Empowering Development through Data-driven Innovation and Information Technology Solutions

Building Information Collection Mobile App User Manual

Integrated Municipal Information System (IMIS)

Innovative Solution Pvt. Ltd (ISPL)

Building Information Collection Mobile App User Manual

Version 1.0.0

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Chapter 1 INTRODUCTION

1.1 Purpose

This document is designed to guide municipal staff members on the functionalities of the Building Information Collection Mobile App of Base IMIS that is used for collecting building footprints of newly constructed or identified missing buildings. It details the step-by-step procedure of all the functionalities within the app. The app serves as a mobile tool to aid the Municipality in digitizing, maintaining, and updating the municipality's building database. The collected building data from this app goes through a further verification process via the Web application of Base IMIS. This process also includes adding necessary attribute data to create and maintain a complete dataset of buildings. While approving the new building through the web-GIS interface, the centroid of the collected building footprint serves as the geographical location of the containment. This app works hand in hand with the web application, functioning as a complementary tool to enhance its capabilities.

1.2 Targeted User(s)

The targeted users of this manual are the municipal staff members.

1.3 App Installation

An APK file will be made available in a common access location or shared via a link that can be downloaded and installed on your device.

1.4 Installation Procedure

- Download the APK file on your device and go to the **'Downloads'** folder using the **'File Manager'**.

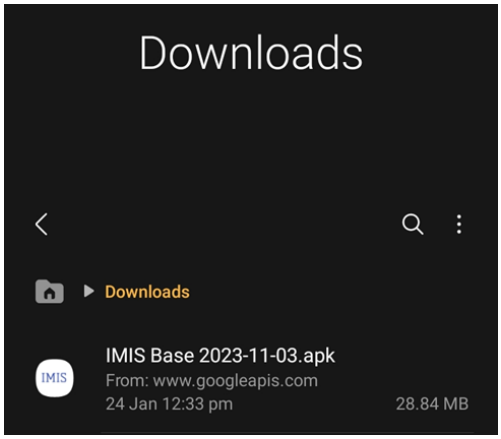

Figure 1-1 APK file

- Locate the corresponding **.apk** file and tap on it. The installation process will begin.
- Tap on 'INSTALL'. An "Installing…" progress bar will be displayed.

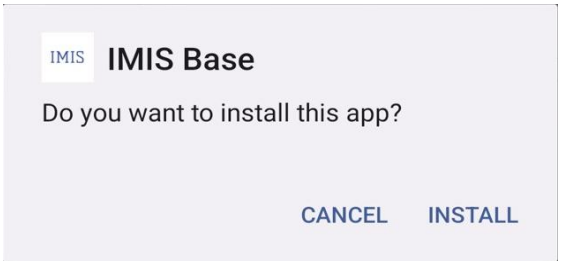

Figure 1-2 Installation process

- Tap on the 'Open' after the installation process is completed.

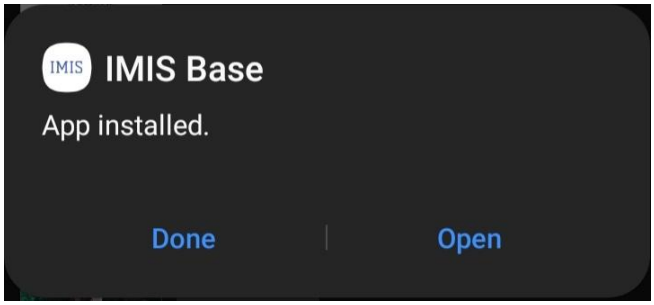

Figure 1-3

Overview:

- The installed app can also be accessed from the App drawer or Launcher.

Chapter 2 : LOGIN

2.1 Opening the app

- On opening the app for the first time, the user is asked for their login credentials.
- Enter the email address and password provided in the textbox.
- Tap on **'LOG IN'**.

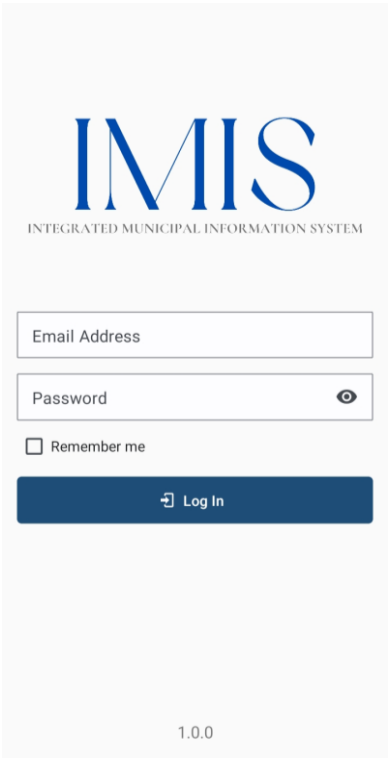

Figure 2-1 Login

Overview:

- This login credential is created and provided by the Municipality Admin to the Engineering and Building Permit Department.
- The app retains the login information until the user's session becomes inactive or expires.

- It is to be noted that GPS needs to be turned on while using the mobile application. When the user is using the app for the first time, the user must provide location permission to the app.
- Once successful login, the user is redirected to the Dashboard screen.

Chapter 3 DASHBOARD

3.1 Navigate to Dashboard

- After successful login, a dashboard page is displayed.
- The user can select the '**Building Map**' option to collect new/missing building footprints.
- The user can select '**Buildings Data**' to review, and upload the collected building footprint on IMIS.
- Tap on the three dots at the top right corner to **Log Out**.

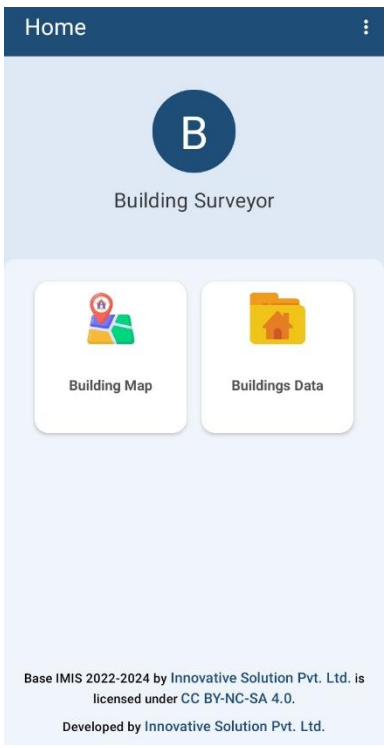

Figure 3-1 Dashboard

Overview

- Once the user is logged in, it redirects to the dashboard page where the user has two choices: the user can either collect building data or upload building data.
- The app provides offline data collection features, allowing users to store data locally on their devices and upload it to the server once they are online. However, an internet connection is required to load the map and other layer features. Therefore, it is recommended to pre-load all map features for the area if an internet connection is not available in the field.
- Once the data is uploaded successfully, it won't be visible on the user's device.

Chapter 4 COLLECTING BUILDING INFORMATION

4.1 Building Map

4.1.1 Navigate to the Building Map

- Select the '**Building Map'** option on the dashboard.
- Once tapped, a map interface is displayed.

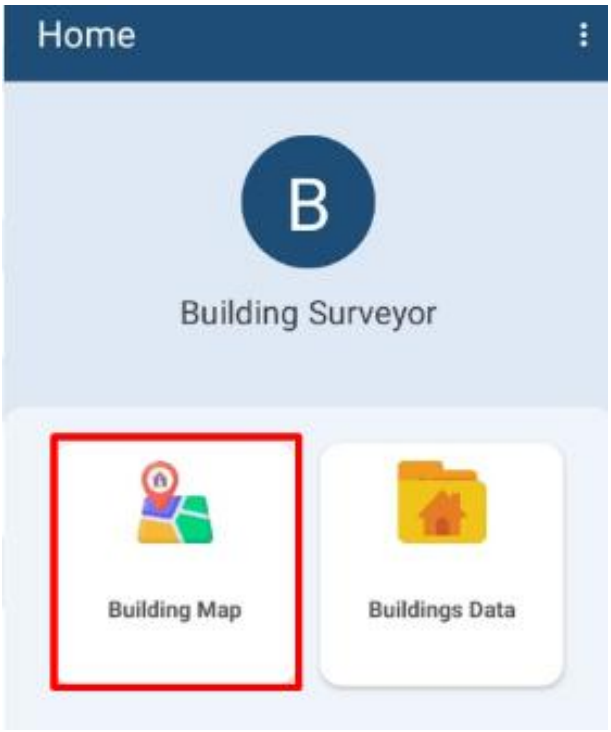

Figure 4-1 Building Map

Overview:

- The **Building Map** option displays the map interface where the user can collect the building footprint by placing markers on the map.

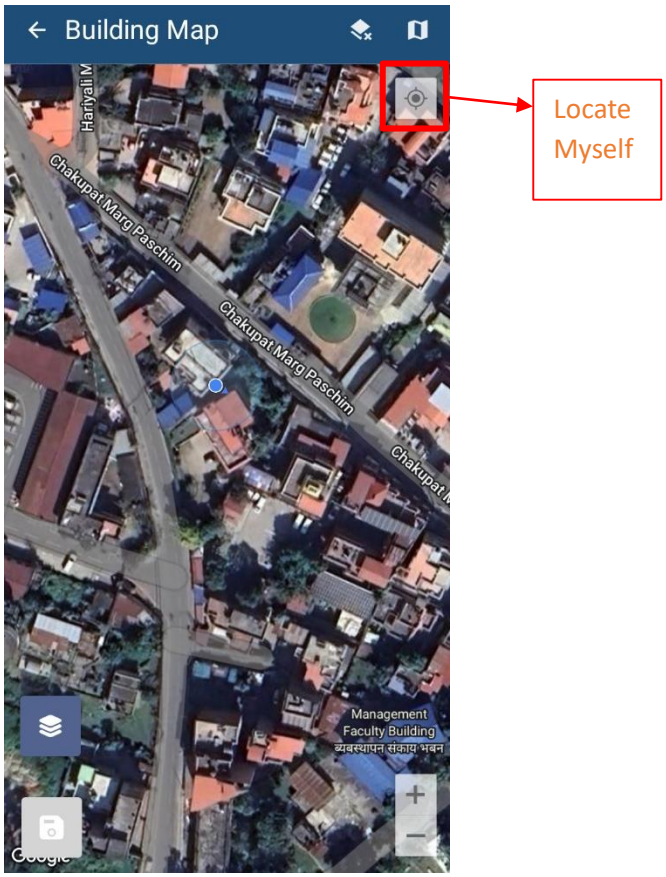

Figure 4-2 Map Interface

- When a building's outline is already identifiable on satellite data, which is often the case for pre-existing buildings, users have the option to trace the building's corners without needing to visit the site physically. However, it is generally advised to conduct a site visit for data collection purposes.
- When the Building Data option is selected, the user's location is automatically displayed on the map. They can also tap on the "**Locate Myself**" icon to pinpoint their exact location.
- The users may need to manually adjust the map by dragging it to align with the specific location where they wish to collect building data.

- When there is no building footprint on the satellite data (usually when the building has been constructed recently), the user must physically visit the site and trace corner points of buildings.
- In this case, the user needs to go to each corner of the building and start collecting corners of the building by tapping on the map.

Tools:

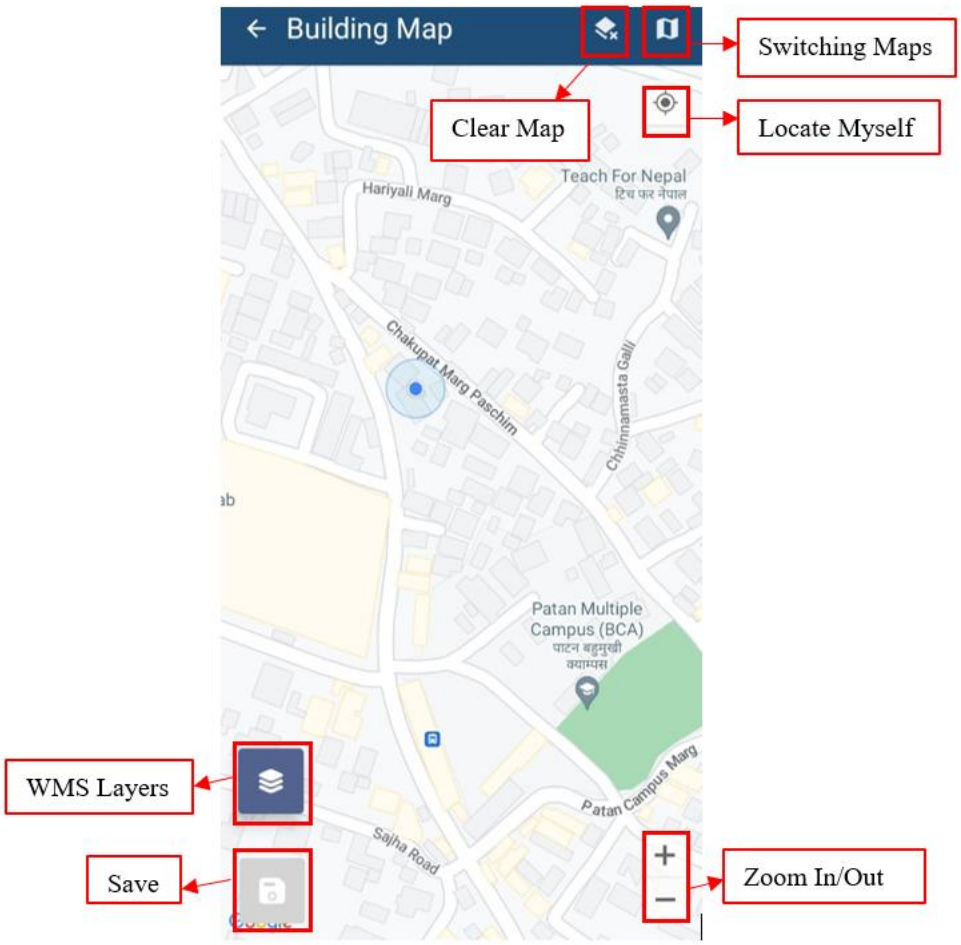

Figure 4-3 Building Map

- **Clear Map**: Tap to remove the added marker.
- **Switching Maps**: Tap to toggle among various Google base maps e.g., Street and Satellite.
- **Locate Myself**: Tap to locate the current position of the user.
- **Zoom In/Out**: Tap to zoom in and out of the map.

- **WMS Layers**: Tap to get WMS Layers of the map. The WMS Layers is a dynamic tool that draws an overlay on the Map. It can display the different layers of data such as Building Data, Road Data, and Ward data. This functionality allows the user to view digitized data stored in the database. When the user taps on the '**WMS Layers'**, a pop-up appears prompting them to select the desired layers. Once selected, the corresponding data layers are highlighted on the map.

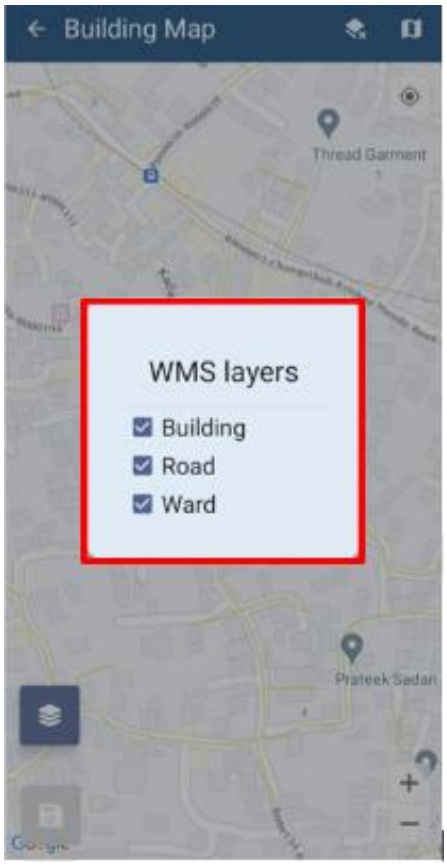

Figure 4-4 WMS Layer Toggle

- **Save**: Tap the '**save'** icon to store the added markers.

4.1.2 Building Data Collection

- Once the map is visible, tap the '**Locate Myself' button** to find the user's exact location. If the user's location point (blue marker) is not accurate on the map, then ensure one of the points is accurately placed by referencing yourself with the nearby roads and buildings displayed by the Google Maps and WMS layer. Tap at different positions on the map to create an approximate outline

of the building using the distance information shown between markers. If the user's location is accurately displayed on the map, the user can walk to the edges of the building's plinth, follow the blue marker indicating the current location, and place the markers accordingly.

- The user can also turn the WMS layer on to view the pre-existing buildings.
- If the user wants to delete one of the already placed markers, tap on the marker to delete it.

Figure 4-5 Save Button on Map

- The distance between each pair of markers is displayed between the two points. The distance between the first and second markers is 11 meters. The distance between the second and third markers is 6 meters. The distance between the third and fourth markers is 11 meters, and the distance between the fourth and first markers is 6 meters, as indicated between each pair of markers. The user can tap the points and drag them to adjust the marker line or points.

- Once the user is satisfied with the generated outline, click the '**Save**' button to accept collected building information. Tap on **'Next'** to proceed.
- The user is prompted with a dialogue box requesting the Temporary Building Code and Tax Code of the building. Fill in the data and tap on '**SAVE**'. Then after, markers in the map are cleared.

Figure 4-6 Building data collection with site visit

Overview:

- Physically visiting the site is recommended. Go around the building to get a rough idea about the orientation and length of the building - Stay at a corner of the building with a clear and unobstructed view of a large portion of the sky. Nearby buildings and trees can prevent GPS signals from the satellites from reaching the receiver. GPS receivers on phones need some time to first acquire signals from satellites, therefore allow a couple of minutes to acquire signals from satellites.
- Crossed Polygons are not accepted such as X-shaped polygons and polygons should not overlap with existing polygons or be on the top of the road layers. Additionally, ensure that opposite sides of the building are as parallel to one another as possible.

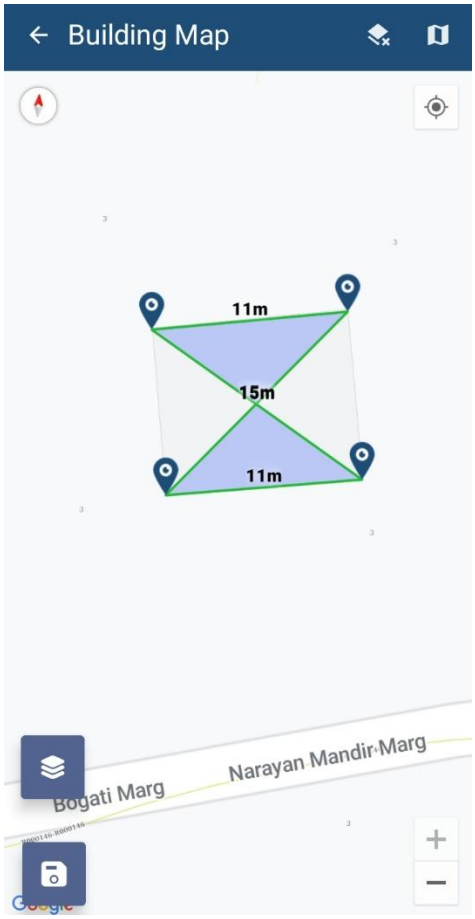

Figure 4-7 Photo displaying the crossed polygon marker

Chapter 5 UPLOADING BUILDING INFORMATION

5.1 Navigate to Building Data

- Tap on the **'Building Data'**, all the building data collected are displayed in a list.

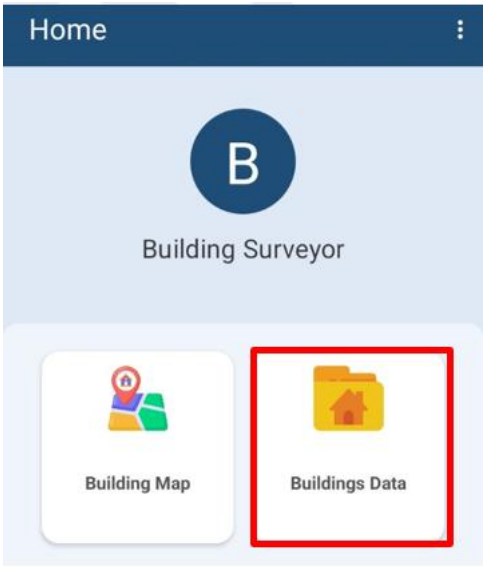

Figure 5-1 Buildings Data

Overview:

- Building data collected by the user is stored on the local device memory. Once the user has access to the internet, the user can transfer the data to IMIS.

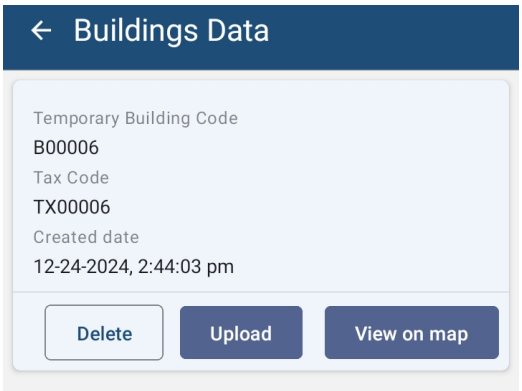

Figure 5-2 Building Data List

- Notice that the Temporary Building Code and Tax Code of the building are appended to the file name of the building data.

Tools:

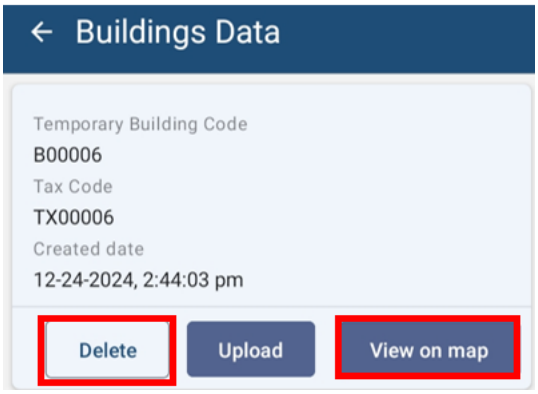

Figure 5-3 Building Data Tools

- **Delete**: The user can delete the recorded data by tapping on **'DELETE'**. A message box will appear, to confirm the deletion.
- **View on Map**: The user can also view the outline of the building on the map. The building footprint is displayed on the map.

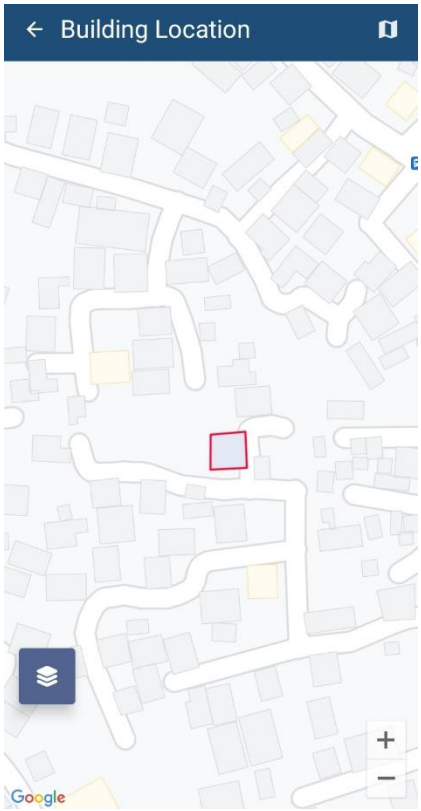

Figure 5-4 View Building on Map

5.2 Uploading Building Data

- For uploading building data to IMIS, tap **'UPLOAD'**.

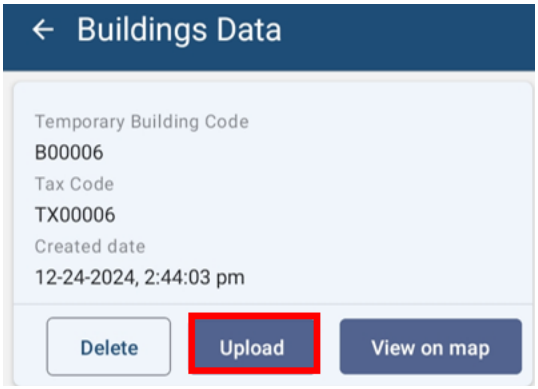

Figure 5-5 Building Data Upload

- Once the data has been uploaded to IMIS, a message box will appear. Press **OK** to exit.

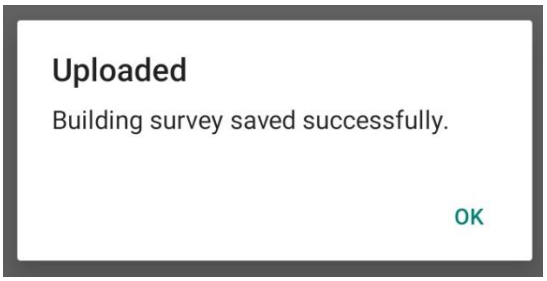

Figure 5-6 Upload Confirmation Box

Overview:

- Once the data has been uploaded, stored data on the local device memory will be removed.

Note:

- If the user tends to upload the Building data in which it has the intersected polygon, then the system will notify with a message as:

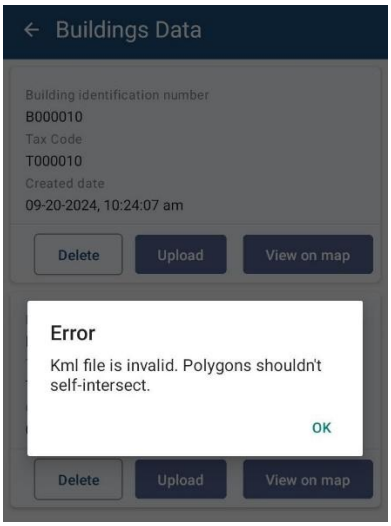

Figure 5-7 Validation Message of intersected polygon

- The user has to delete the intersect polygon data and again collect a new data of the Building polygon by placing each marker on the edge of the building's plinth and upload the data.

Chapter 6 MISCELLANEOUS (PERMISSIONS)

Overview:

- When the user is using the APP for the first time, the user must provide location permission and Photo media access to the app.
- Allow IMIS Base to access this device's location requested by the App by clicking **'WHILE USING THE APP'**.
- Allow IMIS Bases to access photos and media on your device, the user should click **'ALLOW'** to grant access to the photos and media.
- The user is also prompted to always turn on location services while using the mobile application.

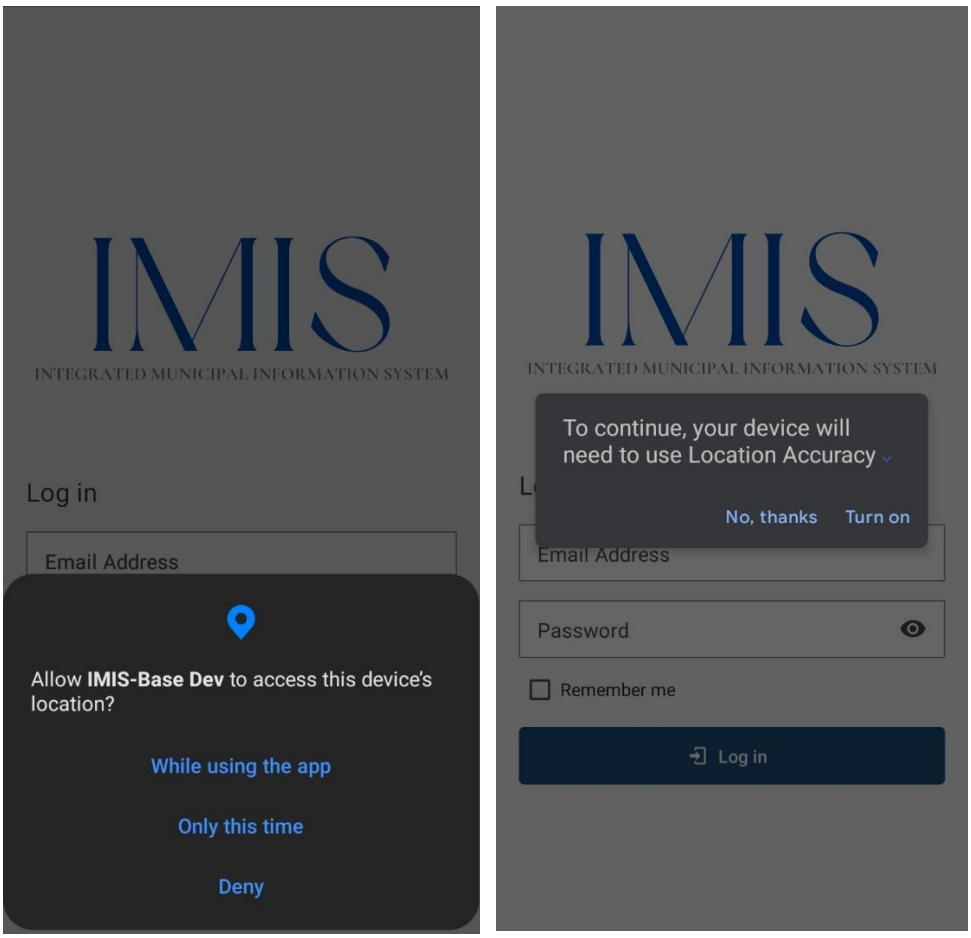

Figure 6-1 Location

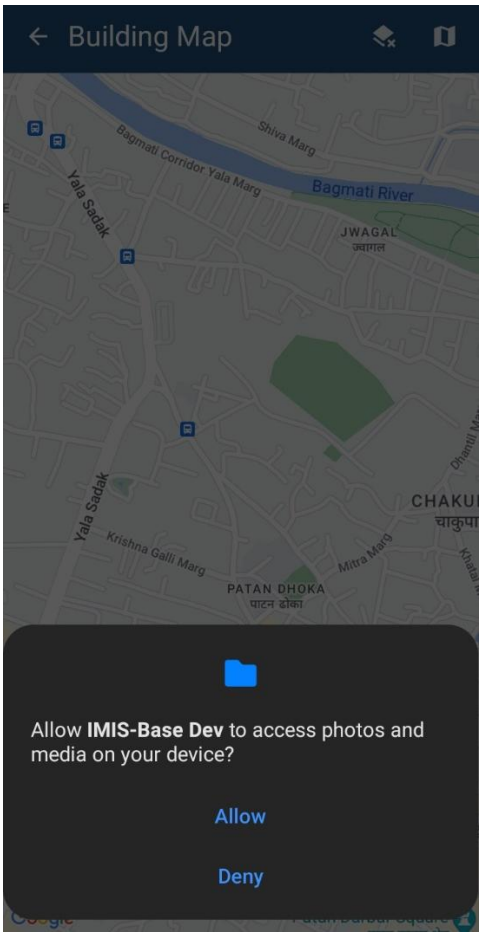

Figure 6-2 Photo, and media access