



## **Bhuvan RUSA app**

**ISRO's location based solution to monitor activities  
of RUSA**

**Ministry of Human Resource Development  
Government of India**

**National Remote Sensing Centre  
Indian Space Research Organisation  
Government of India**

**November, 2015**





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## 1 Introduction

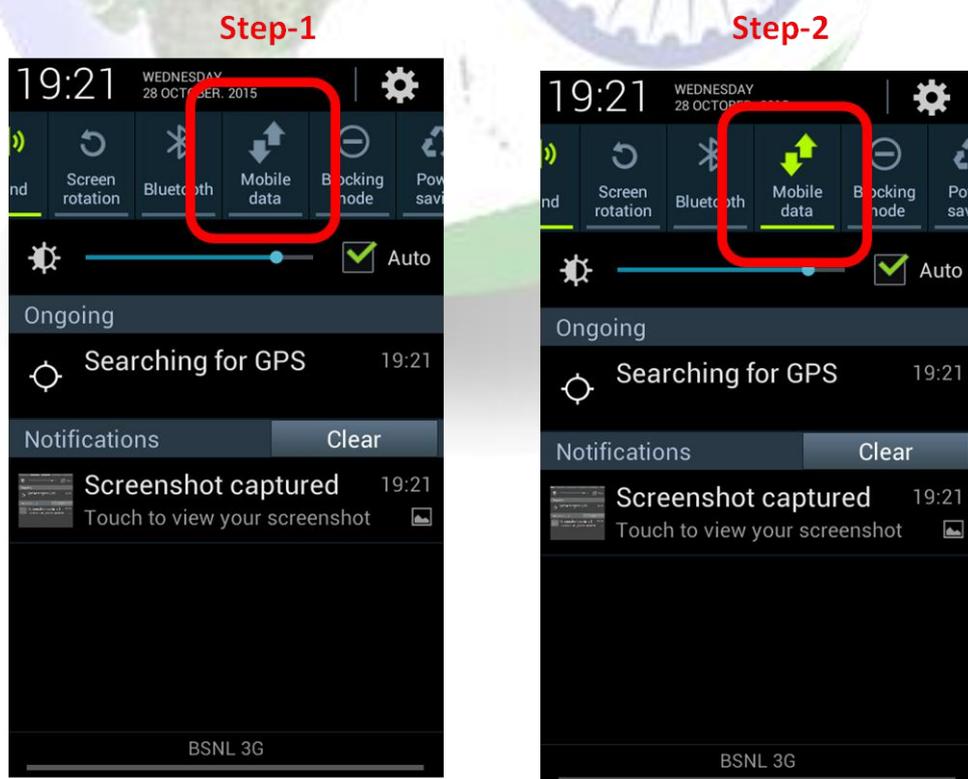
Bhuvan RUSA App is a user-friendly mobile application which enables to collect and report geo-tagged information on various parameters such as new construction, up-gradation work and equipment in state higher educational institutions. This mobile app will provide a platform for controlled crowd sourcing to build spatial database on Bhuvan Geo-platform.

## 2 Data connectivity

The mobile data connectivity is required to download the mobile application (Bhuvan RUSA app) and also essential to send collected data to Bhuvan RUSA server. 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 RUSA 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\\_rusa.php](http://bhuvan3.nrsc.gov.in/bhuvanapp/bhuvanapp_rusa.php).

The bhuvanrusa\_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

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.

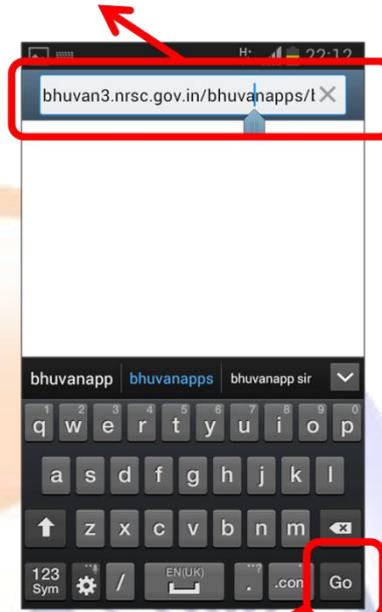
Step-6: Click on Done to complete installation process.

**Step-2: Key-in the URL -**

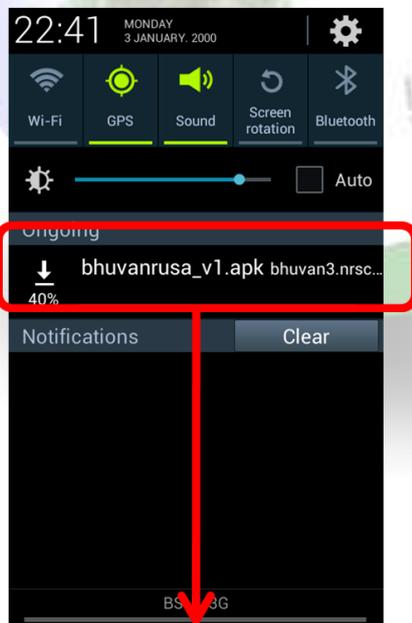
[http://bhuvan3.nrsc.gov.in/bhuvanapp/bhuvanapp\\_rusa.php](http://bhuvan3.nrsc.gov.in/bhuvanapp/bhuvanapp_rusa.php)



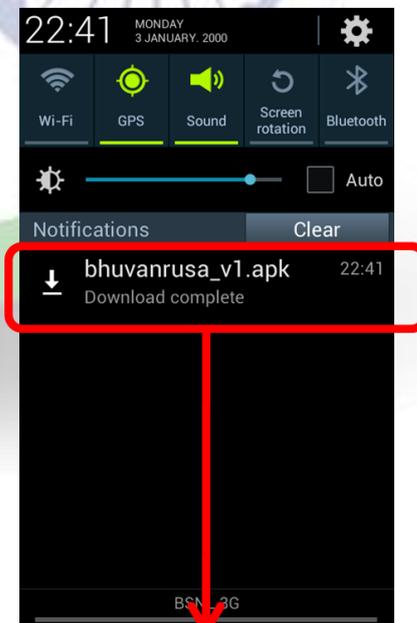
**Step-1: Click on Browser button**



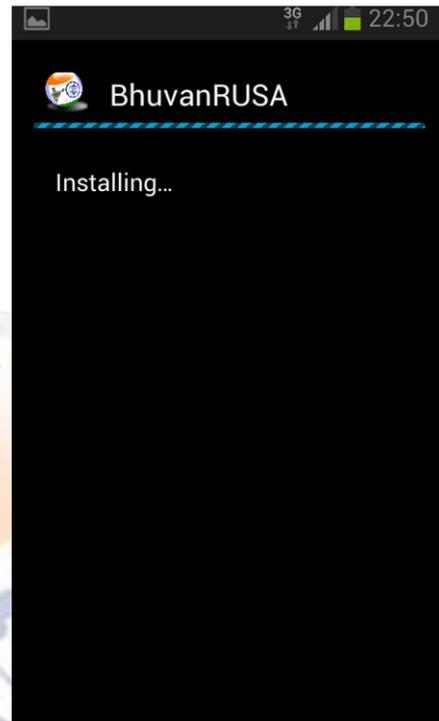
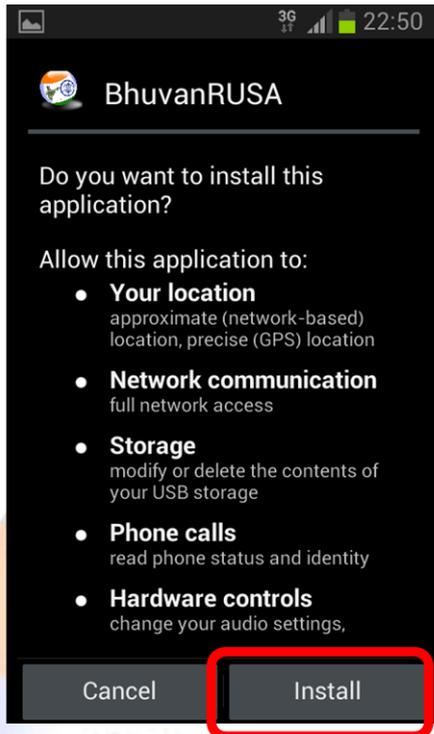
**Step-3: Click on Go button**



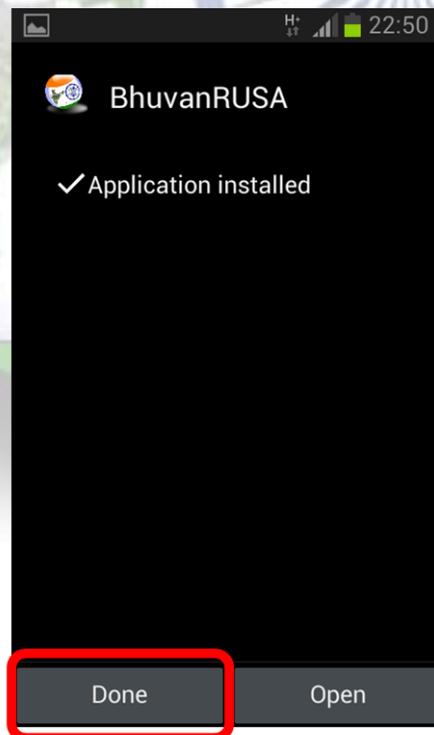
**Step-4: Tap on the top and scroll down the screen. Download process**



**Step-5: Tap on the app to initiate installation after completion of download**



**Step-6: Click on Install**



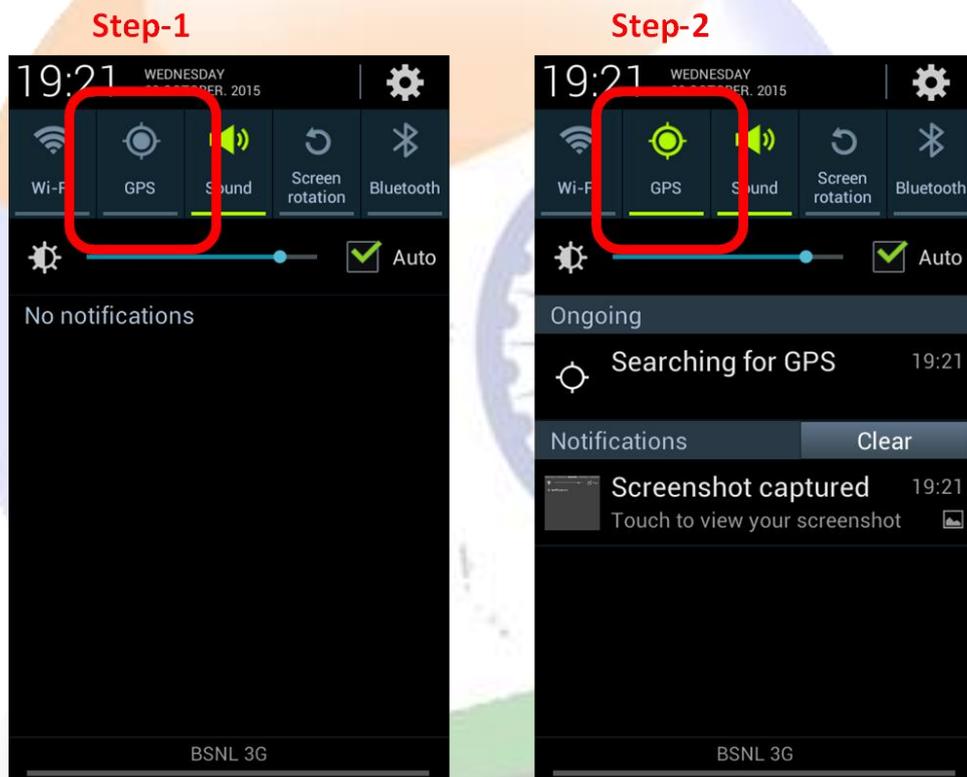
**Step-6: Click on Done to complete installation**

## 4 Mobile GPS

The automatically acquire location information in the form of longitude and latitude, the GPS receiver in the mobile must be switched-on. 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 RUSA mobile app

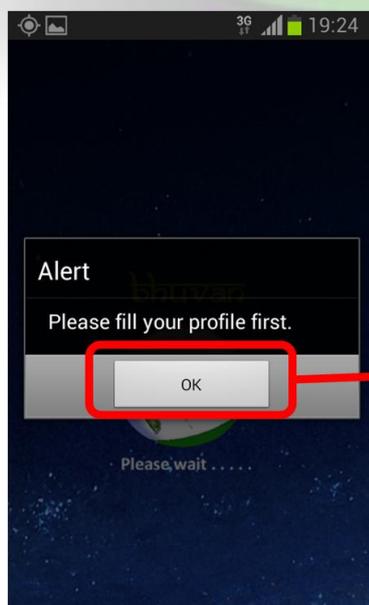
The Bhuvan RUSA mobile application can be seen in the list of apps and can be brought to home screen by tap on the icon for 2 seconds. The user needs to tap on the icon to open the Bhuvan RUSA app in the mobile device.



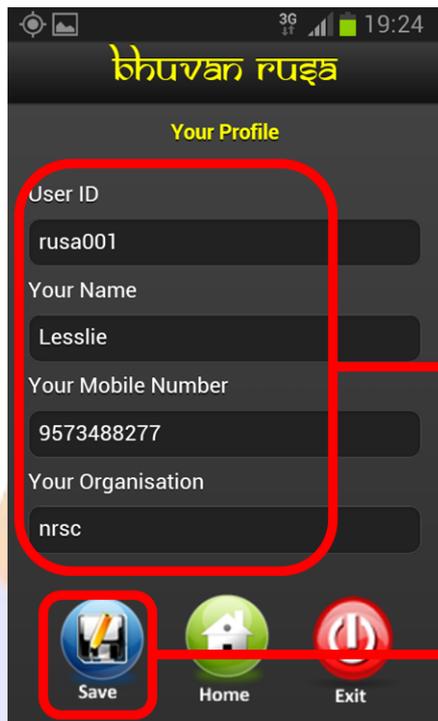
Click on the icon to open the app

## 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.



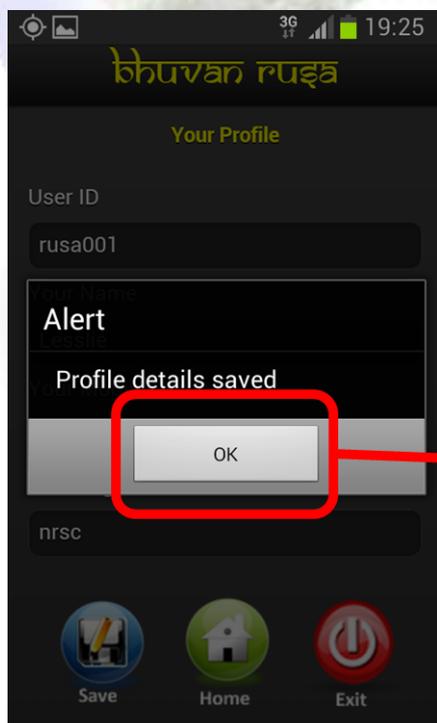
Step-1 : Click on "Ok" button to open profile page of the app



**Step-2: Key-in basic observer profile details**



**Step-3: Click on Save button**

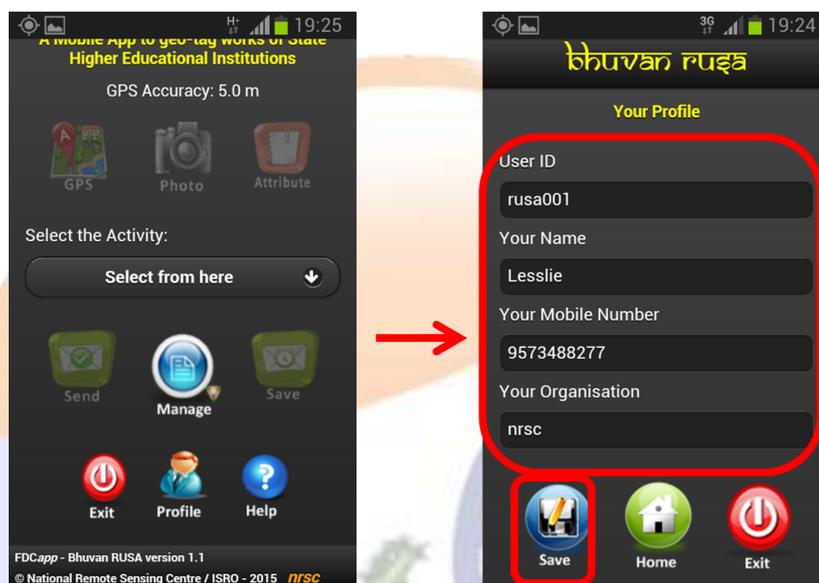


**Step-4: Click on Ok button**

To editing the profile parameters user can follow steps.

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

Step-2: Key-in the changes in the profile parameters and Click on Save button.



**Step-1: Click on Profile button**

**Step-2: Profile page opens and parameters can be edited and further click on Save button.**

## 7 Data collection overview points

The Internet connectivity is not required during data collection process. The internet connection or Wi-Fi with internet is useful and necessary only to upload the data from mobile to the BHUVAN RUSA server. In case of unavailability of internet in field, the collected information can be saved in the mobile and it can be uploaded to Bhuvan RUSA 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 RUSA server of NRSC.

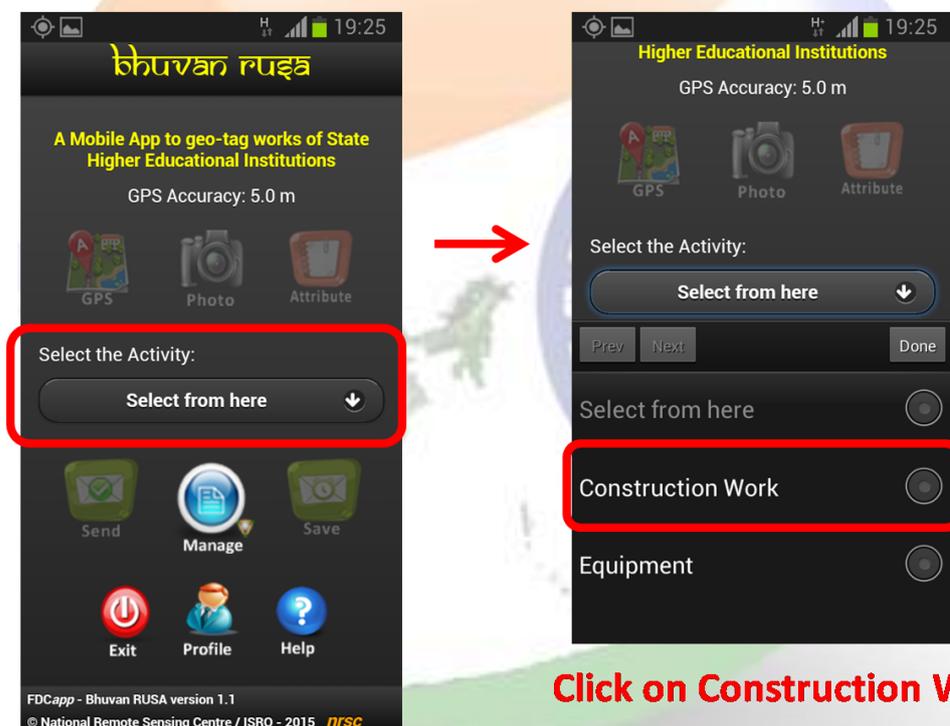
The user is advised to ensure GPS is switched-on with high accuracy before opening the app.

The step by step procedure for using the app is given below. There are four main tasks in this app are 1) Collecting location information using GPS , 2)

Taking photograph of the location (two photos), 3) Adding additional information about the location and 4) Sending the collected information to Bhuvan RUSA server, either immediately or later.

## 8 Data collection and Upload

Step 1. Choose any one option by tapping "Select from here" under "Select the Activity". The options available are (i) Construction Work, and (ii) Equipment. After this selection only all the icons will be enabled. The attributes of the respective activity is enabled for filling.



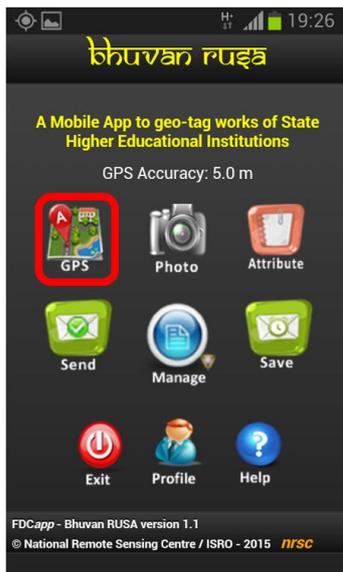
**Click on drop down menu of Select the activity**

**Click on Construction Work**

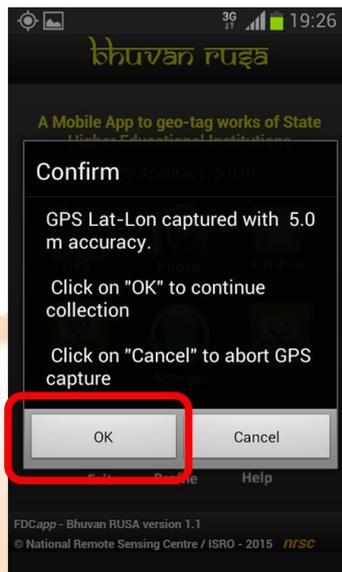
**There are two options in the activity.**

- 1. Construction Work**
- 2. Equipment**

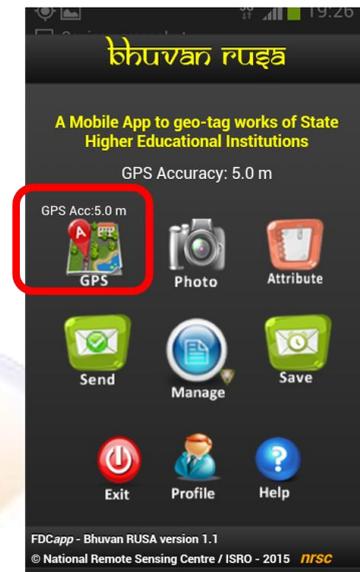
Step 2. Check for GPS accuracy notification on the top. When the accuracy value is less than 10 m (open to sky) and stable (not fluctuating), tap the "GPS" icon to collect the location (Latitude and Longitude) details in the background. A confirmation window pops-up with GPS accuracy. Tap "OK" if the accuracy is acceptable, otherwise tap "Cancel" to cancel the collection of location data and wait for some more time to get better GPS accuracy. Ensure that there is a clear sky view for receiving GPS satellite signals.



**Click on GPS icon**

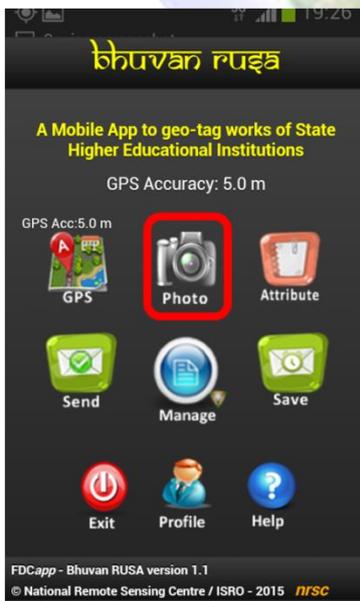


**Click on OK button**



**GPS accuracy is displayed over the icon**

Step 3. The app has provision to capture and upload two photographs of the location. Tap the "Photo" icon to activate your mobile camera for taking photographs. Accept the first photo taken with your mobile camera and tap the "Photo" icon again to take the second photograph. Then accept the second photograph. The First photo should represent extent of damage. The second photo can represent intensity of damage.



**Click on Photo icon**



**Click on Camera button**



**Click on Save button**

The user can preview the photographs taken by tapping the "Preview" icon that appears below the "Photo" icon.

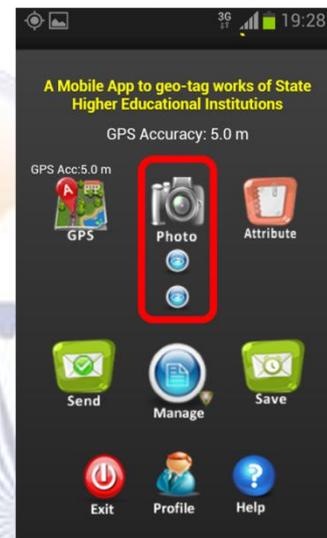
**Click on blue icon to visualize captured photograph**



**Click on blue icon to close visualize of captured photograph**



**Click on Photo icon for second photograph**



**Key-in text about the photograph**

Open Preview/Close Preview

Step 4. The user is expected to upload additional information about the location by tapping "Attribute" icon. The information such as construction or equipment and its status with financial utilisation, etc or any other related description about the location can be collected using this option.

Sno	Attribute	Type of Entry	Need	Description / values
<b><i>1 Construction work</i></b>				
1	Institute Name	Key-in	Mandatory	Name of the institution
2	Work ID	Key-in	Mandatory	Work Code (Alfa-numeric text)
3	Work Type	Selection	Mandatory	1. New construction, 2. Up-gradation work
4	Nature of the Work	Selection	Mandatory	1. Hostel 2. Toilet 3. Laboratory 4. Computer Centre

				<ul style="list-style-type: none"> <li>5. Classroom</li> <li>6. Common Room</li> <li>7. Canteen or Cafeteria</li> <li>8. Seminar Room</li> <li>9. Auditorium</li> <li>10. Library</li> <li>11. School</li> <li>12. Play Ground</li> <li>13. Syndicate Room</li> <li>14. Confidential Room</li> <li>15. Miscellaneous</li> <li>16. Others (Key-in text)</li> </ul>
5	Current Stage of the Work	Selection	Mandatory	<ul style="list-style-type: none"> <li>1. Site Selection or Land Allotment</li> <li>2. Foundation Stage</li> <li>3. Plinth Stage</li> <li>4. Lintel Stage</li> <li>5. Roof Stage</li> <li>6. Flooring and Finishing</li> </ul>
6	Work Percentage	Selection	Mandatory	<ul style="list-style-type: none"> <li>1. Less than 25%</li> <li>2. 25% - 50%</li> <li>3. 50% - 75%</li> <li>4. 75% - 100%</li> <li>5. 100%</li> </ul>
7	Date of Finishing the Work. (DDMMYYYY)	Key-in (number)	Mandatory	The number key appears and enter the date in DDMMYYYY
8	Name of the Bank (RUSA Account)	Key-in	Mandatory	Name of the Bank like SBI, PNB, Canara Bank, etc
9	Bank Account Number (RUSA Account)	Key-in	Mandatory	The bank account number used for financial transactions
10	Amount Released in FY 2015-16 (in crore)	Key-in (number)	Mandatory	The number key appears and enter the released amount for financial year 2015-16 in crores.
11	Amount Utilized in FY 2015-16 (in crore)	Key-in (number)	Mandatory	The number key appears and enter the utilized amount for financial year 2015-16 in crores.

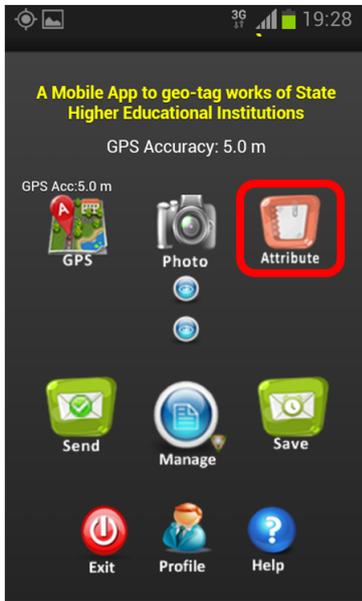
12	Amount Released in FY 2014-15 (in crore)	Key-in (number)	Optional	The number key appears and enter the released amount for financial year 2014-15 in crores.
13	Amount Utilized in FY 2014-15 (in crore)	Key-in (number)	Optional	The number key appears and enter the utilized amount for financial year 2014-15 in crores.
14	Amount Released in FY 2013-14 (in crore)	Key-in (number)	Optional	The number key appears and enter the released amount for financial year 2013-14 in crores.
15	Amount Utilized in FY 2013-14 (in crore)	Key-in (number)	Optional	The number key appears and enter the utilized amount for financial year 2013-14 in crores.
16	Any Other Information	Key-in	Optional	Enter any other information pertaining to the project.

## ***II Equipment***

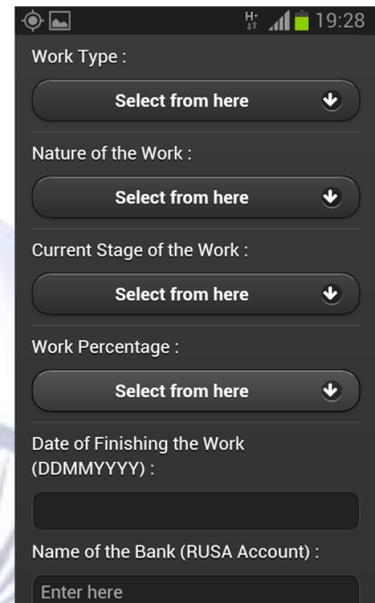
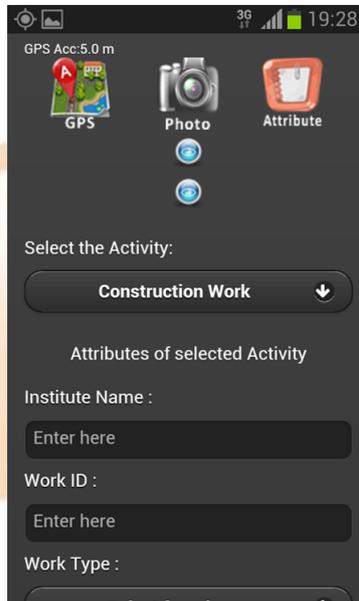
1	Institute Name	Key-in	Mandatory	Name of the institution
2	Work ID	Key-in	Mandatory	Work Code (Alfa-numeric text)
3	Work Type	Selection	Mandatory	1. New construction, 2. Up-gradation work
4	Nature of the Work	Selection	Mandatory	1. Sport 2. Books or Journals 3. Computers or IT resources 4. E-Resources 5. Others (Key-in text)
5	Current Stage of the Work	Selection	Mandatory	1. Tender Stage 2. Bid Evaluation Stage 3. Order Stage 4. Delivered
6	Work Percentage	Selection	Mandatory	1. Less than 25% 2. 25% - 50% 3. 50% - 75% 4. 75% - 100%

				5. 100%
7	Date of Finishing the Work. (DDMMYYYY)	Key-in (number)	Mandatory	The number key appears and enter the date in DDMMYYYY
8	Name of the Bank (RUSA Account)	Key-in	Mandatory	Name of the Bank like SBI, PNB, Canara Bank, etc
9	Bank Account Number (RUSA Account)	Key-in	Mandatory	The bank account number used for financial transactions
10	Amount Released in FY 2015-16 (in crore)	Key-in (number)	Mandatory	The number key appears and enter the released amount for financial year 2015-16 in crores.
11	Amount Utilized in FY 2015-16 (in crore)	Key-in (number)	Mandatory	The number key appears and enter the utilized amount for financial year 2015-16 in crores.
12	Amount Released in FY 2014-15 (in crore)	Key-in (number)	Optional	The number key appears and enter the released amount for financial year 2014-15 in crores.
13	Amount Utilized in FY 2014-15 (in crore)	Key-in (number)	Optional	The number key appears and enter the utilized amount for financial year 2014-15 in crores.
14	Amount Released in FY 2013-14 (in crore)	Key-in (number)	Optional	The number key appears and enter the released amount for financial year 2013-14 in crores.
15	Amount Utilized in FY 2013-14 (in crore)	Key-in (number)	Optional	The number key appears and enter the utilized amount for financial year 2013-14 in crores.
16	Any Other Information	Key-in	Optional	Enter any other information pertaining to the project.

**Click on Attribute icon to collect field observations**



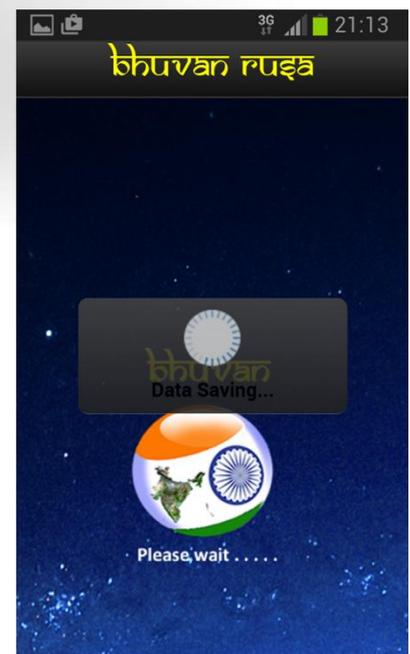
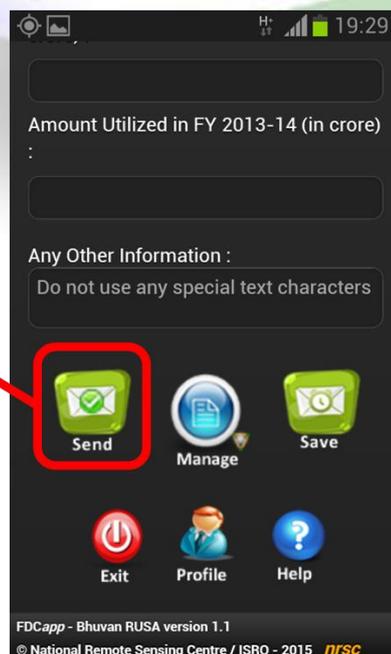
**Key-in for option to enter here and Select one option from drop down menu for select from here**

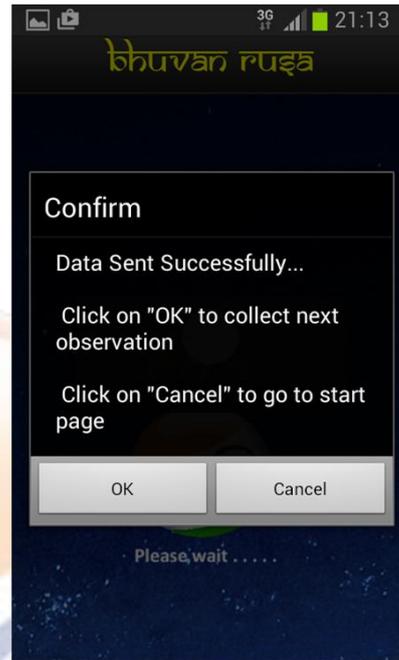
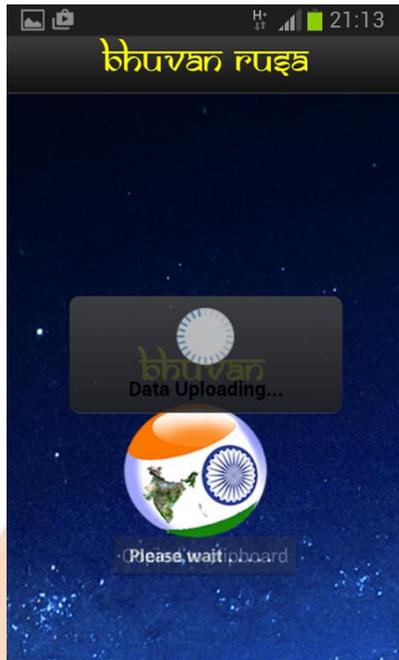


Step 5. Once the user is satisfied with the information collected and ready for uploading the information to Bhuvan RUSA server, user may tap the "Send" icon. This will upload all the information collected by the user. User is advised to ensure that mobile data is switched-on before tapping the "Send" icon. The User has to wait for confirmation message "Data sent successfully" appears 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**



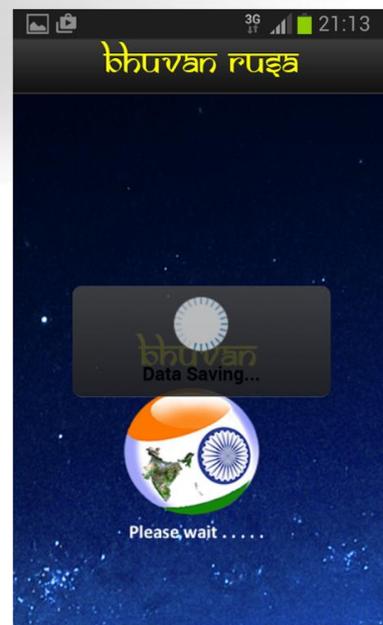
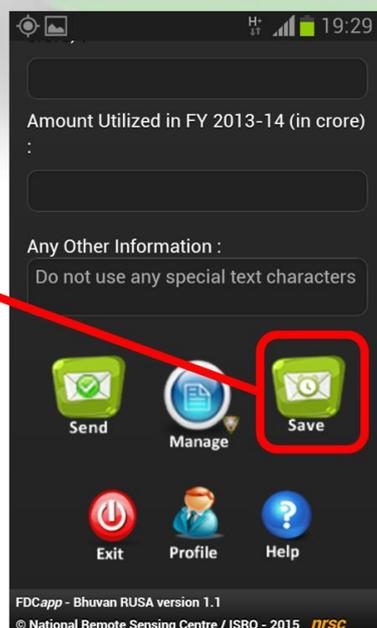


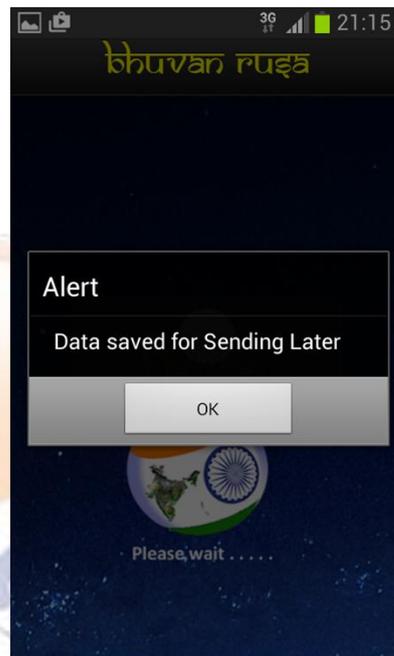
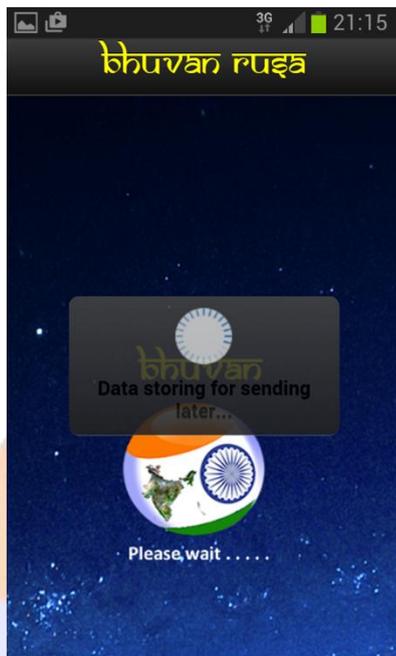
## 9 Save data for Sending Later

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 RUSA 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**





## 10 Managing your data

In order to upload the saved data to Bhuvan RUSA server, edit 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.



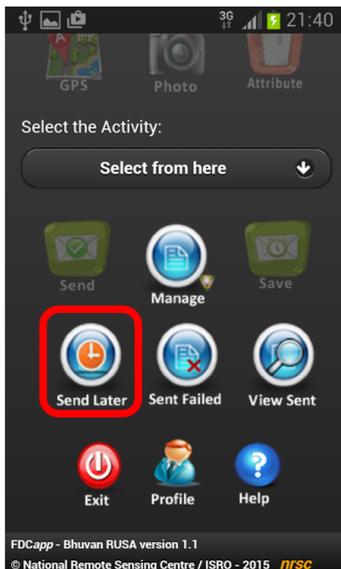
**These functions are to visualize – edit - delete saved data and view sent data in the mobile**



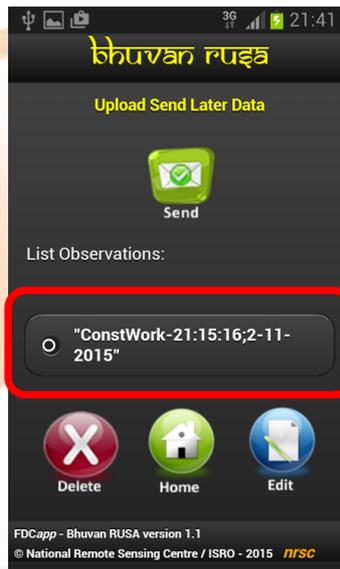
**Click on “Manage” icon for Set of three icons appear with additional functionalities**

## 10.1 Send Data from Send later

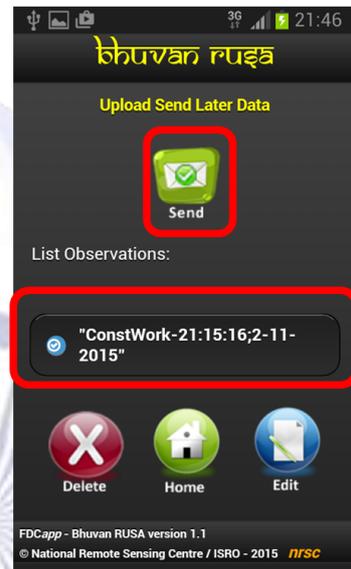
Tap "Send Later" icon. This will list the data collected and stored in the mobile. Select the data that needs to be uploaded and then tap "Send" icon to upload the data to Bhuvan RUSA server. Wait for confirmation message. The "Data sent successfully" message appears once the data is upload successfully.



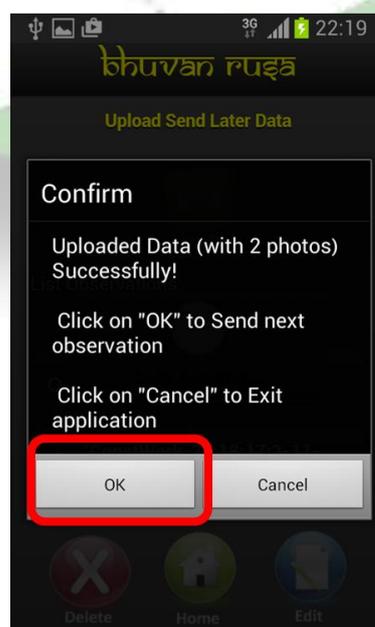
Click on "Send Later" icon



List of observations



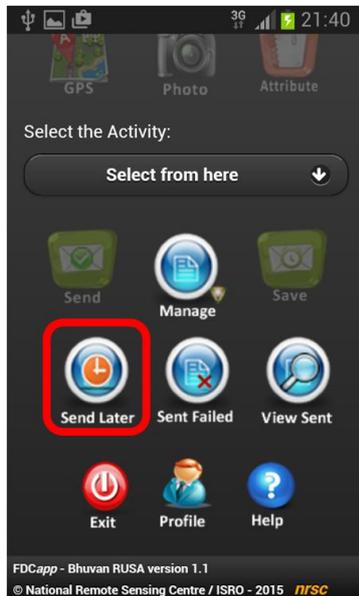
Select the observation and Click on "Send" icon to Send data to Bhuvan RUSA server



Once the collected data reaches the Bhuvan RUSA 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.



**Click on "Send Later" icon**



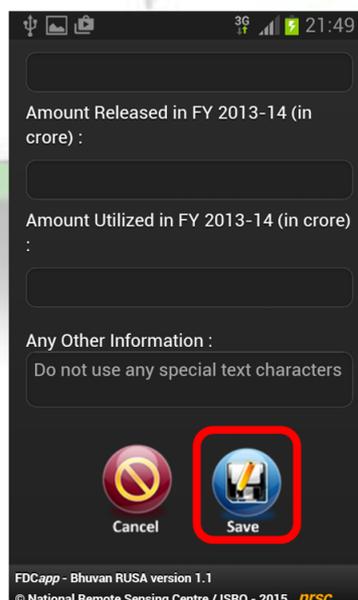
**List of observations**



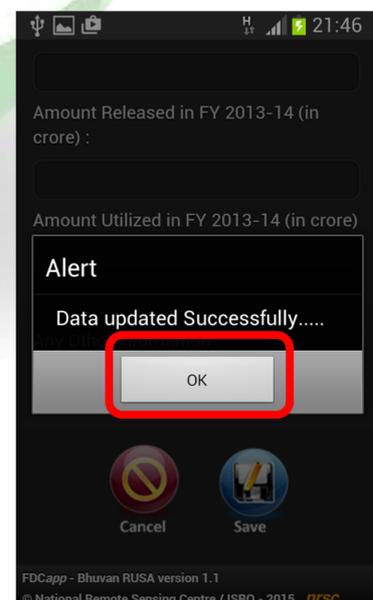
**Select the observation to edit and Click on "Edit" icon**



**Make changes in attribute value**



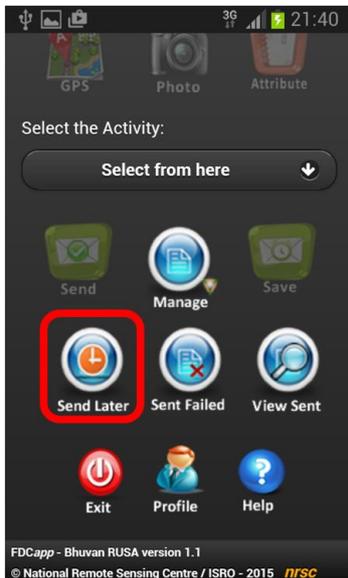
**Click on Save after changes**



**Click on "OK" to complete editing process**

### 10.3 Deletion of observation in Send later option

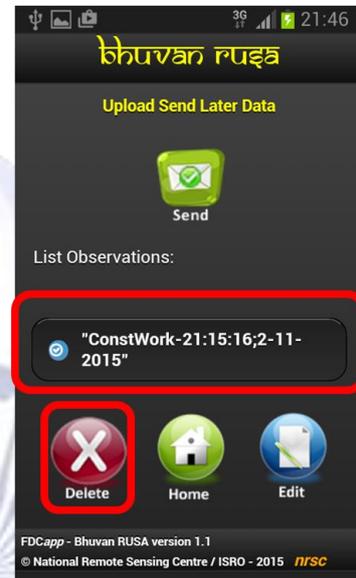
The app provides facility for the user to delete the data in Send Later option. The data once deleted cannot be retrieved back. The following are the steps to delete the data.



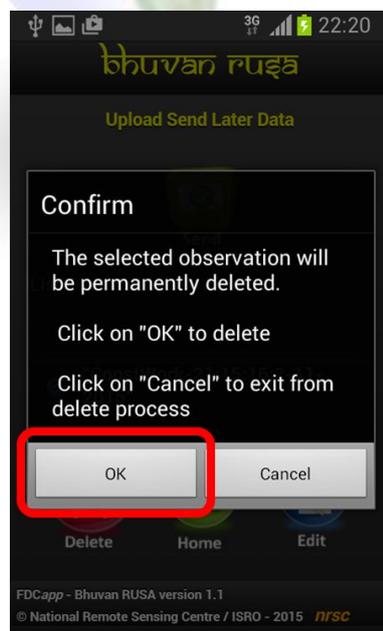
Click on "Send Later" icon



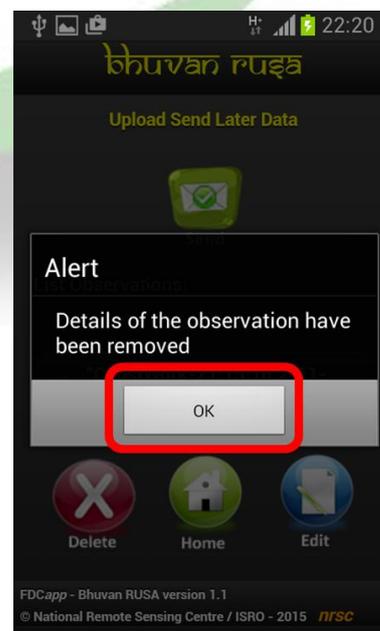
List of observations



Select the observation and Click on "Delete" icon to remove the collected observation from the mobile



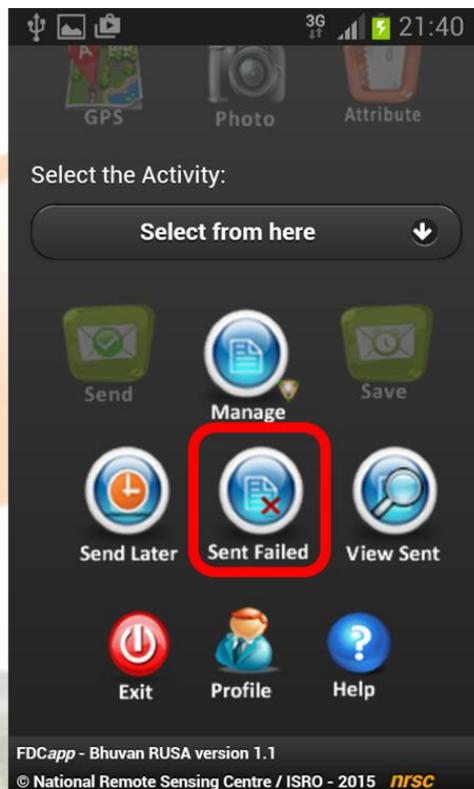
Click on "OK" icon to re-confirm deleting process



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 RUSA server.



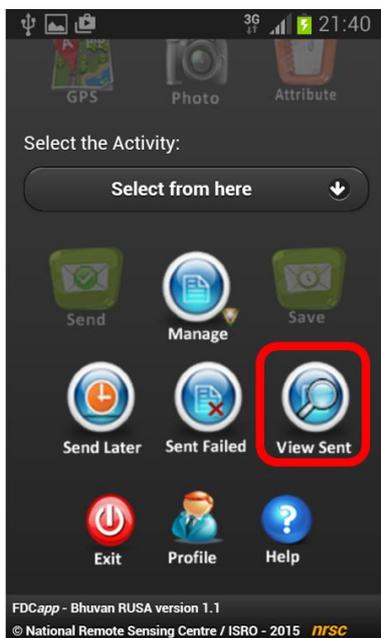
**Click on “Sent Failed” icon**

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 RUSA server.



Click on "View Sent" icon



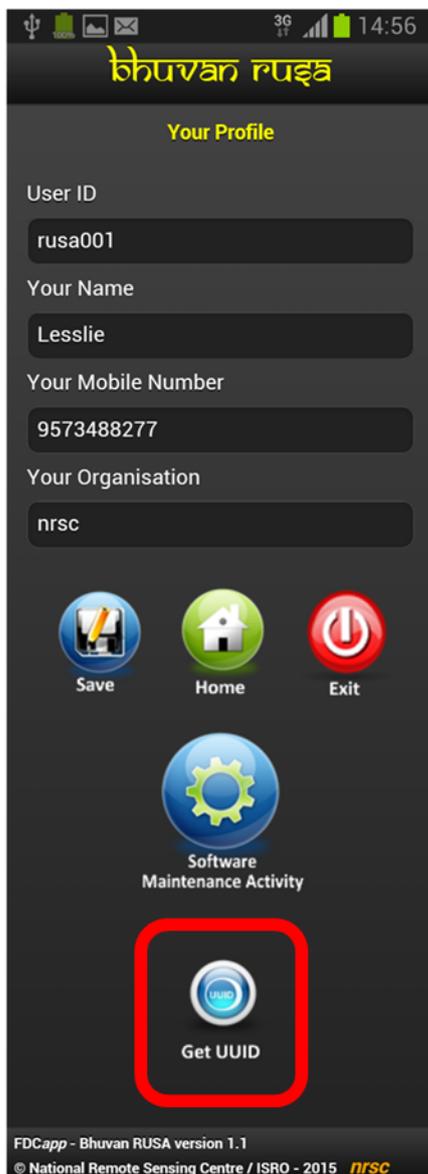
Select the observation and Click on "View Sent" icon



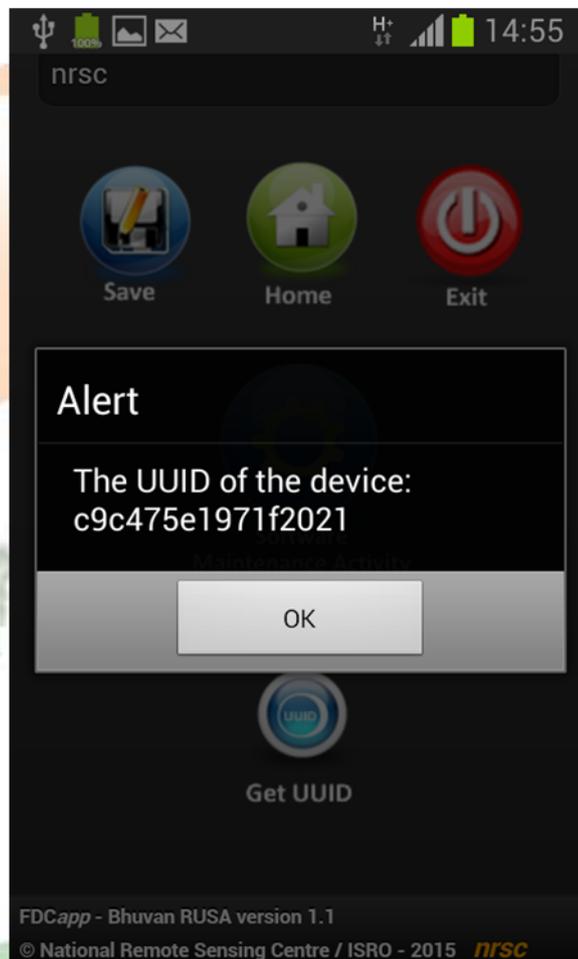
Visualize the details, scroll down the form and Click on "Close" icon

## 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.



**Click on "Get UUID" icon**

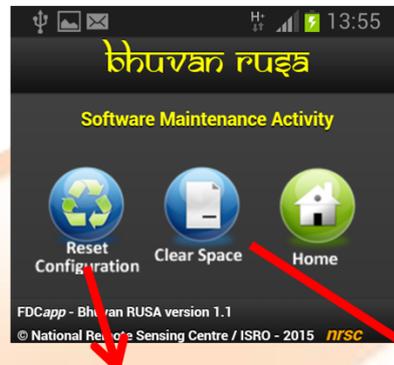
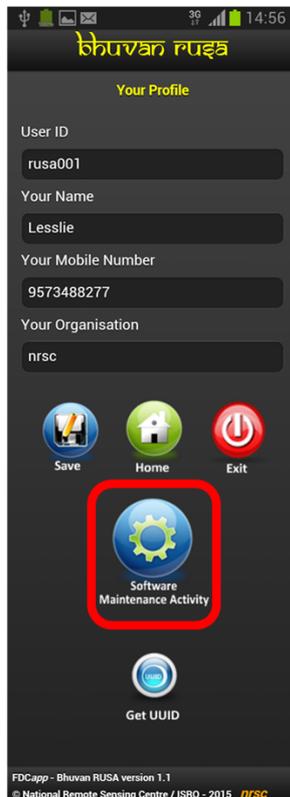


**An alert appears with UUID of the device.**

**Click on "OK" to close**

## 12 Software maintenance activity

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



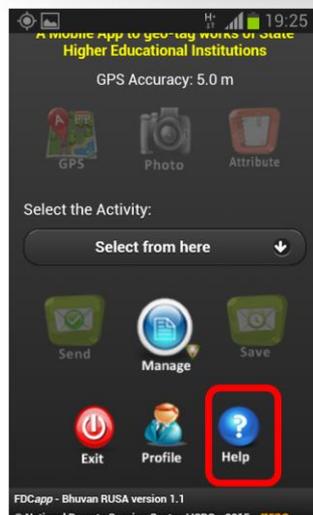
Click on "Reset Configuration" to reset attribute data GUI and your profile

Click on "Clear Space" to generate disk space by removing sent data from mobile

Click on "Software Maintenance" icon

## 13 Help in the mobile

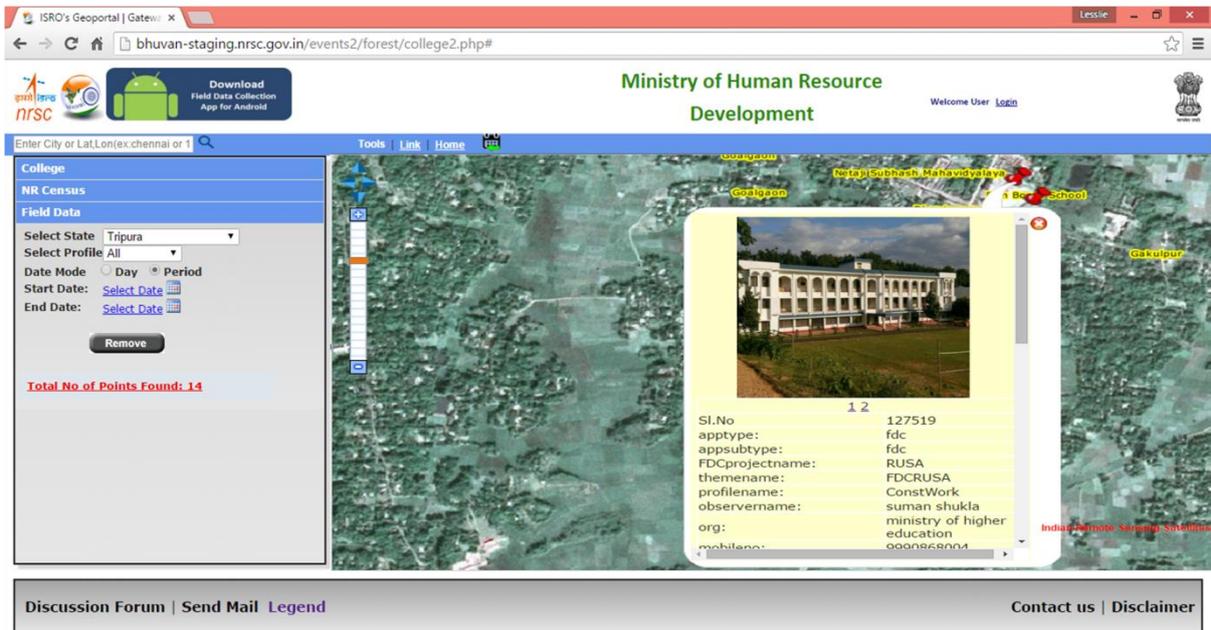
There is a help page in the mobile app which give salient features in the Bhuvan RUSA app.



Click on Help icon for salient features of the app

## 14 Visualization on Bhuvan geo-platform

The uploaded observations can be visualized on Bhuvan geo-platform over the satellite data and point of interest datasets. The moderated and accepted observations are only available on public domain.



The screenshot displays the Bhuvan geo-platform interface. The browser address bar shows the URL: `bhuvan-staging.nrsc.gov.in/events2/forest/college2.php#`. The page header includes the Ministry of Human Resource Development logo and a "Welcome User" login link. The main content area features a satellite map of a college campus. A data popup window is open over a specific point of interest, displaying the following details:

SI.No	127519
apptype:	fdc
appssubtype:	fdc
FDCprojectname:	RUSA
themenam:	FDCRUSA
profilenam:	ConstWork
observnam:	suman shukla
org:	ministry of higher education
mobilen:	999869004

The interface also includes a sidebar with search filters for "College", "NR Census", and "Field Data". The "Field Data" section shows "Select State: Tripura", "Select Profile: All", "Date Mode: Day", "Start Date: Select Date", and "End Date: Select Date". A "Remove" button is present below these filters. The total number of points found is displayed as "Total No. of Points Found: 14". At the bottom of the page, there are links for "Discussion Forum", "Send Mail", "Legend", "Contact us", and "Disclaimer".

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