate beneficiary detail.

Step-7: The selected beneficiary name appears above photo icon.



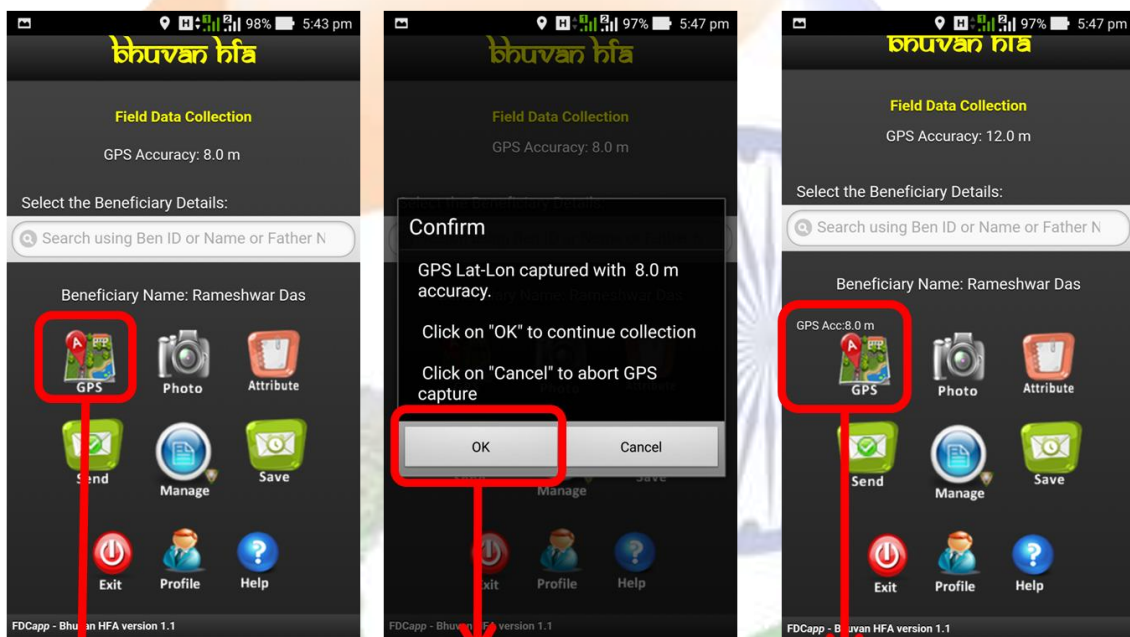
8.2 Location data capture:

The app has provision to capture the location information in the form of Longitude and latitude and ensure GPS accuracy is below 10 meters.

Step-1: Climb up the roof top if accessible, ensure GPS accuracy is below 10m and its value is stable and Click on "GPS" icon.

Step-2: A confirmation box appears for accepting with respect to GPS accuracy.

Step-3: A label appears with captured accuracy in meters over the GPS icon.



Step-1: Click on "GPS" to collect lon-lat parameters

Step-2: Alert appears location info captured with stated accuracy in meters, Click on "Ok" accept and Click on "Cancel" re-capture.

Step-3: label appears location info captured with stated accuracy in meters over GPS icon

8.3 Photograph capture and preview:

The user can capture and upload two photographs of the house.

Step-1: Click on the "Photo" icon to activate your mobile camera for taking photographs.

Step-2: Click on the Camera icon to capture the focus building or house.

Step-3: Click on Save icon to save the captured photograph. While photographs capture, the longitude and latitude of the location is captured with direction in which the camera is held.

Step-4: Click on blue icon to visualize captured photograph.

Step-5: Key-in the text about the captured photograph.

Step-6: Click on the same blue icon to close the preview.

Repeat the steps 1 to 6 to capture second photograph.



Step-1: Click on Photo Icon



Step-2: Click on Camera button



Step-3: Click on Save button

Step-4: Click on blue icon to visualize captured photograph

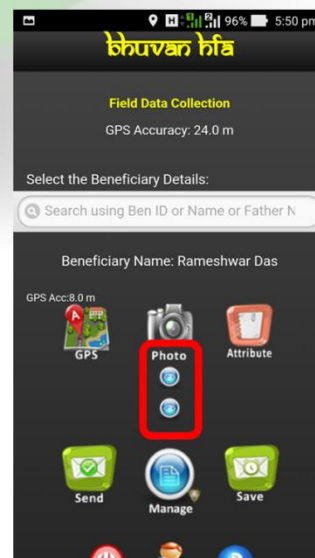


Step-6: Click on blue icon to close visualize of captured photograph



Step-5: Key-in text about the photograph

Click on Photo icon for second photograph



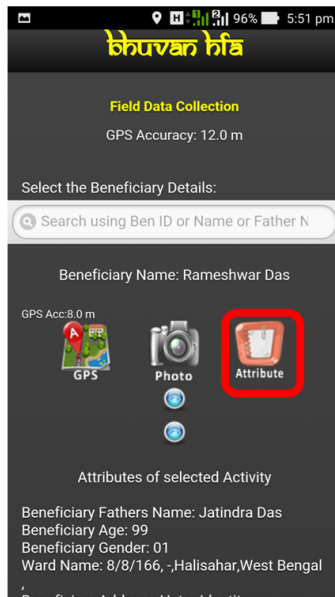
Another blue icon appears for second photograph

8.4 Attribute filling:

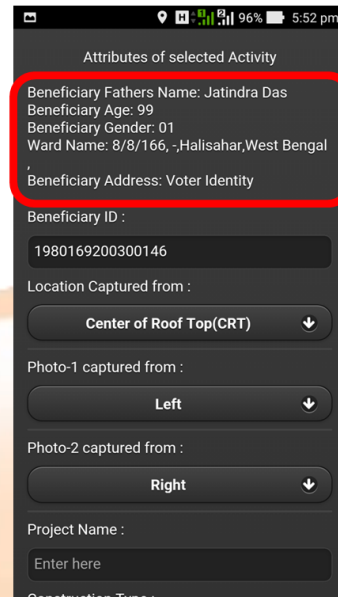
The user is expected to upload additional information about the location by tapping "Attribute" icon. The information such as location captured from, photographs captured from, project name, type of construction, type of the house, stage of construction, etc or any other related description about the location can be collected using this option.

Sno	Attribute	Type of Entry	Need	Description / values
1	Beneficiary ID	Selection	Mandatory	Mobile DB
2	Location captured from	Selection	Mandatory	Center of Roof, Center of the house, Door Step, Rear side of the house
3	Photo-1 captured from	Selection	Mandatory	Left, Right, Center, Rear side
4	Photo-2 captured from	Selection	Mandatory	Left, Right
5	Construction Type	Selection	Mandatory	New house, Enhancement
6	House Type	Selection	Mandatory	Pucca (CC or Stone slab), Semi-pucca (Asbestos or steel sheet or tiled), Katcha (Grass or Thatched or Tarpaulin or wooden)
7	Construction Stage	Selection	Mandatory	Not started, Foundation, Lintel, Roof, Completed
8	Electricity	Selection	Mandatory	Yes, No
9	Water	Selection	Mandatory	Yes, No
10	Sewerage	Selection	Mandatory	Yes, No
11	Occupation Status	Selection	Mandatory	Vacant, Occupied by beneficiary, Rented, None
12	Anomaly field	Key-in	Optional	Name of the field and changes
13	Any other Details	Key-in	Optional	Key in any other information

Click on Attribute icon to collect field observations



The select beneficiary details appears

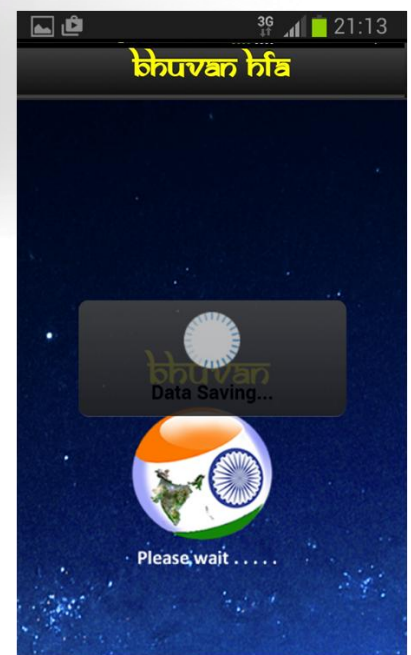
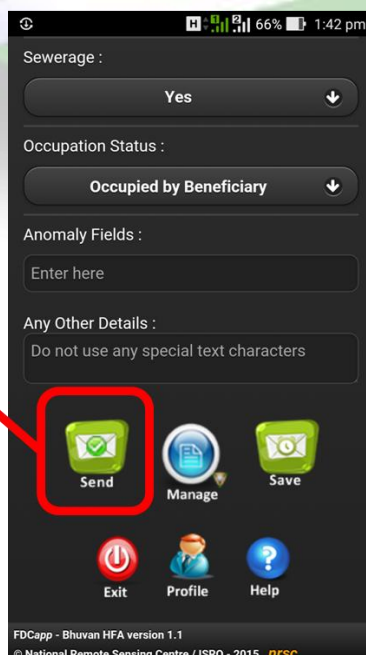


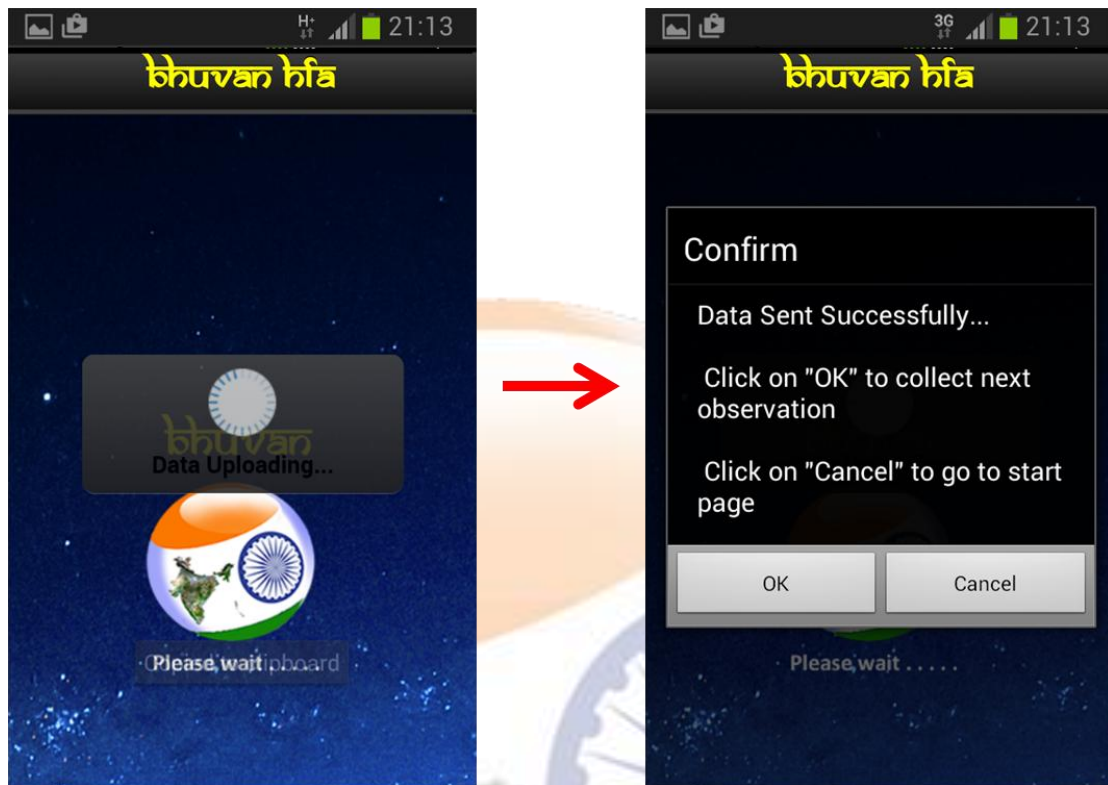
Key-in option to enter here, Select one option from drop down menu for select from here and Select multiple facilities

Step 3. Once the user is satisfied with the information collected and ready for uploading the information to Bhuvan HFA server, user may tap the "Send" icon. This will upload all the information collected. User is advised to ensure that mobile data is switched-on before tapping the "Send" icon. The User has to wait for confirmation message "Data sent successfully" is appeared once the upload is successful.

Click on "Send" icon to send collected data from collection site

Internet connectivity required in the mobile at collection site





9 Save data for Sending Later

In case of unavailability of Internet connectivity in the collection site, the user is advised to tap "Save" icon. This will store the information collected data in the mobile itself. Once the Internet connectivity is available, user may follow to upload the data to Bhuvan HFA server using Send Later option. The WiFi facility of Internet modem (like broadband at home or office) can also be used to connect for internet facility in the mobile.

**Click on Save
to send the
collected data
later**

**No Internet
connectivity
required for saving
the data on the
mobile at collection
site**

Sewerage :
Yes

Occupation Status :
Occupied by Beneficiary

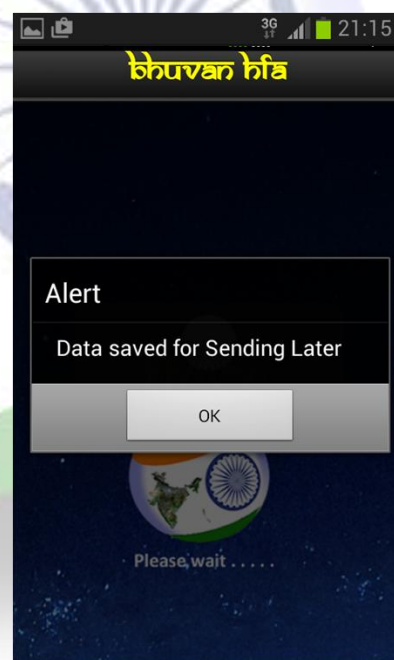
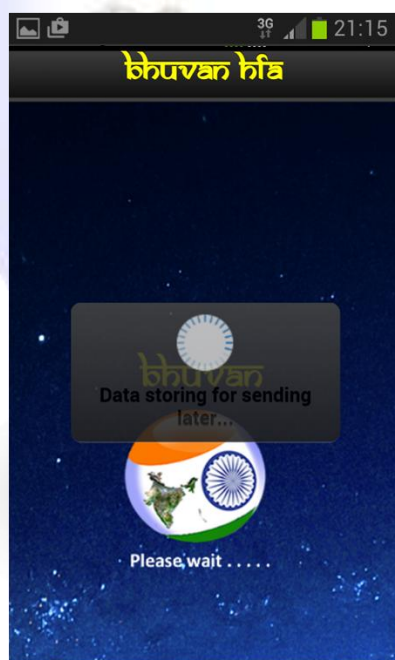
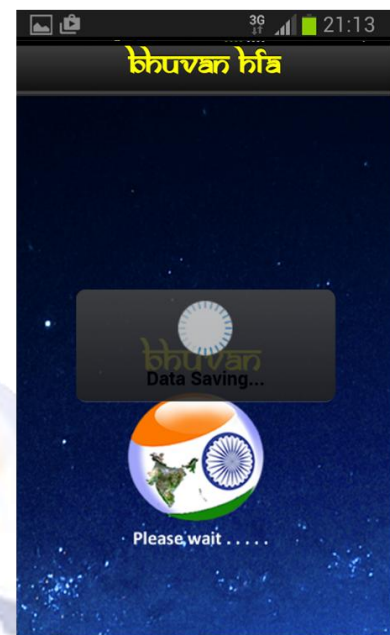
Anomaly Fields :
Enter here

Any Other Details :
Do not use any special text characters

Send Manage Save

Exit Profile Help

FDCapp - Bhuvan HFA version 1.1
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10 Managing your data

In order to upload the saved data to Bhuvan HFA server, user can also edit (before sending) the attribute values in send later or sent failed, delete the observations from the mobile in Send later or send failed and visualize the sent observations click on Manage icon.

These functions are to visualize – edit - delete saved data and view sent data in the mobile



Click on “Manage” icon for Set of three icons appear with additional functionalities

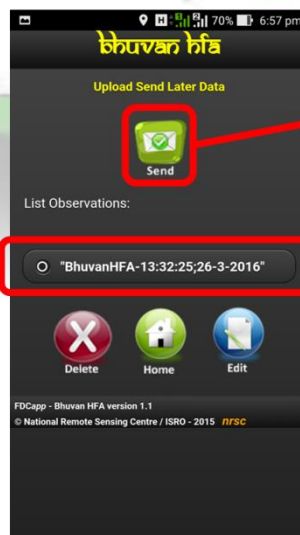


10.1 Send Data from Send later

Tap "Send Later" icon. This will list the data collected and stored in the mobile. Select the data that needs to be uploaded and then tap "Send" icon to upload the data to Bhuvan HFA server. Wait for confirmation message. The "Data sent successfully" message appears once the data is upload successfully.

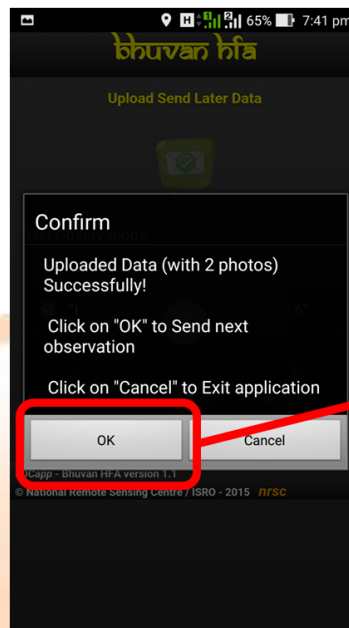
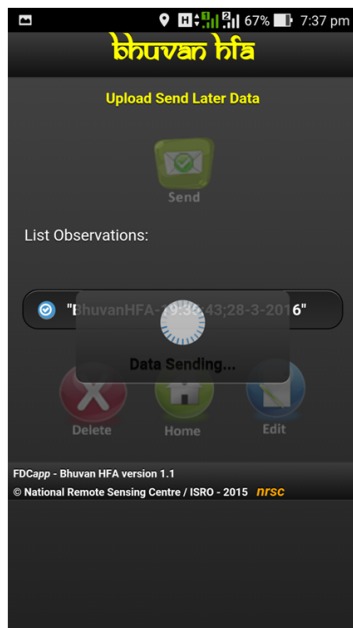


Step-1: Click on “Send Later” icon



Step-3: Click on “Send” icon to send the observation to Bhuvan HFA server

Step-2: Click on one observation to select from List of observations



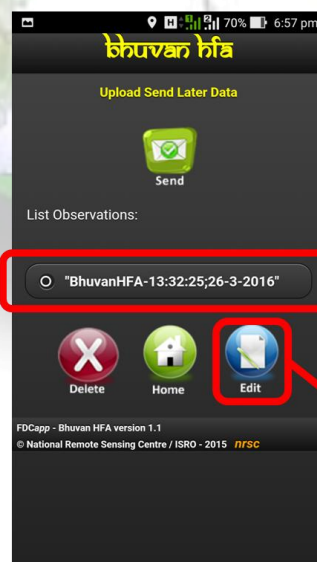
Once the collected data reaches the Bhuvan HFA server, a alert popup Click on "OK" to send next observation

10.2 Editing of Attributes in Send later option

The app provides facility for the user to edit the data in Send Later option. The Editing is possible only for attribute values. The user can not editing GPS value, change photographs and change the time stamp of the observation captured.

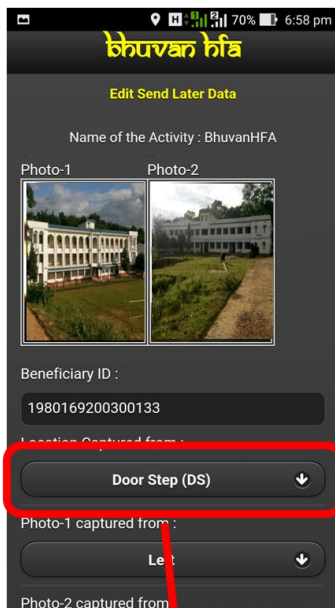


Step-1: Click on "Send Later" icon

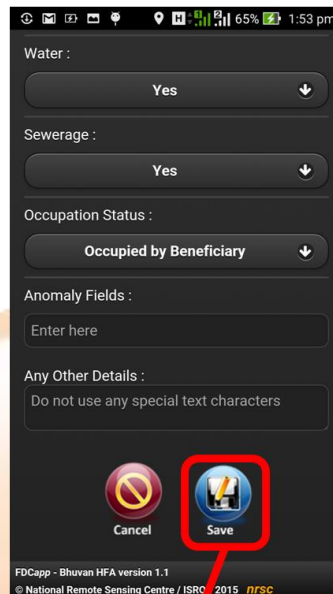


Step-2: Click on one observation to select from List of observations

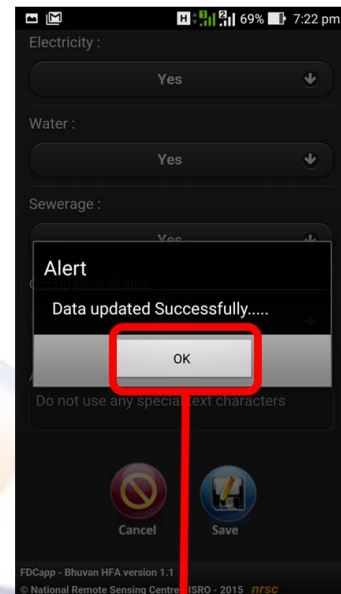
Step-3: Select the observation to edit and Click on "Edit" icon



Step-4: Make changes in attribute value



Step-5: Click on "Save" after changes



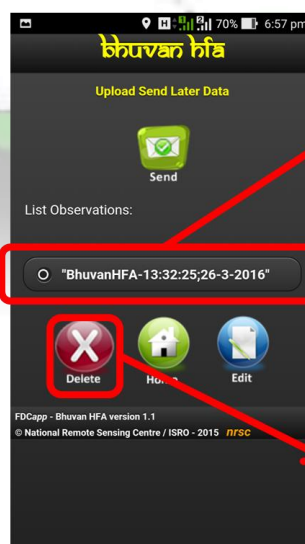
Step-6: Click on "OK" to complete editing process

10.3 Deletion of observation in Send later option

The app provides facility for the user to delete the data in Send Later option. The data once deleted cannot be retrieved back. The following are the steps to delete the data.

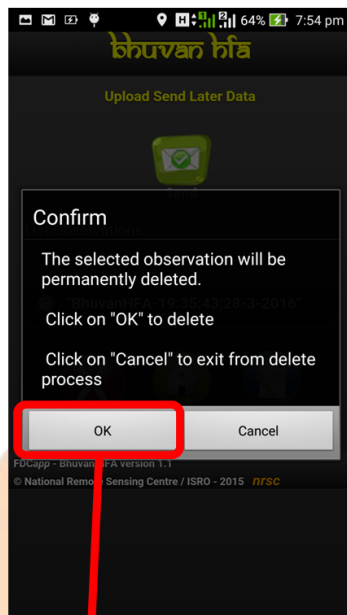


Step-1: Click on "Send Later" icon

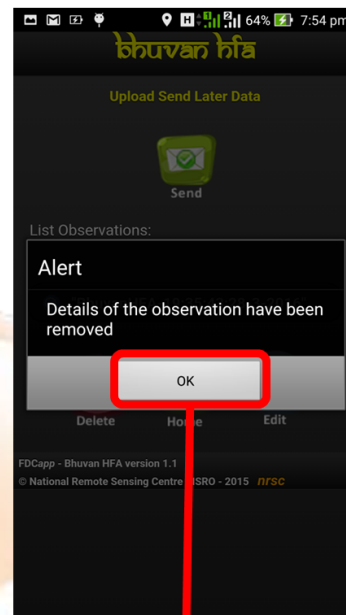


Step-2: Click on one observation to select from List of observations

Step-3: Click on "Delete" icon to delete the observation from mobile



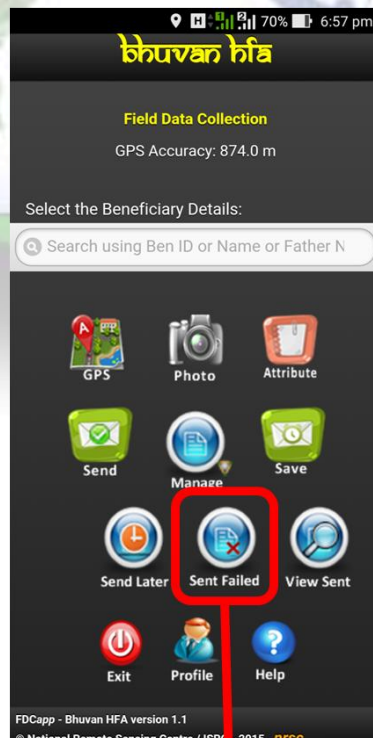
Click on "OK" icon to re-confirm deleting process



Click on "OK" icon to complete the deletion process

10.4 Data in Sent Failed option:

The Sent Failed option also has all the facilities in send later option. There are provision to edit, delete and send the observation to Bhuvan HFA server.



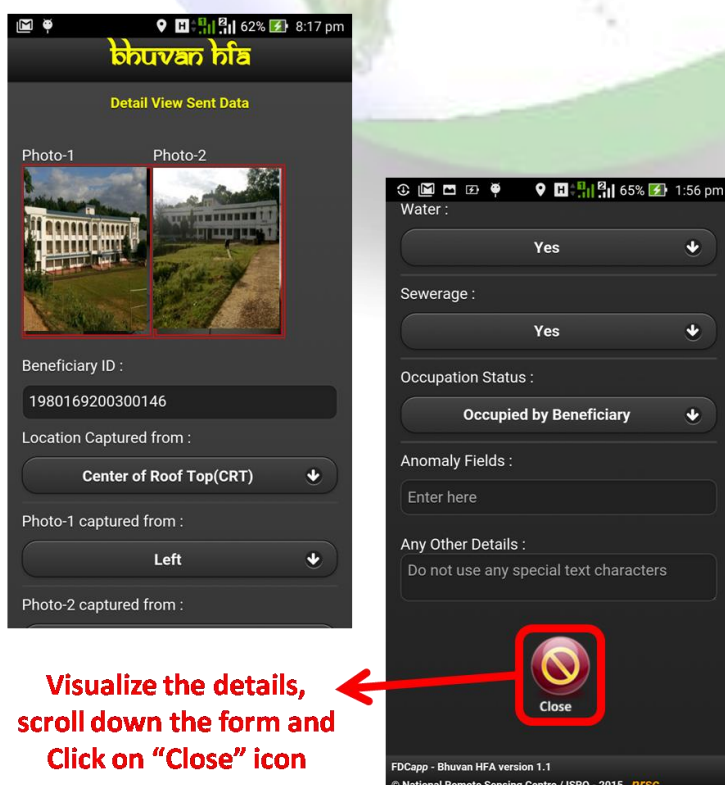
Click on "Sent Failed" icon

The steps followed are same when compared to Send Later option.

1. Sending of observations - refer steps of session 10.1.
2. Editing of attributes - refer steps of session 10.2.
3. Deleting of observations - refer steps of session 10.3.

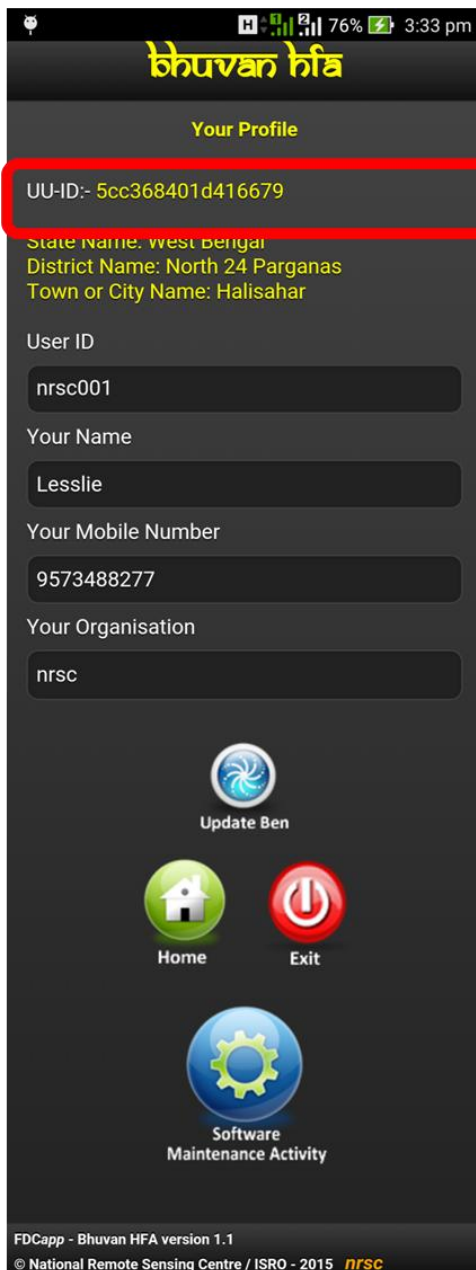
10.5 View Sent observation

The user can visualize the observation which are sent to Bhuvan HFA server.



11 How to know your device UUID?

The details of how a UUID is generated are determined by the device manufacturer and are specific to the device's platform or model. It is a random 64-bit integer as a string and it is generated on the device's first boot.



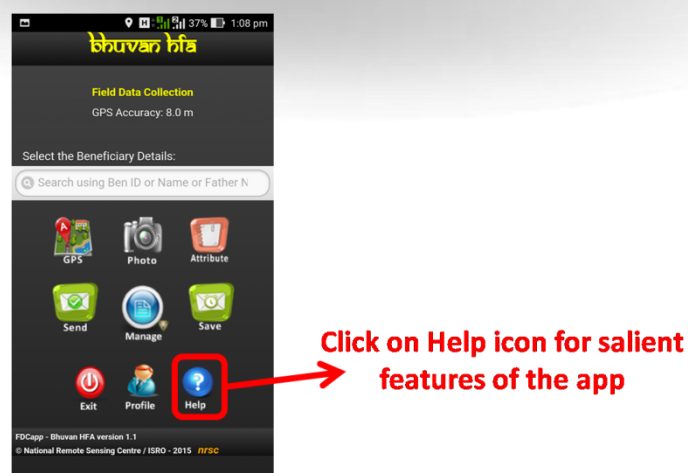
12 Software maintenance activity

The software maintenance activity consists of reset of configuration information and clearing disk storage space.



13 Help in the mobile

There is a help page in the mobile app which give salient features in the Bhuvan HFA app.



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