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1. Introduction

The purpose of developing Geo Rurban Mobile App is to monitor physical progress of the works under SPMRM. This Mobile App can be used to update the physical status of the works running at clusters at regular interval. This app has the facility to capture geo tag enabled images of the works. With the help of this Mobile App, getting a real-time physical status of a work can be possible.

Geo Rurban Mobile App facilitates an authorised User in uploading the geo tagged images of the DPR works at the ground level through smart phone. Geo Rurban Mobile App is a tool to supplement details (work details along with photo related to the works) to GOI. GeoRurban App is designed to work without internet in case of photo capturing. User has to download concerned cluster works before capturing geo-tagged images for any work. This can be done by downloading master data of that particular cluster.

An authorized user can login on Geo Rurban Mobile App and capture multiple geo tagged embedded images under each stage (Initiated/Ongoing/Completed) of work and upload the activities related photographs. The captured images will consist of Longitude, Latitude and server capture time. The Maximum numbers of photos that can be taken for each work at each stage is 4 at a time.

Cluster should be DPR approved cluster. After choosing a cluster, a list of works (works for which photos are captured) will appear. For each work, user can upload the captured images. Sync Data Module has been provided in the app which will help the user to upload captured images when the user receives internet connectivity. The user need to ON the Mobile data/ Wi Fi while uploading the images.

The details will be stored with the purpose to use the data in future for evaluating the physical progress of cluster development work. The uploaded images will be visible under Geo Tagged module in Rurbansoft portal. Rurbansoft authorized user can inspect the images.

Following modules are available in the Mobile App:

1. Login Module
2. Geo Tag Image Capturing
3. Sync Images
4. Sync Master Data
5. Report and Dashboard

Only Government Officials/authorized users can login on this mobile app. No different user id and password will be required for login into the Mobile App, User can use the same ID and Password as they use in the web version. Four types of users can contribute in Geo Rurban Mobile App.

i. Ministry User: Ministry Administrator and Program Division.

ii. State Level: SNA (State Nodal Agency):
iii. District Level: DLNA (District Level Nodal Agency)
iv. Cluster Level: CLNA (Cluster Level Nodal Agency)

Login credentials will be provided to all the users involved in implementation of SPMRM.

1. Essential Condition for Smart Phone
   i) Android version 6.0 and above supported: This application supports all those Android Operating System based mobile devices which have Android version 6.0 and above with GPS functionality.
   ii) GPS functionality: To capture the Latitude & Longitude you must make sure that the ‘GPS’/‘Location’ is turned on.
   iii) Internet Connection is required
   iv) Valid User Id and Password (Provided by the concerned office). The username and password will be authenticated by the App and after authenticating, the user will get logged in to Geo Rurban App.

Prerequisites
Please use an android device as per below mentioned minimum specifications:

<table>
<thead>
<tr>
<th>ITEM</th>
<th>MINIMUM SPECIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor</td>
<td>Minimum 1.2 Ghz Dual Core or above</td>
</tr>
<tr>
<td>SIM</td>
<td>Single/Dual SIM</td>
</tr>
<tr>
<td>Operating System</td>
<td>Recommended: Android 6.0 and above</td>
</tr>
<tr>
<td></td>
<td>Supported: Android 6.0</td>
</tr>
<tr>
<td>RAM</td>
<td>Minimum 2 GB RAM and above</td>
</tr>
<tr>
<td>Internal Storage</td>
<td>Recommended: 4GB ~ 8 GB</td>
</tr>
<tr>
<td></td>
<td>Supported: 4 GB</td>
</tr>
<tr>
<td>Additional SD Memory Card for storage</td>
<td>Recommended: 32 GB (for photos)</td>
</tr>
<tr>
<td></td>
<td>Supported: 8GB ~ 32 GB</td>
</tr>
<tr>
<td>Primary Camera</td>
<td>Recommended: 5 mega pixels</td>
</tr>
<tr>
<td></td>
<td>Supported: 5 Megapixel and above</td>
</tr>
<tr>
<td>GPS</td>
<td>With GPS support</td>
</tr>
<tr>
<td>Battery Type</td>
<td>Min 2000mAh</td>
</tr>
</tbody>
</table>

Permissions required during Installation for the Mobile App:
1. Location Permission
2. Camera Permission
3. Storage Permission

How to install Geo Rurban App
a. Go to Google Play Store/eGov App store by using the Internet on your mobile phone.
b. Search for the Geo Rurban App.
c. Click on the link Install and then follow the onscreen instructions to download and install Geo Rurban App.
d. Once the installation gets completed, you can use the application.
2. **Start/Open the Application**

To Start/Open the Geo Rurban mobile application, follow the steps given below:

a. Tap on Geo Rurban icon in application menu as shown below.

![Application icon](image1.png)

b. The application starts/opens with the introductory image (as shown below) which is displayed for few seconds.

![Introductory image](image2.png)

c. A login page will appear on the screen which contains two text boxes “User Name” and “Password”.

![Login page](image3.png)
3. **Login**

No different user id and password will be required for login into the Mobile App. User can use the same ID and Password as they use in the web version. An authorized user can use the Geo Rurban App by following the steps given below:

**A.** Two text boxes have been provided on the login screen for entering “User name” and “Password”. The user has to enter the user name and then password in these text boxes.

**B.** After entering the User name and Password, the user has to click the button ‘LOG IN’.

**C.** If the User name and Password are correct then the user will get logged in on the app.
**Ministry User**

Ministry level users (Ministry Administrator and Program Division) can login on the mobile app by using their Login credentials. User can use the same ID and Password as they use in the web version;

1. The user has to enter the user name and the password and click the button ‘LOG IN’ in the Login page of the mobile app.
2. If the user name and password are correct then following screen will appear with two fields; **State** and **Cluster** and two buttons; ‘DOWNLOAD MASTER DATA’, ‘SKIP’.

![Login page screenshot]

**D.** The user has to select the State and Cluster from the drop down lists provided under the fields **State** and **Cluster** and click on the button ‘DOWNLOAD MASTER DATA’ to download the Master data or click the button ‘SKIP’ to skip this step. On clicking the button ‘DOWNLOAD MASTER DATA’, the following screen will appear showing the current status of Master Data. The graphical representation of Master Data shows the pending, approved, submitted ICAPS, DPR and Works status as started, in progress, and completed. Without downloading master data user cannot take picture of the works. Since the app is developed to work in offline mode, downloading the master data is mandatory. Here master data is downloaded cluster wise.
The user can click on the Menu button to open the dash board as shown in the following figure.

E. The dash board has the following list of options;
   i. **Home**: On clicking this option the screen showing the Master data will appear as shown below.
ii. **Cluster Profile:** On clicking this option, the following screen will appear and the user has to select the **State** and **Cluster**.

After selecting the values for **State** and **Cluster**, the details of the status of the work of the selected cluster will be displayed as shown in the following figure;
iii. **Capture Photo**: The user can capture photo of the work. On clicking this option, the following screen will appear and the user has to select the *State* and *Cluster*.

After selecting the *State* and *Cluster*, a screen as shown below with the buttons; ‘WORK DETAILS’ and ‘CAPTURE PHOTO’ will appear.
a. The user can click the button ‘WORK DETAILS’ to open the existing photos of the status of the work.

b. The user can click the button ‘CAPTURE PHOTO’ to capture the photo of the current status of the work. On clicking the button ‘CAPTURE PHOTO’, the following screen will appear;

c. The user can select the Work Stage (Initiated/Ongoing/Completed) from the drop down list given for the field **WORK STAGE**.

d. After that, the user can click the button ‘OPEN CAMERA’ to open the camera of the mobile phone to capture the photo of the selected stage of work. When user clicks on the CAPTURE PHOTO option, a list of clusters (clusters for which DPR is approved) for their respective locations will appear. When choosing a cluster, a list of DPR works will be available for capturing images. For each work, user has to visit the site
where the work progress is going on and can take pictures of that work. The Location feature of the mobile should be ON when capturing the images. It is necessary so that the longitude, latitude and server capture time can be traced at that location where the work is going on. With the help of this app user will be able to capture images of the physical progress of the work along with long/lat and capture time data. Maximum 4 numbers of photos can be taken for each work at each stage. Normally there are three stages of work progress: INITIATED, ONGOING and COMPLETED. For each stage user have to capture images and should upload them separately. The captured images will be stored in the phone storage first. The photo will be captured with the longitude and latitude details of the location. The user can click the button ‘SAVE TO SD CARD’ to save the photo in the SD card. The photo will get saved only if the coordinates are right but if the coordinates don’t match with the selected location of the work then a message “Location Coordinate Wrong” will appear on the screen.

iv. **Sync Data:** The user can click this option to sync the data. The user has to select the **State** and **Cluster**

The user can sync the data that has to be uploaded. After selecting the **State** and Cluster, A screen with buttons; ‘VIEW’ and ‘UPLOAD’ will appear. The user can view or upload the images stored with the work code.
v. **Work Details:** The user can get the work details of the selected cluster location by using this option provided in the menu. On selecting and clicking this option, the following screen with fields *State* and *Cluster* will appear.

The user can select the *State* and *Cluster* from the drop down lists. The work details of the selected cluster location will appear.
vi. **Sync Master Data**: The user can sync the master data by using this option. In this module, Works and GPs related to works will be downloaded into the mobile so that app can be used without internet connectivity. The user has to click the option **Sync Master Data** provided in the menu. The following screen with the fields **State** and **Cluster** will appear.

The user has to select the **State** and the **Cluster** and click the button ‘DOWNLOAD MASTER DATA’. On clicking the button ‘DOWNLOAD MASTER DATA’, a message “Data sync successfully” will get displayed on the screen.
vii. **Contact Us:** The user can click on this option to open the screen which contains the details of address and contact numbers of concerned division of the Ministry of Rural Development.

viii. **Log Out:** The user can click on this option to log out the application. On clicking this option, a screen a message “Are you sure to Logout?” with buttons; ‘Yes’ and ‘No’ will appear. The user can select the button ‘Yes’ and click it to log out or click the button ‘No’ to keep logged in on the mobile app.
**SNA User**

State Nodal Agency (State level) users can login on the mobile app by using their Login credentials. User can use the same ID and Password as they use in the web version;

1. The user has to enter the user name and the password and click the button ‘LOG IN’ in the Login page of the mobile app.
2. If the user name and password are correct then following screen will appear with field; **Cluster (Select your Cluster)** and two buttons; ‘DOWNLOAD MASTER DATA’, ‘SKIP’.

   ![Cluster selection](image)

A. The user has to select the Cluster from the drop down list provided under the field **Cluster** and click on the button ‘DOWNLOAD MASTER DATA’ to download the Master data or click the button ‘SKIP’ to skip this step if data already downloaded. On clicking the button ‘DOWNLOAD MASTER DATA’, the following screen will appear showing the current status of Master Data. The graphical representation of Master Data shows the pending, approved, submitted ICAPS, DPR and Works status as started, in progress, and completed.
The user can click on the Menu button to open the dashboard as shown in the following figure.

B. The dashboard has the following list of options:
   i. **Home**: On clicking this option, a screen showing the Master data will appear as shown below.
ii. **Cluster Profile**: On clicking this option, the following screen will appear and the user has to select the **Cluster**.

After selecting the value for **Cluster**, the details of the status of the work of the selected cluster will be displayed as shown in the following figure;
iii. **Capture Photo**: The user can capture the photo of the work by using this option. On clicking this option, the following screen will appear and the user has to select the **Cluster**.

After selecting the **Cluster**, a screen as shown below with the buttons; ‘WORK DETAILS’ and ‘CAPTURE PHOTO’ will appear.
a. The user can click the button ‘WORK DETAILS’ to open the existing photos of the status of the work.

b. The user can click the button ‘CAPTURE PHOTO’ to capture the photo of the current status of the work. On clicking the button ‘CAPTURE PHOTO’, the following screen will appear;

c. The user can select the Work Stage (Initiated/Ongoing/Completed) from the drop down list given for the field WORK STAGE.

d. After that, the user can click the button ‘OPEN CAMERA‘ to open the camera of the mobile phone to capture the photo of the selected stage of work. When user clicks on the CAPTURE PHOTO option, a list of clusters (clusters for which DPR is approved) for their respective locations will appear. When choosing a cluster, a list of DPR
works will be available for capturing images. For each work, user has to visit the site where the work progress is going on and can take pictures of that work. The Location feature of the mobile should be ON when capturing the images. It is necessary so that the longitude, latitude and server capture time can be traced at that location where the work is going on. With the help of this app user can capture images of the physical progress of the work along with long/lat and capture time data. Maximum four photos can be taken for each work at each stage. Normally there are three stages of work progress: INITIATED, ONGOING and COMPLETED. For each stage user have to capture images and should upload them separately. The captured images will be stored in the phone storage first. The photo will be captured with the longitude and latitude details of the location. The user can click the button ‘SAVE TO SD CARD’ to save the photo in the SD card. The photo will get saved only if the coordinates are right but if the coordinates don’t match with the selected location of the work then a message “Location Coordinate Wrong” will appear on the screen.

iv. **Sync Data:** The user can click this option to sync the data. The user has to select the **Cluster**
The user can sync the data that has to be uploaded.

After selecting the Cluster, a screen with buttons ‘VIEW’ and ‘UPLOAD’ will appear. The user can view or upload the images stored with the work code.
v. **Work Details:** The user can get the work details of the selected cluster location by using this option provided in the menu. On clicking this option, the following screen with field **Cluster** and a button labelled as ‘Get Works’ will appear.

The user can select the **Cluster**. After that on clicking the button ‘Get Works’, the work details of the selected cluster location will appear.
vi. **Sync Master Data:** The user can sync the master data by using this option. The user has to click the option **Sync Master Data** provided in the menu. The following screen with the field **Cluster** and a button labelled as ‘DOWNLOAD MASTER DATA’ will appear.

The user has to select the Cluster and click the button ‘DOWNLOAD MASTER DATA’. On clicking the button ‘DOWNLOAD MASTER DATA’, a message “Data sync successfully” will get displayed on the screen.
vii. **Contact Us:** The user can click on this option to open the screen which contains the details of address and contact numbers of concerned division of the Ministry of Rural Development.

viii. **Log Out:** The user can click on this option to log out the application. On clicking this option, a screen a message “Are you sure to Logout?” with buttons; ‘Yes’ and ‘No’ will appear. The user can select the button ‘Yes’ and click it to log out or click the button ‘No’ to keep logged in on the mobile app.