



National Spatial Data Infrastructure Research Program

Development of open source processing technology for
Application of spatial information SW

GeoCMS User Manual



GeoCMS manual	Project classification	Land Spatial Information Research Project
	Project Name	GeoCMS

1.1. Business overview

Internationally, the importance of utilizing spatial information is increasing, but the spatial information infrastructure including open source software based on domestic is weak, and the level of practical application of related technology is still low, so it relies on foreign software.

Accordingly, we developed an open source based system for generating and managing new and user-space-based new media space information contents on the web and mobile, gained import substitution effect of foreign-based software, improved technology self-reliance, The goal is to do.

1.2. Business background and necessity

In recent years, services such as Instagram, Vine, and YouTube have emerged as a result of increasing demand for services for various new media space information collected through mobile terminals and for linking with external systems. However, this is a simple media management / service technology, Technology for combined service with information service is very limited.

To solve this problem, it is necessary to provide services for efficient management and service of new media space information that is diversified according to the development of mobile and computing technologies such as Google Glass and panoramic space image. In the case of developing / distributing system in open source form, It is possible to manage users' participation in new media space information in private..

1.3. Business Goals

The ultimate goal is to implement and provide open source spatial information content management system (GeoCMS), which will be utilized by public and private operators and put into practical use.

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- 1) New media space information contents authoring and publishing technology development
- 2) New media space information analysis and service engine technology development
- 3) User–Participated Web / Mobile based Geospatial Content Management System (GeoCMS) technology development
- 4) Development of technology for linking and utilizing public and commercial space information systems

1.4. Benefit

1.4.1. Technical expectation effect

- Overcome the dependency of specific foreign SWs and reduce SW acquisition and maintenance costs
- Enhance technology self-reliance with development of open source software for spatial information led by domestic technology, and successfully commercialize R & D results
- Quickly develop and validate high-level SWs to quickly implement products

1.4.2. Economic / Industrial Expected Effects

- Cost substitution and cheap introduction / utilization cost of public information system in the public sector
- Strengthen domestic SW industry ecosystem based on open source SW technology for spatial information
- To foster the spatial information software industry, to nurture specialized personnel for spatial information software development and to create jobs

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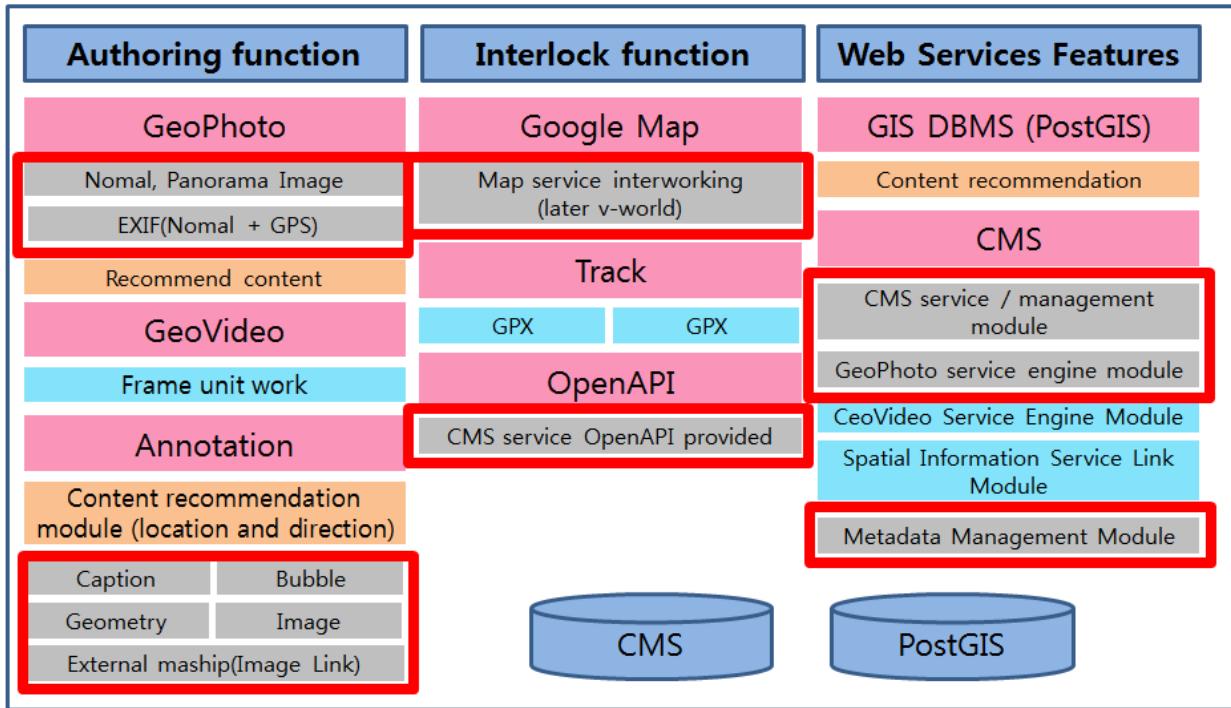
2. Development Contents

2.1. GeoCMS Operating Environment

Software Information		
operating system	server	Apache Tomcat 6.0
	Client	Chrome 44+
Uniqueness (Product activation requirements)	External map engines (such as GoogleMaps) and Open APIs (such as Google Geocoding) should be available. DB : MySQL	
Hardware Information		
Other environment	2.4GHz, 4G RAM, Windows XP Professional	

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2.2. System structure

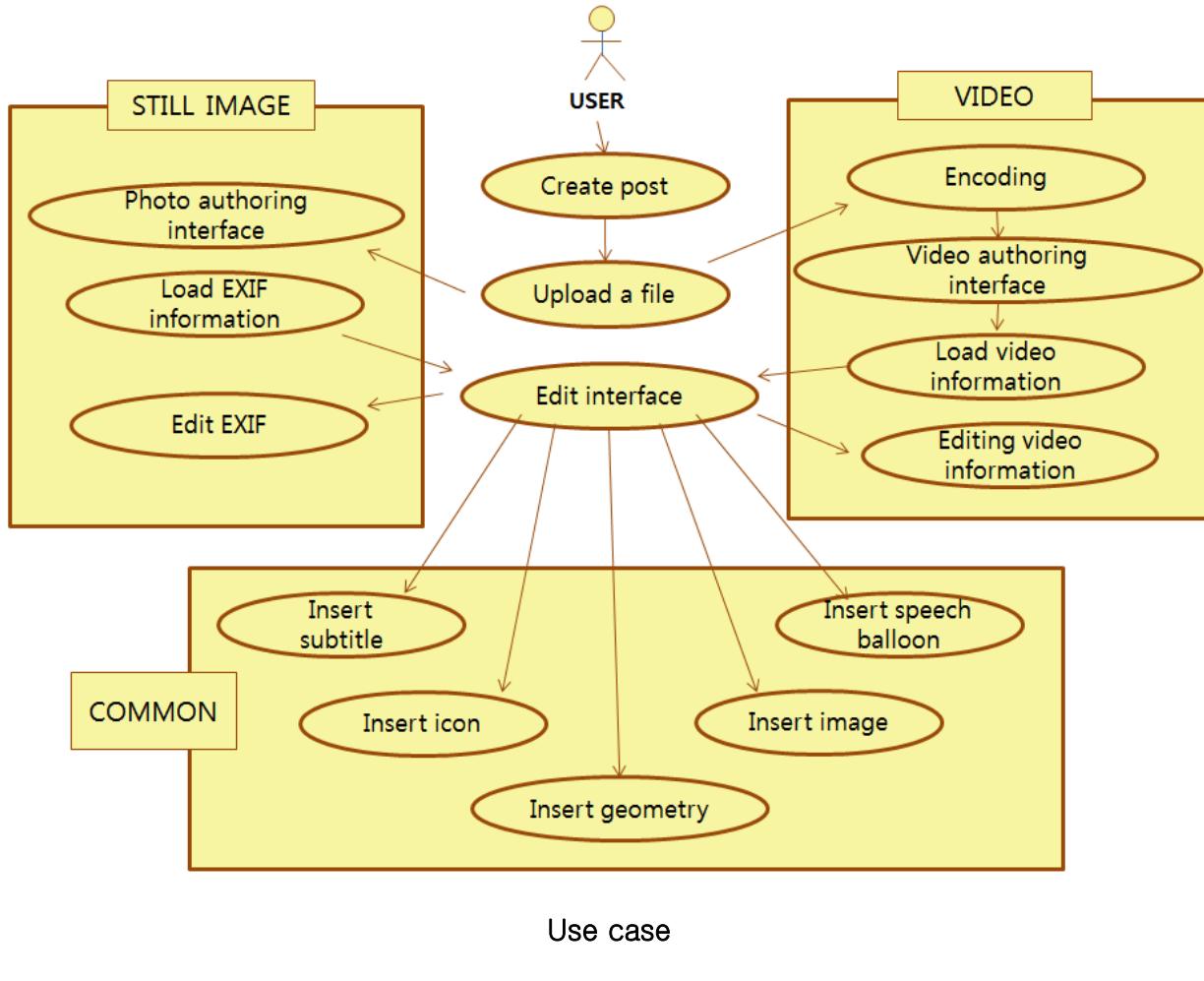


System structure diagram

The GeoCMS platform is divided into authoring function, interworking function, and web service function.

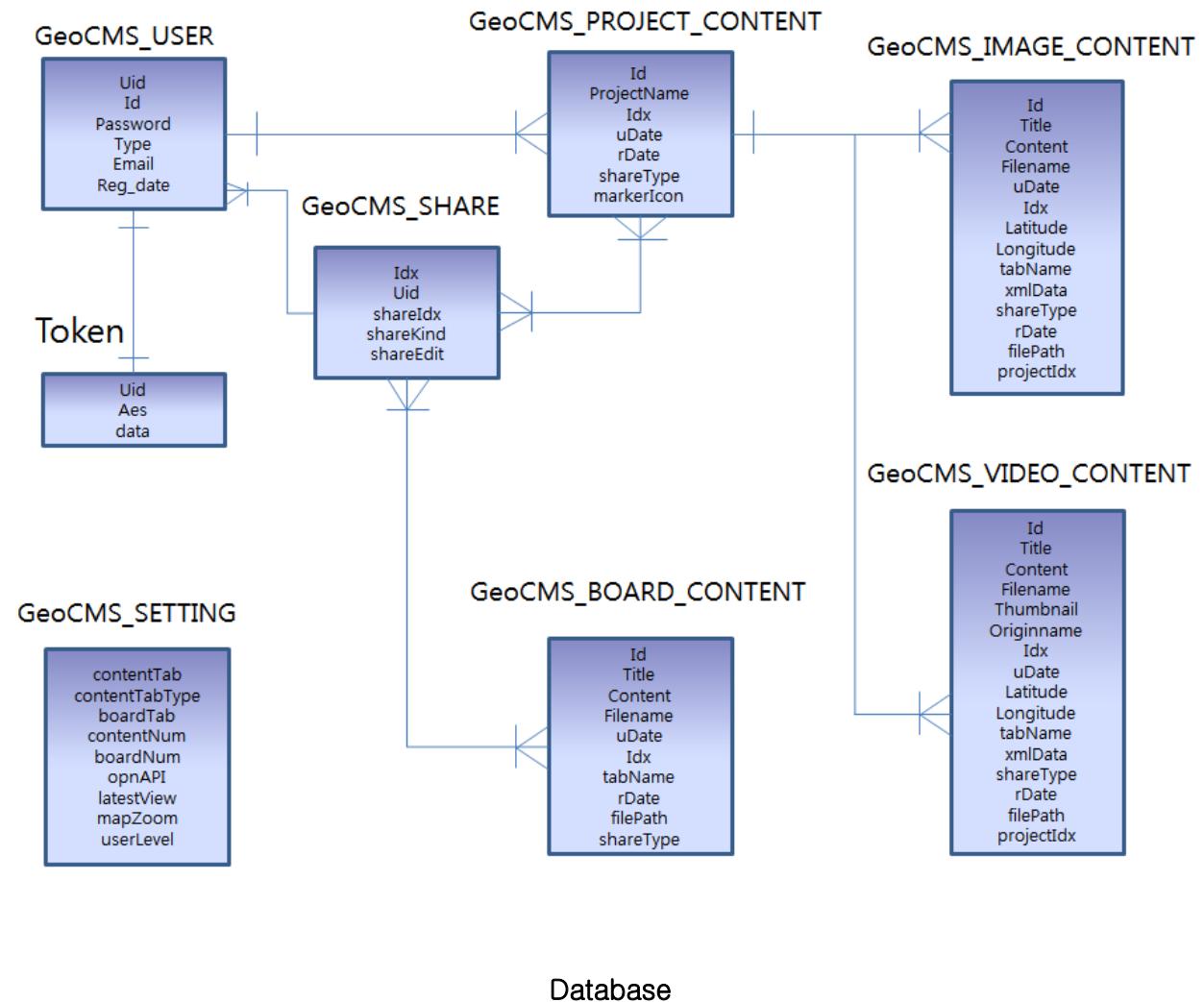
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2.3. Use case



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2.4. Database



Database

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2.5. XML Schema

When the photo and video content information is stored in XML and shared, it is composed of the following schema

```

<?xml version="1.0" encoding="UTF-8"?>
<upcm_obj>
- <obj>
  <id>g</id>
  <top>180</top>
  <left>255</left>
  <xstr>245_564</xstr>
  <ystr>176_419</ystr>
  <linecolor>#959595</linecolor>
  <backgroundcolor>#FF0000</backgroundcolor>
  <type>circle</type>
</obj>
- <obj>
  <id>i</id>
  <top>42.98611900390625</top>
  <left>203.9930617529297</left>
  <width>74px</width>
  <height>67px</height>
  <src>/egov/images/geoImg/icon/black/d4.png</src>
</obj>
- <obj>
  <id>c</id>
  <top>359.0972335058594</top>
  <left>293.10764</left>
  <href>false</href>
  <underline>false</underline>
  <italic>false</italic>
  <bold>false</bold>
  <fontsize>Normal</fontsize>
  <fontcolor>#fff100</fontcolor>
  <backgroundcolor/>
  <text>여기는 시청입니다.</text>
</obj>
</upcm_obj>
```

XML Schema

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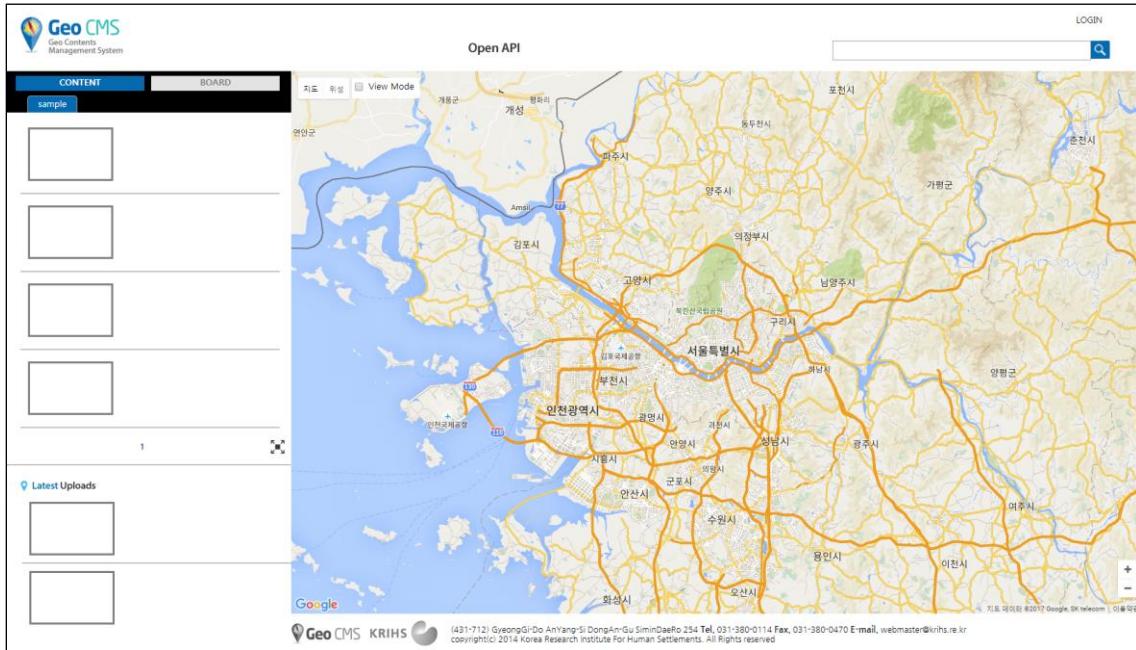
Type	Tag Name	Description
All	Upcm_obj	Top-level Tag name
All	obj	Authored Annotation Information Tag
All	id	Annotation ID Tag
All	top	Top Position coordinate value
All	left	Left position coordinate value
Icon	width	Width value of icon
Icon	height	Height value of icon
Icon	src	Src (externally accessible URL) path of the icon
Caption, Bubble	href	External reference link URL path
Caption, Bubble	underline	Underline Attribute value of Text
Caption, Bubble	italic	Italic Attribute value of Text
Caption, Bubble	bold	Bold Attribute value of Text
Caption, Bubble	fontsize	Text size attribute value of Text
Caption, Bubble	fontcolor	Color attribute value of Text
All	backgroundcolor	Annotation background color value
Caption, Bubble	text	User string value
Geometry	xstr	Geometry X Point value
Geometry	ystr	Geometry Y Point value
Geometry	linecolor	Line color attribute value of the geometry
Geometry	type	Type property value of geometry (point, circle, rect)

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3. Using GeoCMS

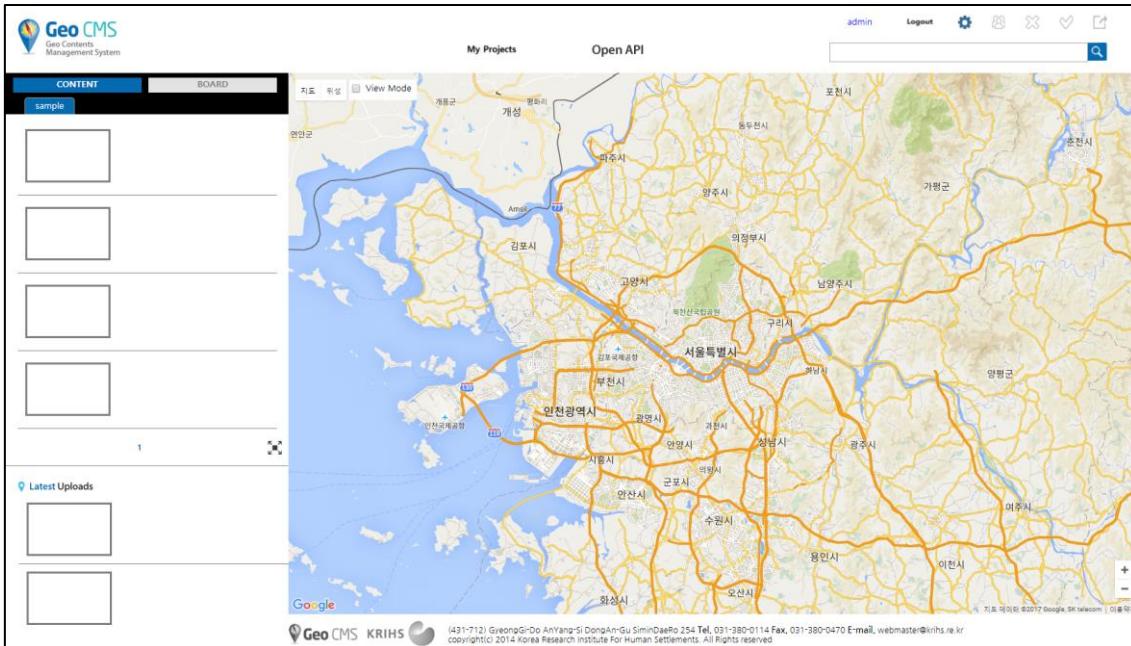
3.1. GeoCMS Manager

- When connecting main page, initial screen appears.



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- Log in as an administrator.



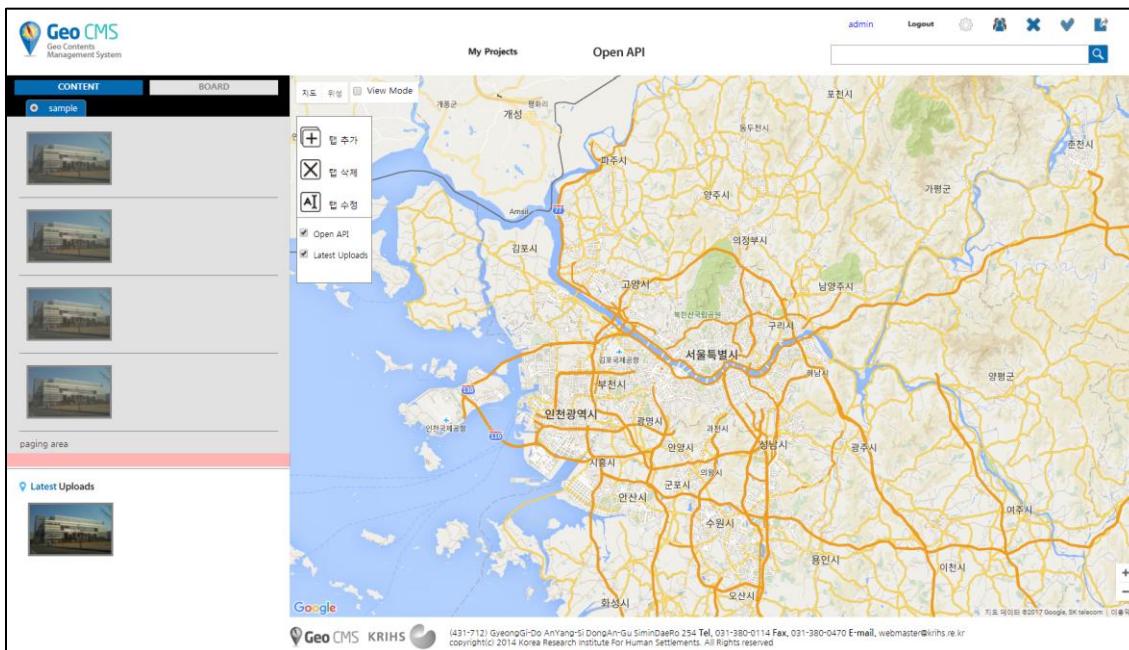
– Manager icon



- 1 Settings: The administrator can set the Membership and Category tab and the main screen UI.
- 2 Membership Management: Manage the members' rights.
- 3 Cancel: Initializes the item that the administrator is editing..
- 4 Save: saves edits made by the administrator.
- 5 Exit: The administrator clears the item that was being modified and exits the edit mode.

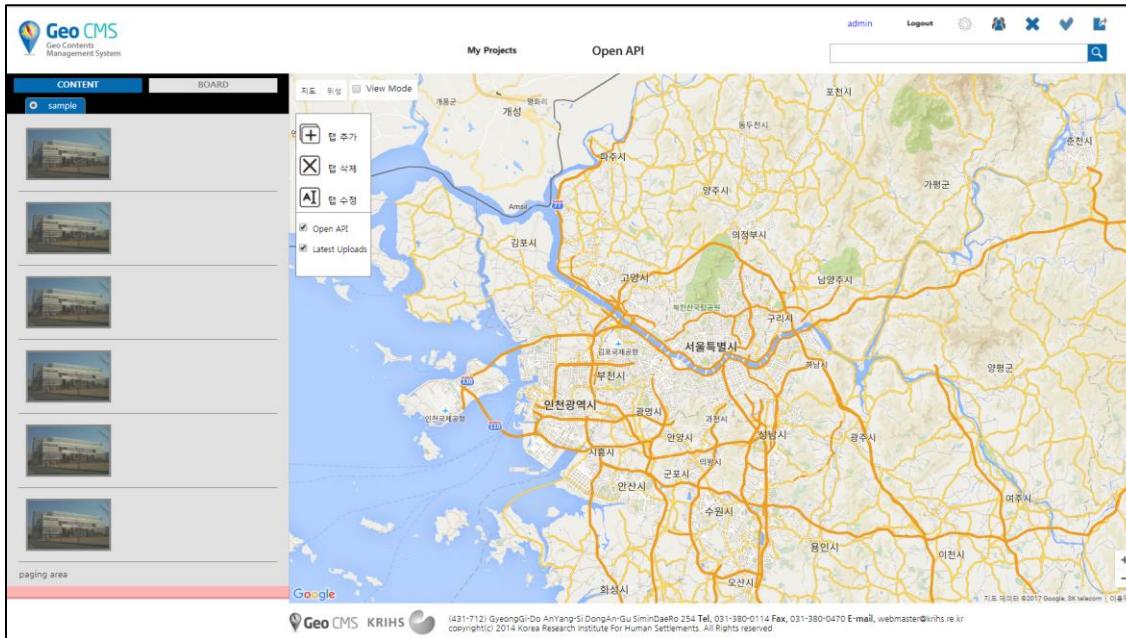
GeoCMS manual	Project classification	Land Spatial Information Research Project
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- After pressing the set button, the administrator edit mode screen
 - Add tab: Add category tab
 - Delete tab: Delete selected category tabs
 - Edit tab: Edit selected category tabs
 - Open API: When unchecked, OpenAPI does not appear in top menu when saving.
 - Latest Uploads: When unchecked, the Latest Uploads section on the bottom left does not appear.

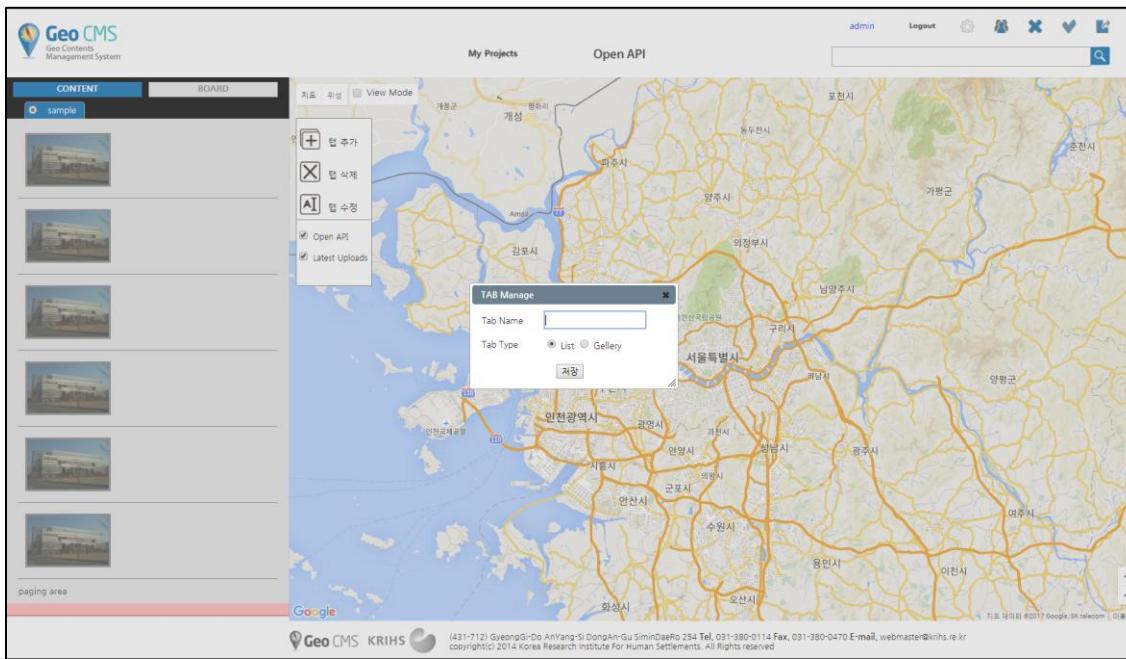


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- You can adjust the number of contents in the list by adjusting the red line in the list on the left with the mouse.

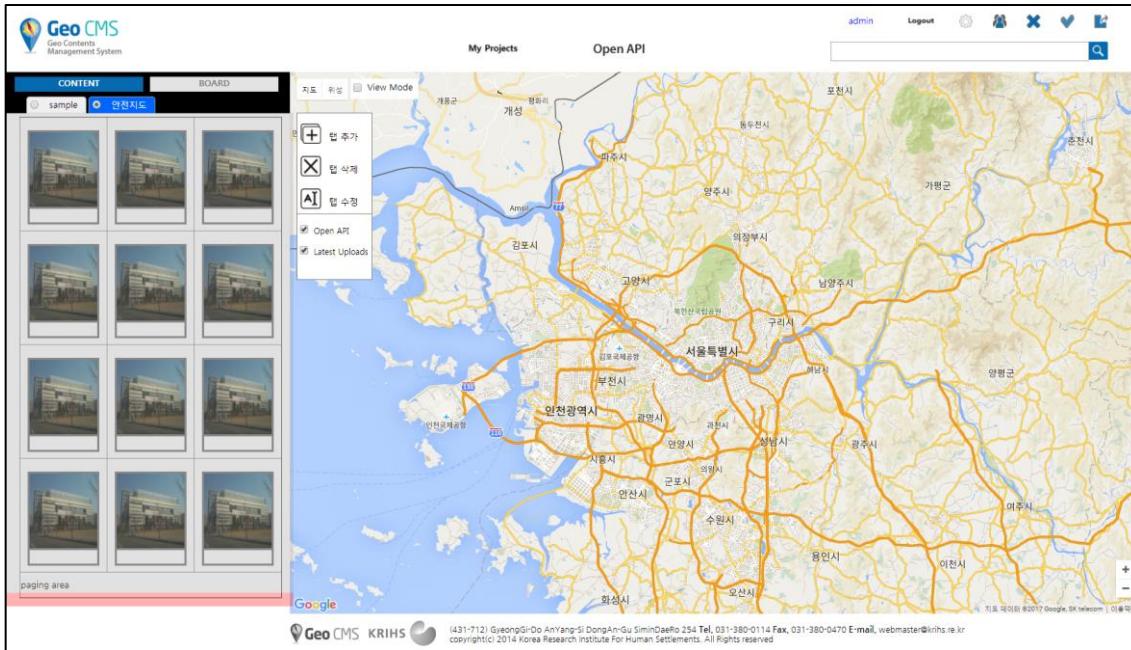


- Add Tab
 - After clicking Add tab button, set tab name and type and save.

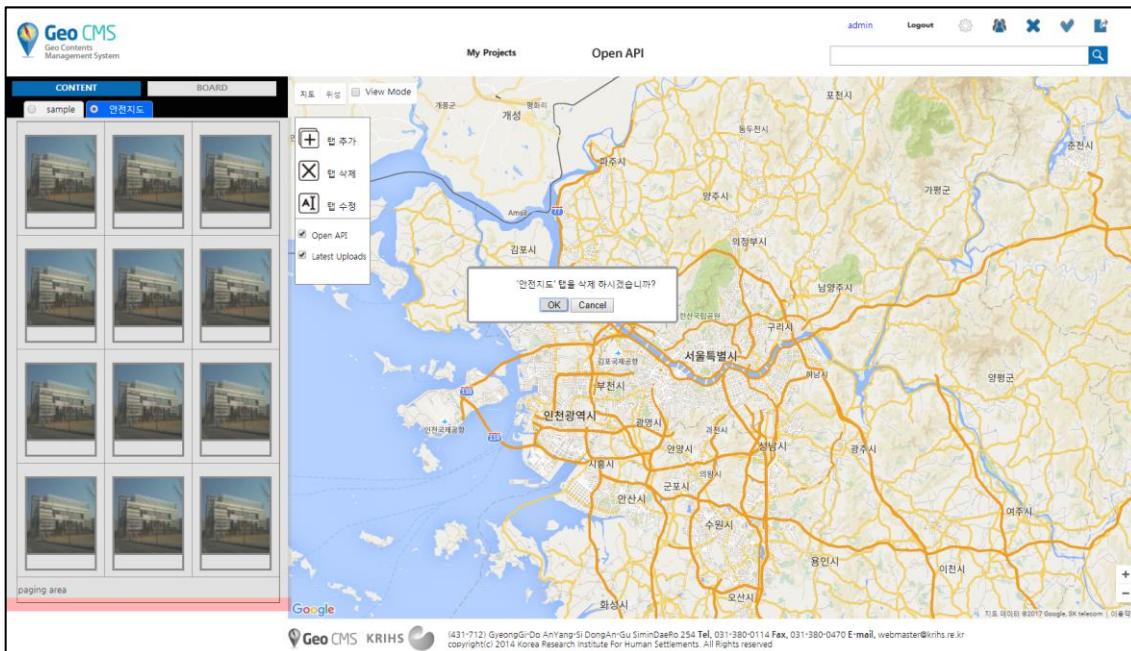


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- Completed tab addition

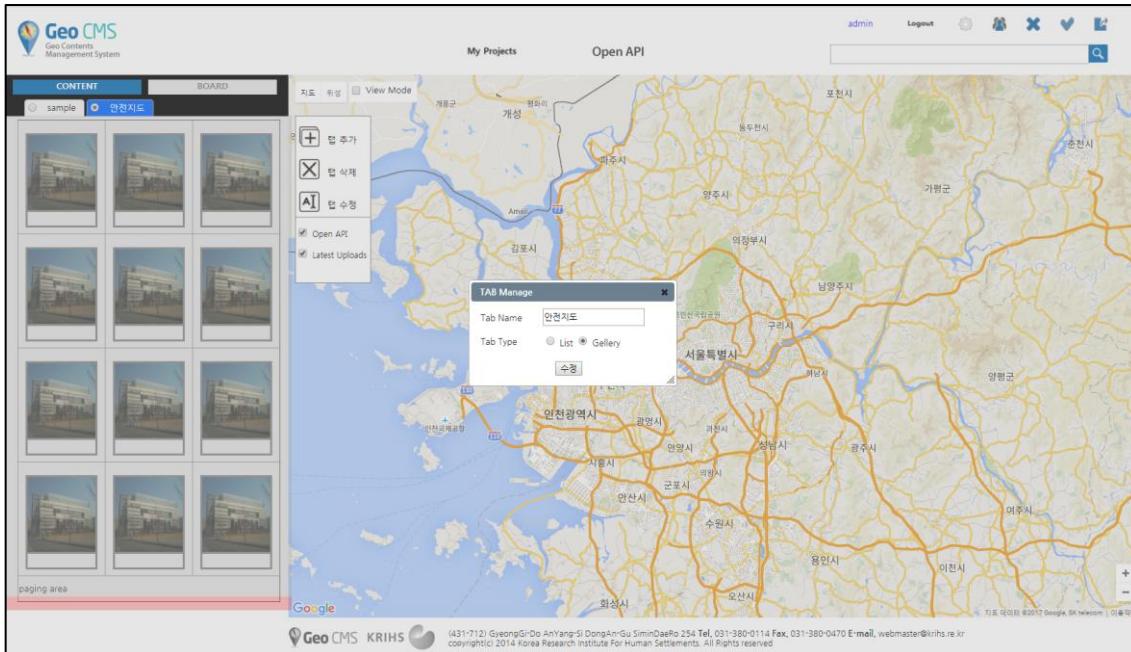


- Deleting tabs

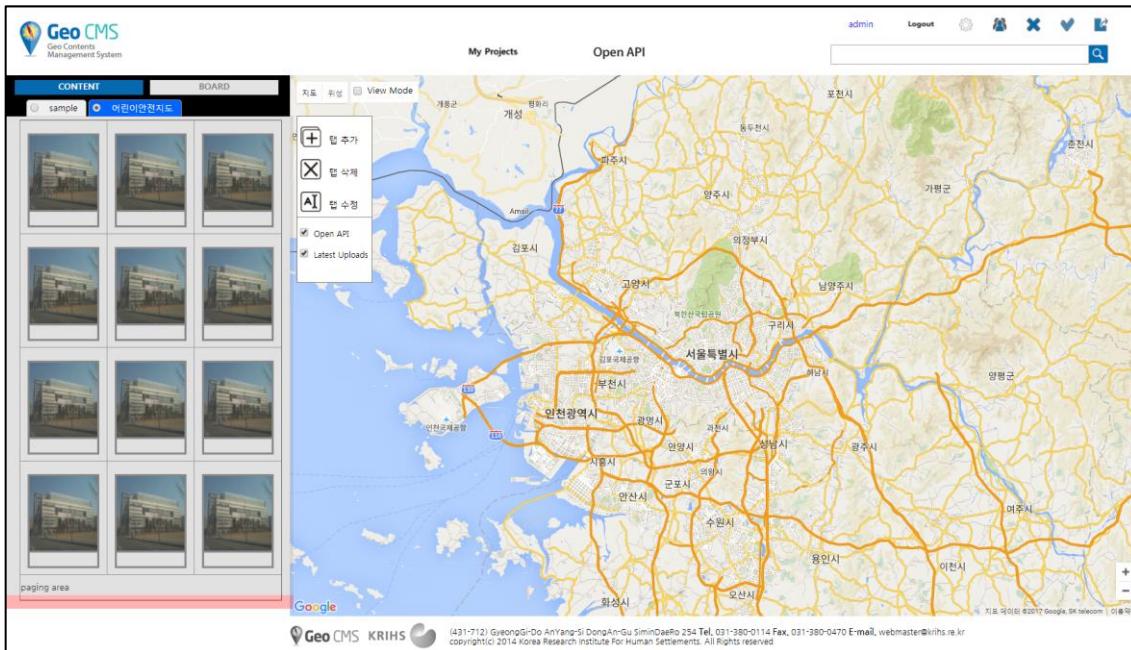


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- Edit tab



- Tab revision complete



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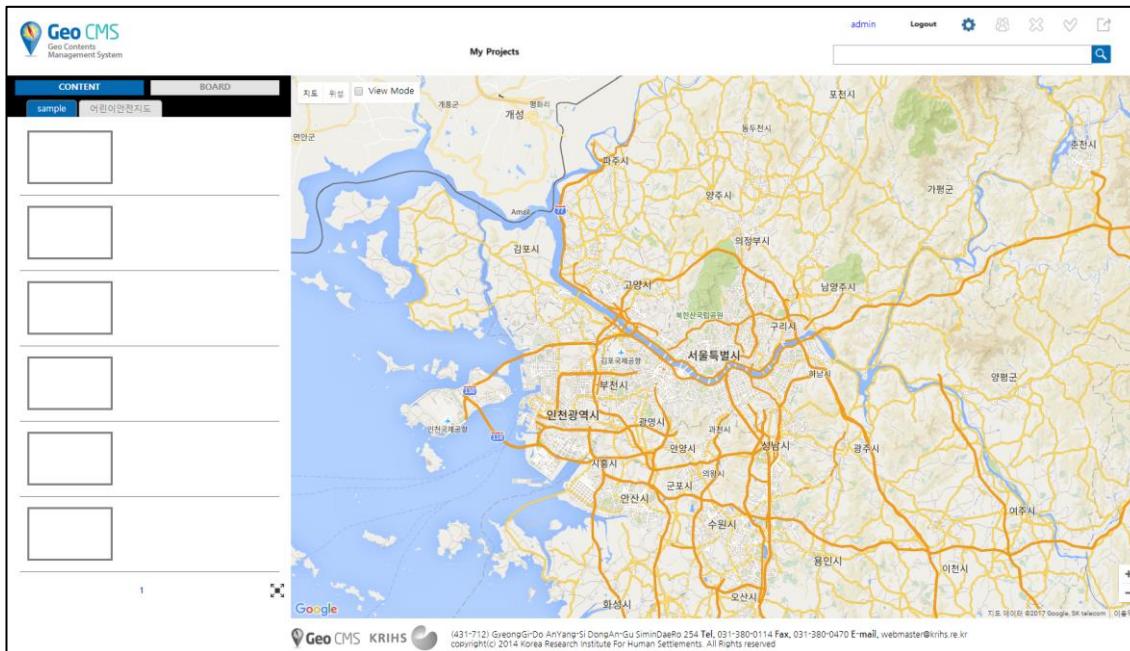
- User Management
 - Change the permissions of the user.

MANAGE

ID	EMail	Reg_Date	TYPE
parkgk88	parkgk88@gmail.com	2017-08-08	MODIFY ▾
kimgk88	kimgk88@gmail.com	2017-08-08	MODIFY ▾
turbo	turbo@gmail.com	2017-08-08	MODIFY ▾
admin	undefined	2017-08-07	ADMIN ▾

10개씩 ▾ 1 save cancel

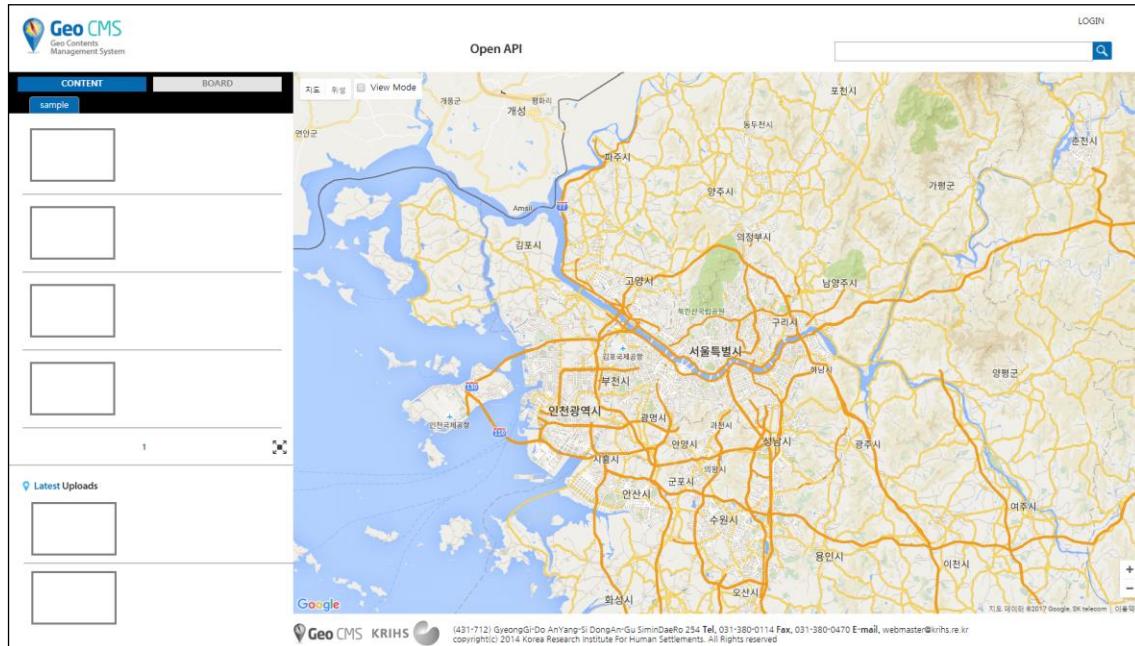
- Initial screen after changing UI



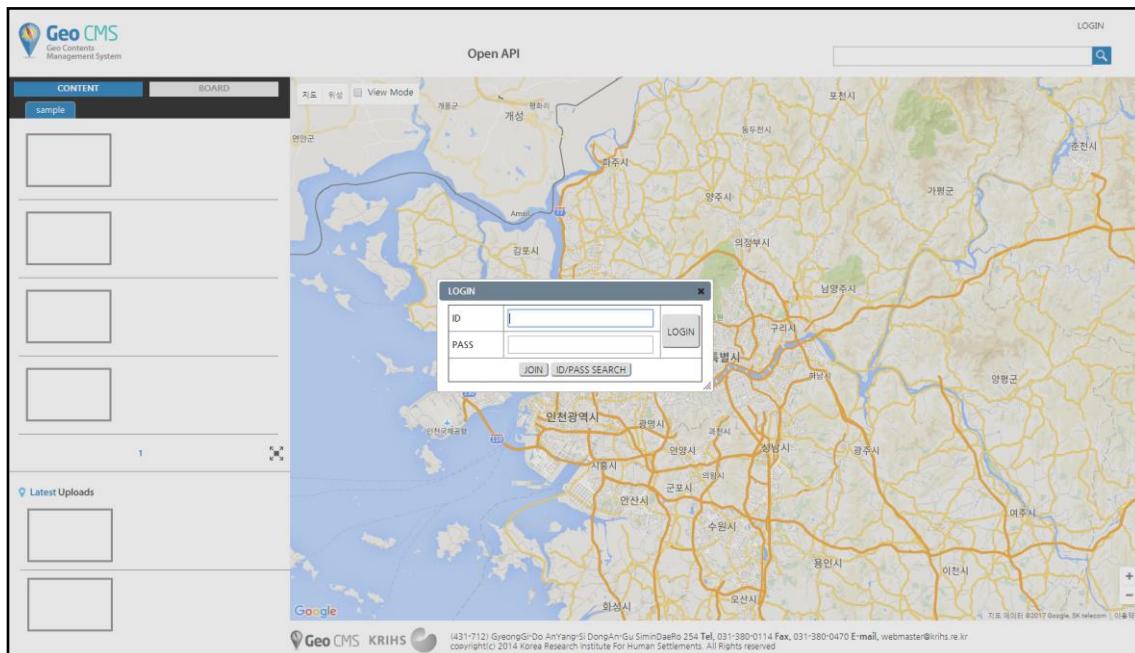
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3.2. GeoCMS users

- When connecting main page, initial screen appears.

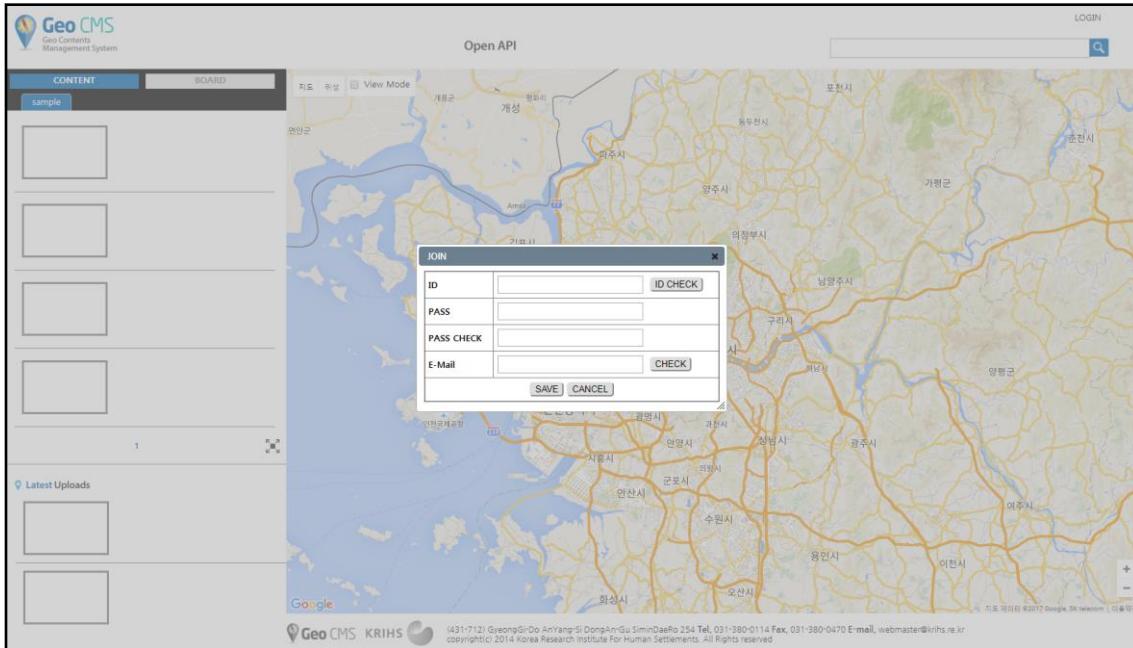


- Click the login button in the upper right corner to login

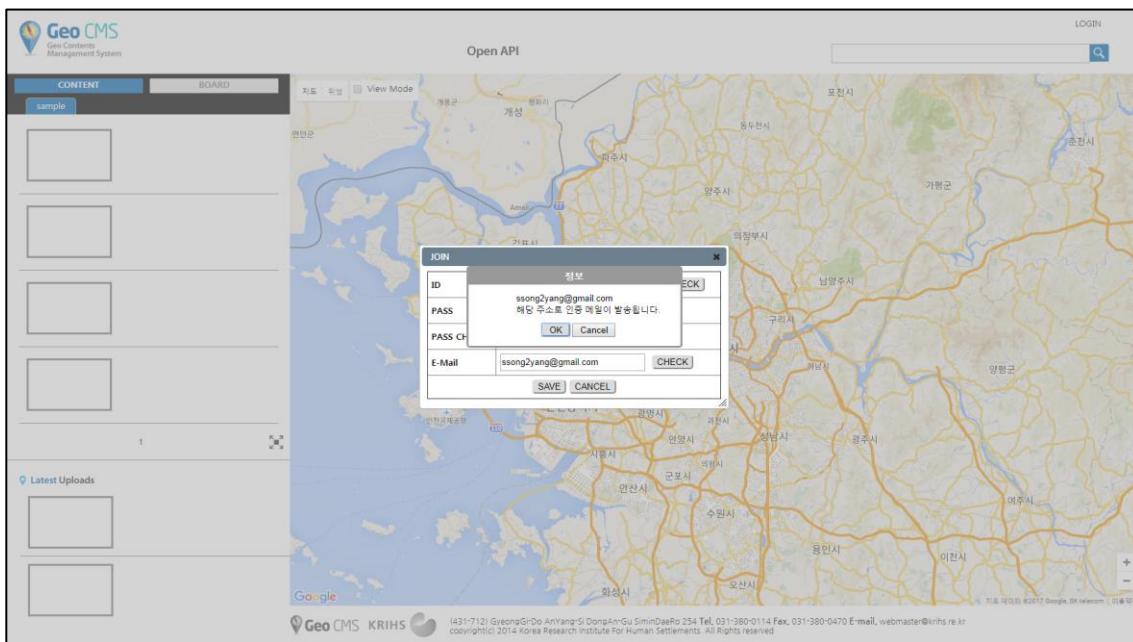


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- Click the JOIN button to register



- After creating ID, click ID CHECK button (Confirm whether same ID is confirmed), click PASS and E-Mail and click CHECK button



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- After confirming the authentication number in the authentication mail, input it at the bottom of email, click CONFIRM button, and save it.

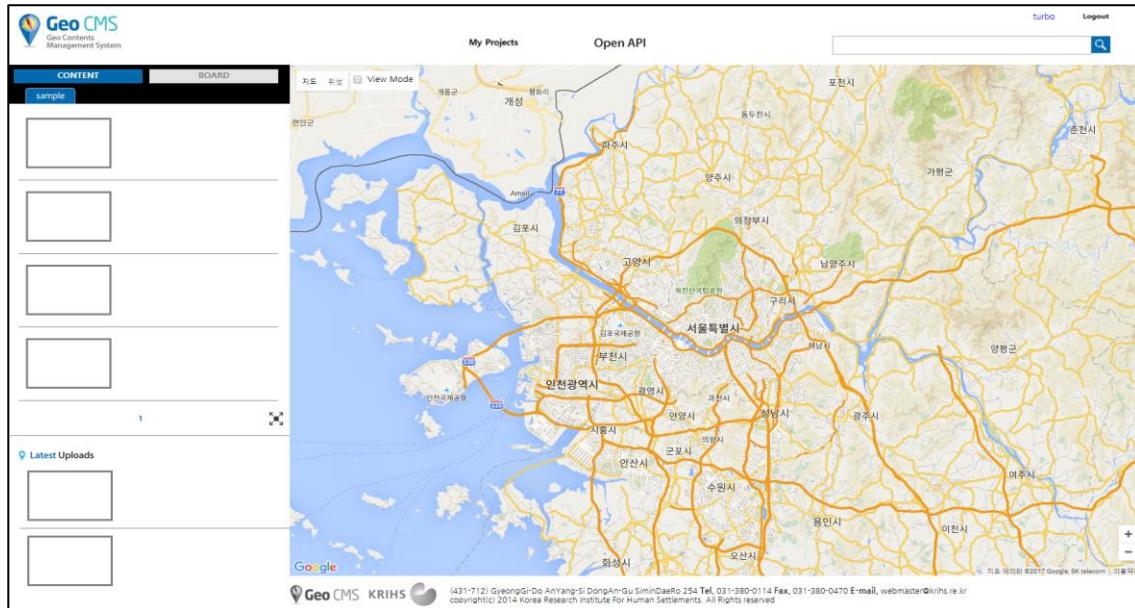


- Find your ID password
 - Click the ID / PASS SEARCH button on the login screen.

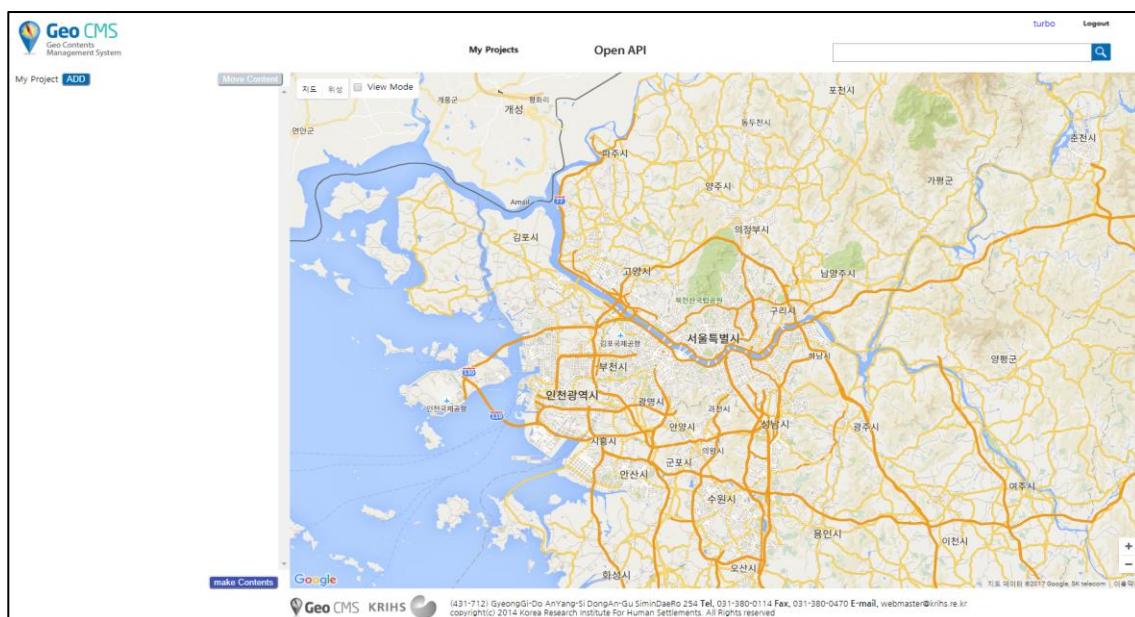
- On the left is ID search screen. After inputting e-mail and pressing search ID button, ID is sent to the entered e-mail. On the right side, ID and e-mail are input and then search PASS button is clicked.

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- The first screen after logging in (all public contents and contents that are open to you)

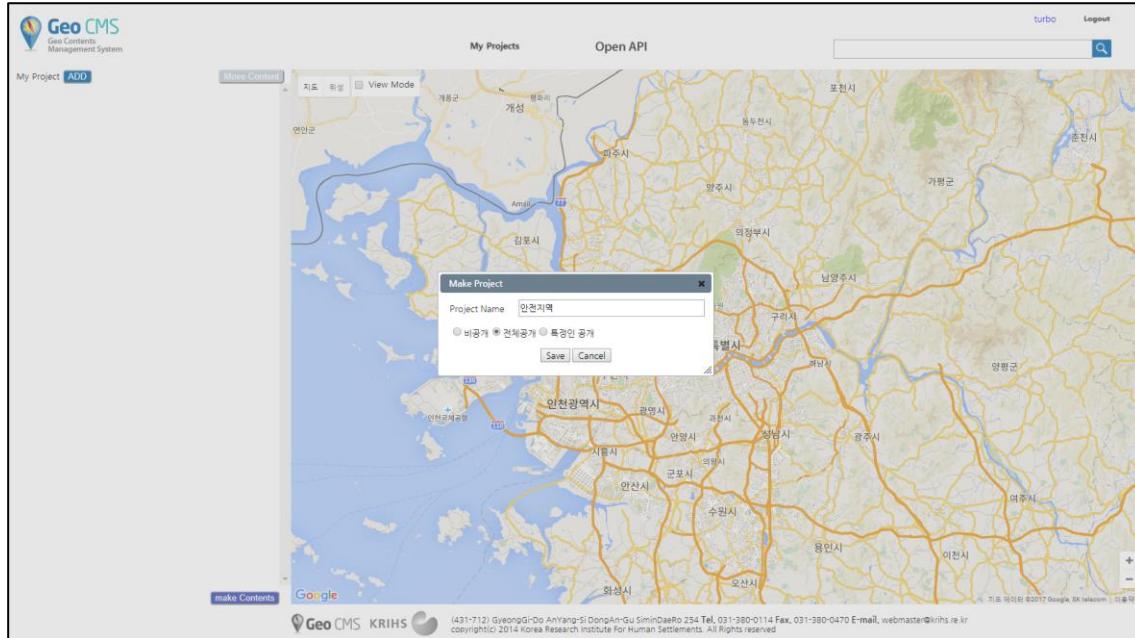


- Click on My Project menu
 - Your project list appears and coordinates registered on the right map are drawn.
 - List shared by other users is also displayed.

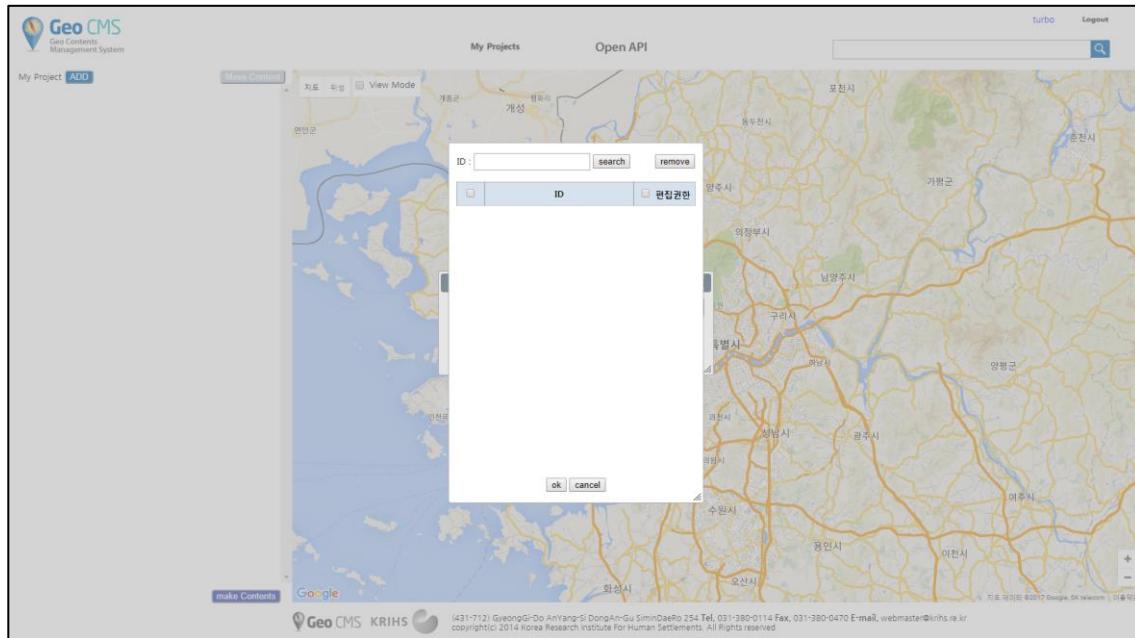


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- New project registration
 - Project name and visibility setting after clicking ADD button

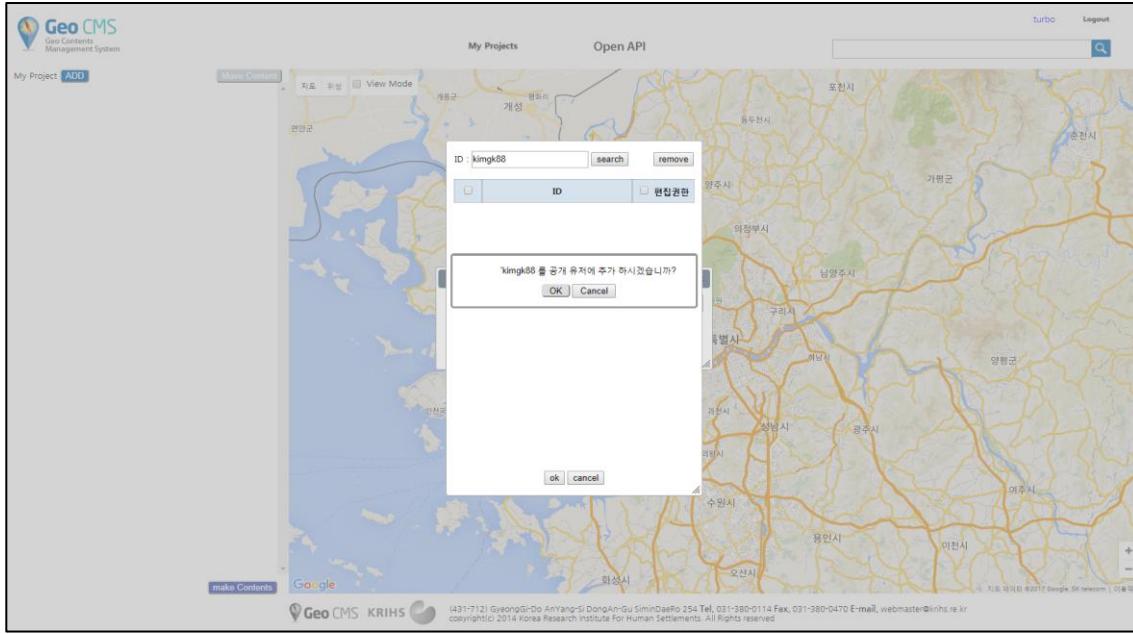


- When a specific person is selected, a window will be displayed to select whether the user is to be released or edited.

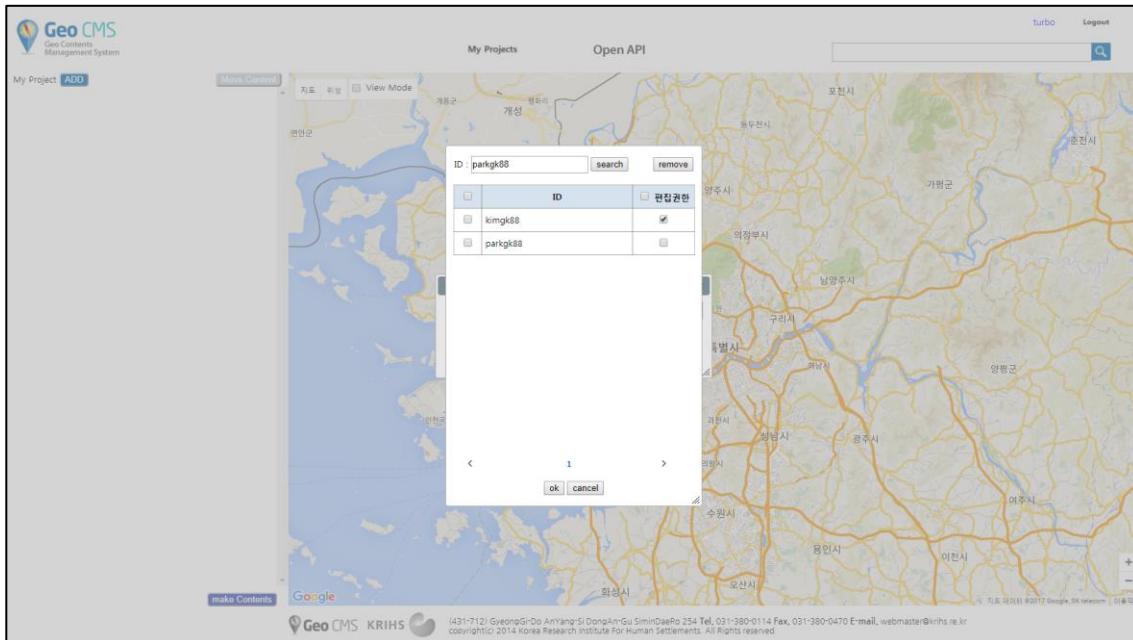


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- Search after users to be added and add

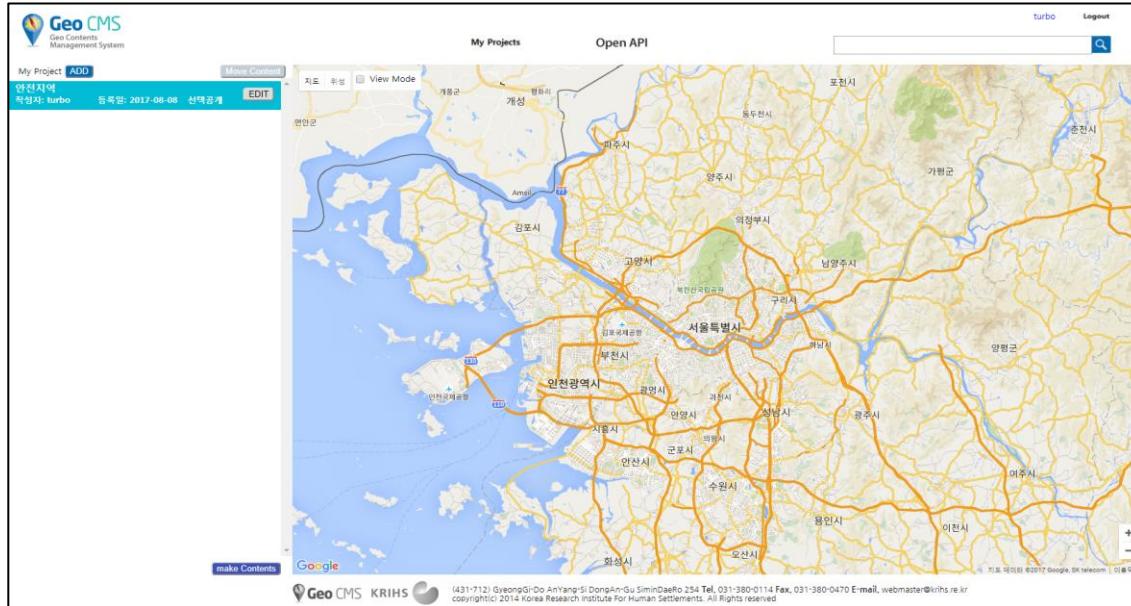


- Save and grant editing rights to specific users (Shared users can view the contents of the project created by the user, and shared users with editing rights can modify the contents.

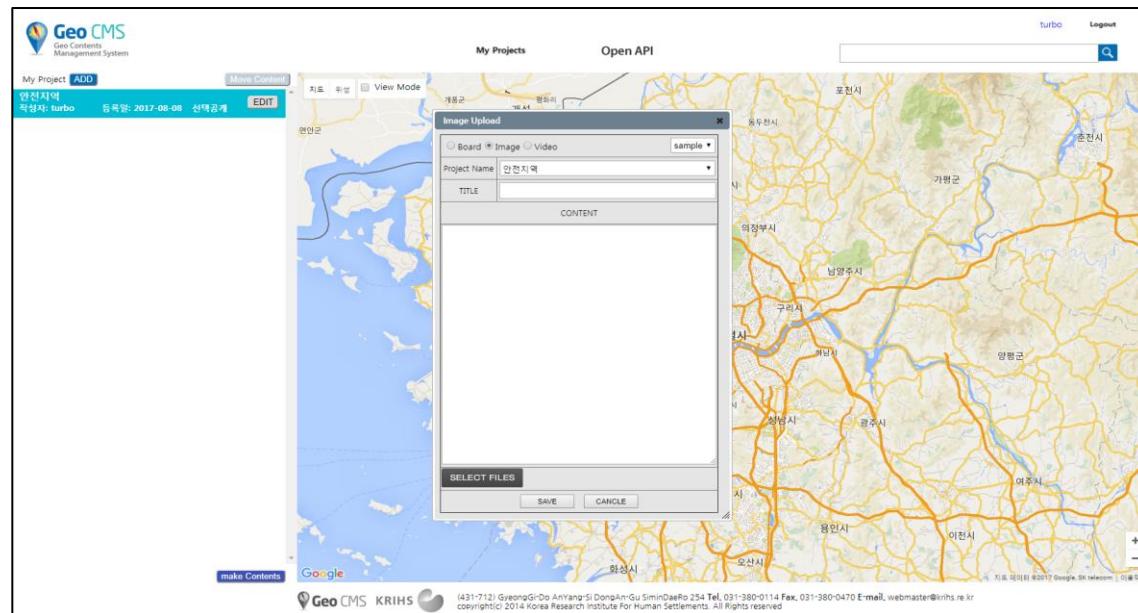


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- Project creation completed
 - After creating the project, it will be listed on the left screen and you can upload pictures.



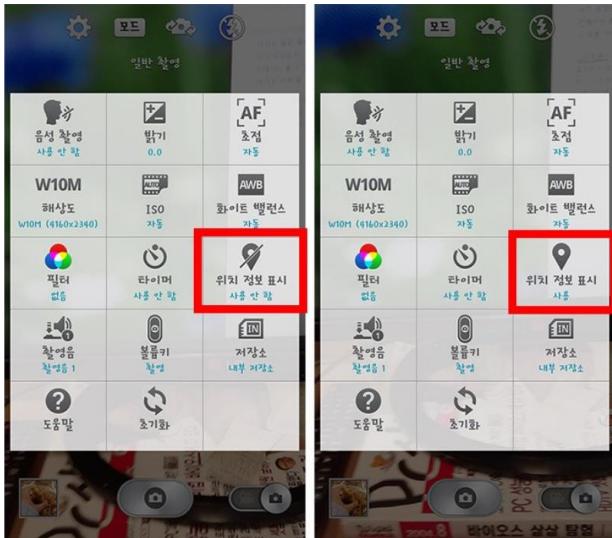
- Upload photos
 - Click the make Contents button to create the content and upload the photos.



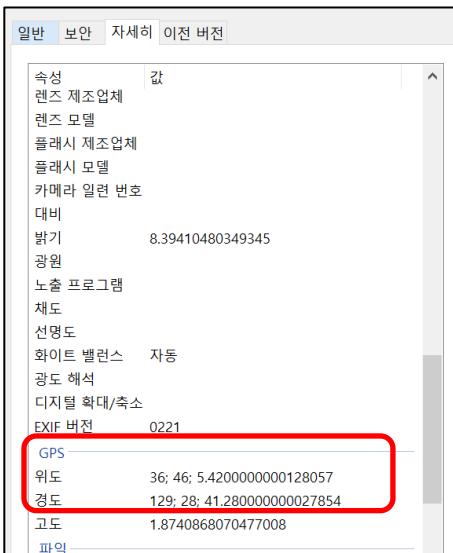
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-Your photos must include gps information to show location information.

Before you can take a photo, you'll need to turn on Show Location in your phone's settings. This photo contains location information.

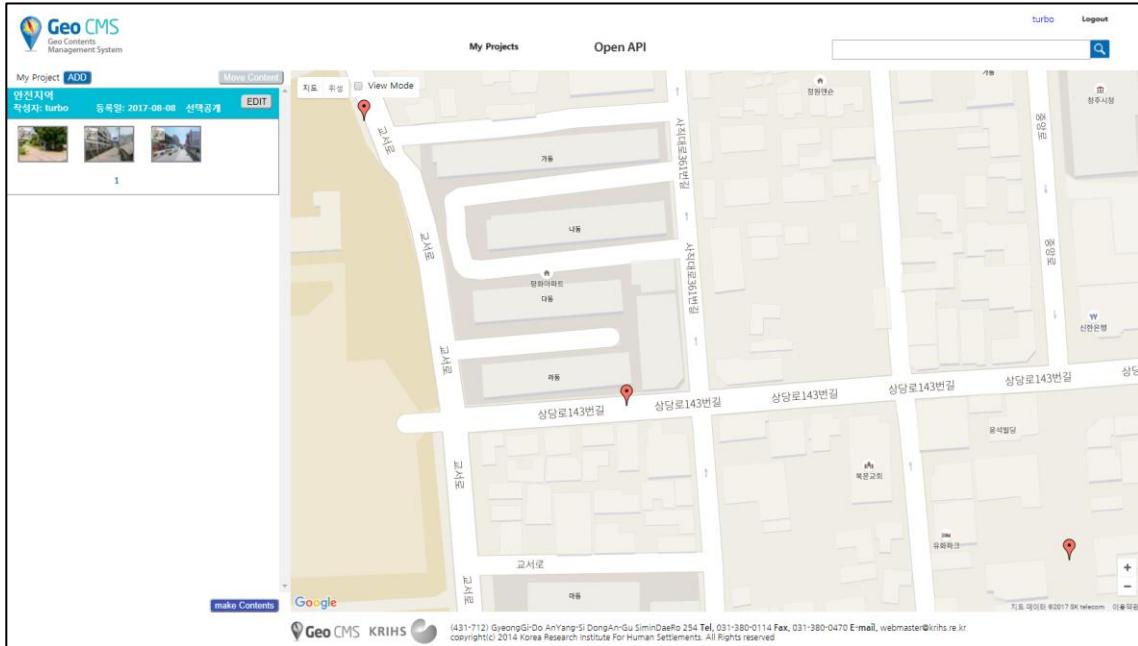


The information of the photo taken after the setting of the location information display includes the gps information together with the EXIF information.



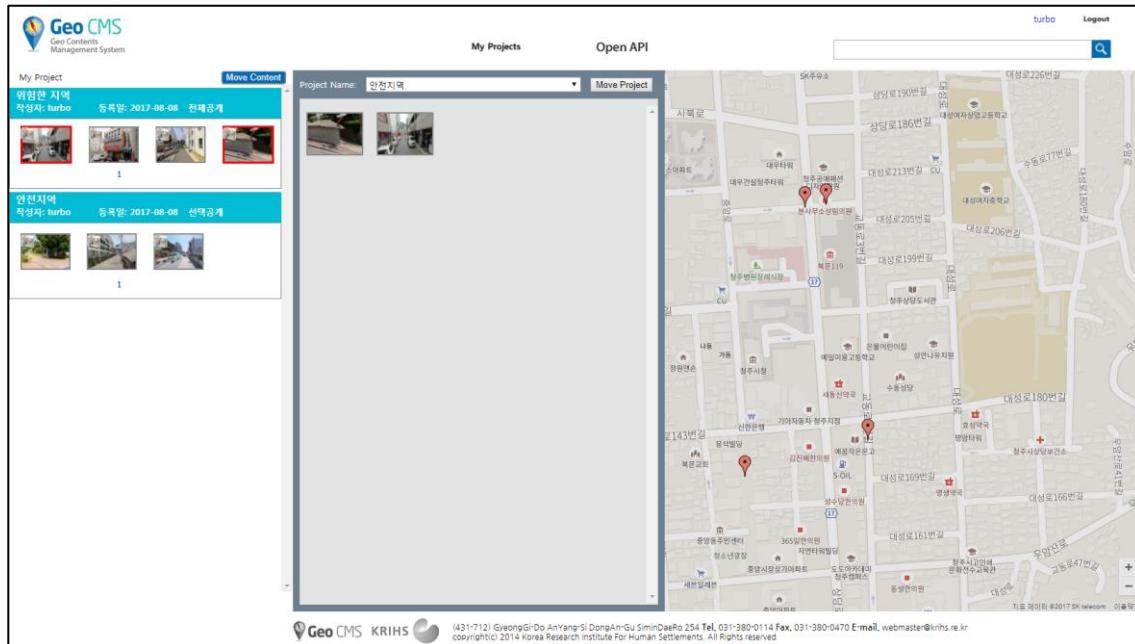
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- After uploading a photo, a list of photos will appear in the project list on the left, and the location of the photos in the active project will be displayed on the right map.



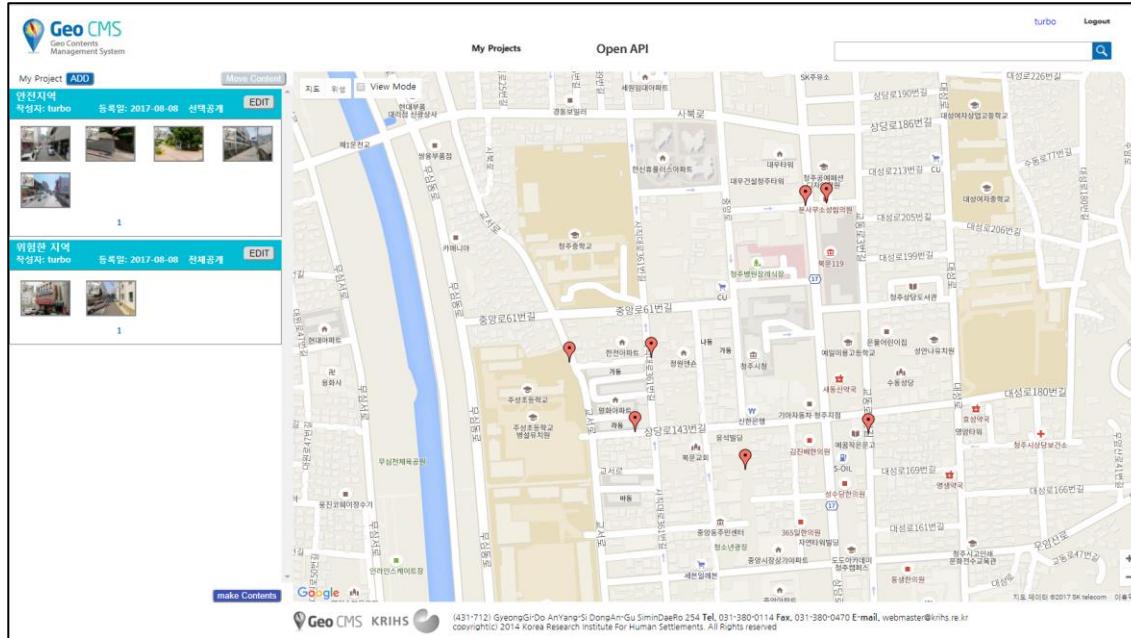
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- After adding a project, you can move the contents in the project to another project.
 - move After clicking the content button, the content viewer window to move to the right is displayed. A red frame is displayed on the content to be moved when the content is clicked, and the corresponding content is displayed on the viewer.

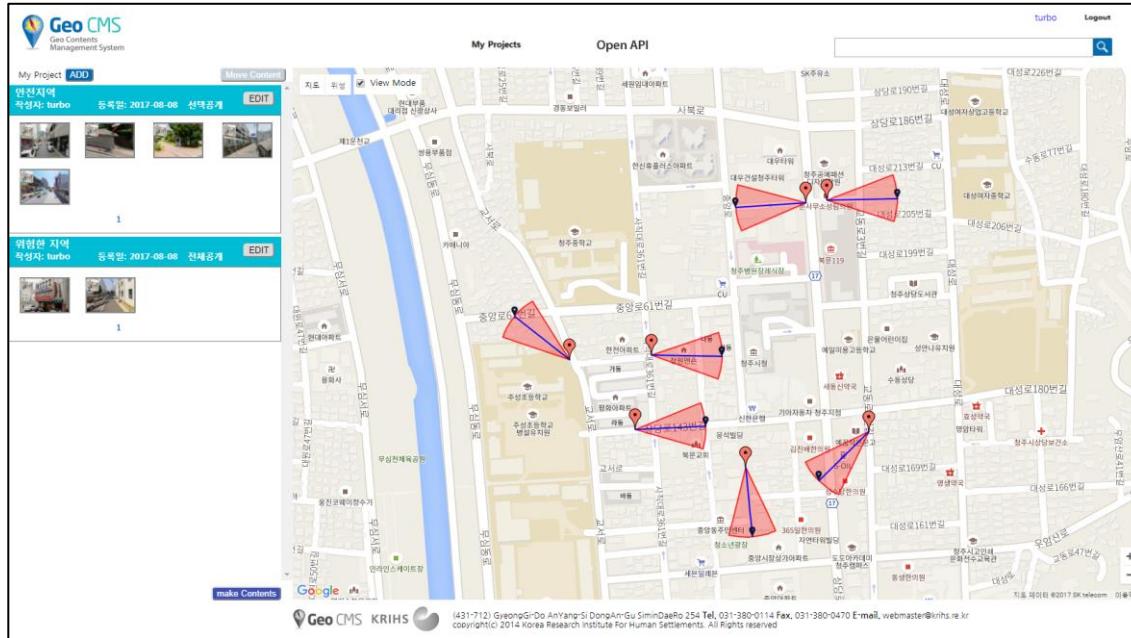


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- Select the project name to move in the viewer window and click the move Project button to move the contents to the project.

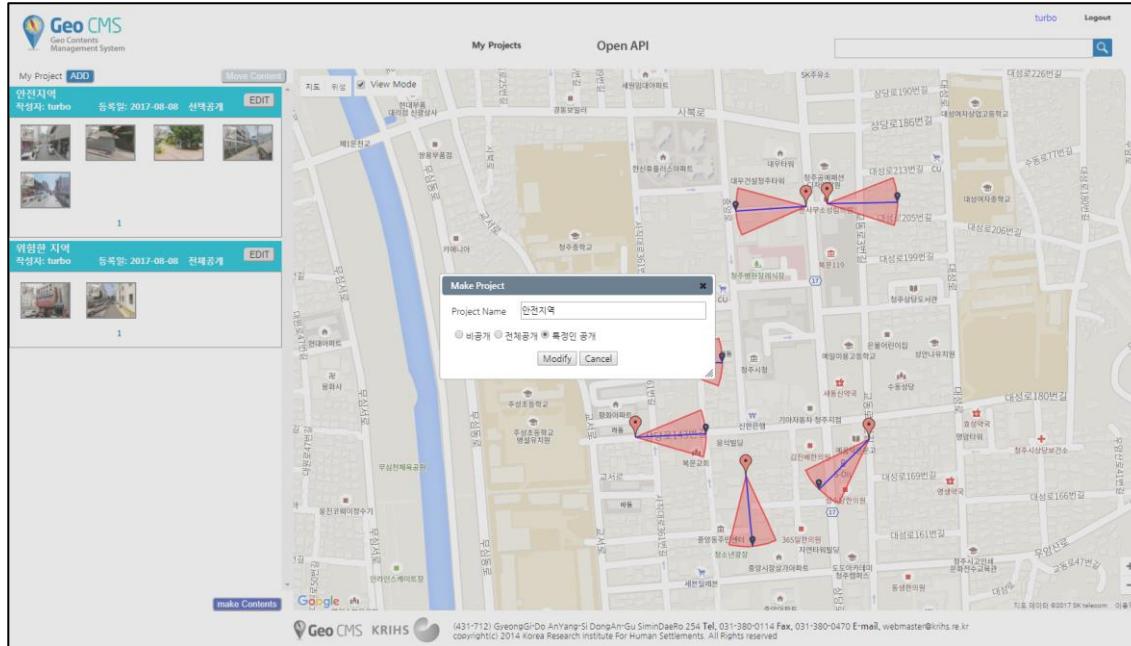


- When the view mode on the right map is checked, Map information and radius are displayed together.

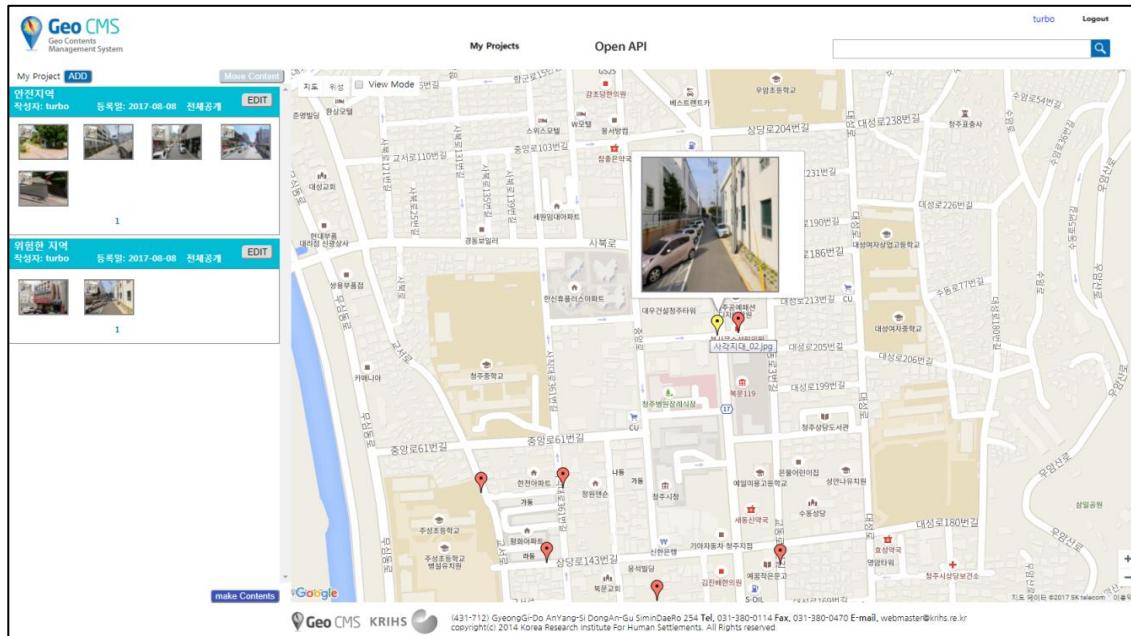


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- Project name and public setting can be modified when clicking EDIT button of project.

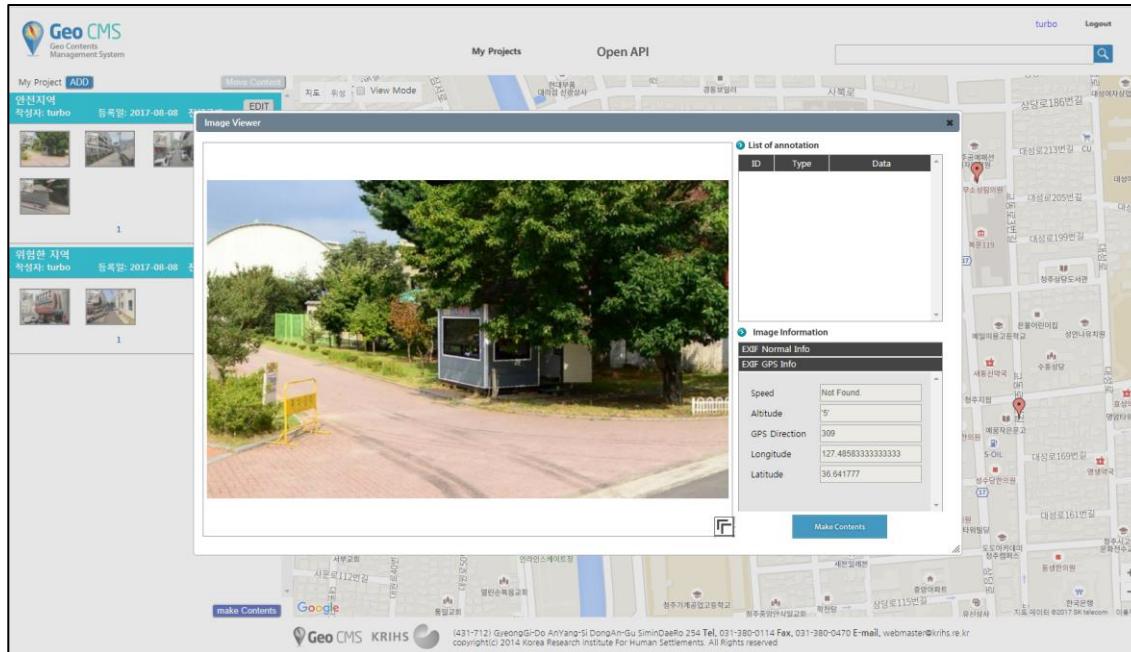


- When you click the picture, the position of the picture is displayed on the right side with a yellow marker.

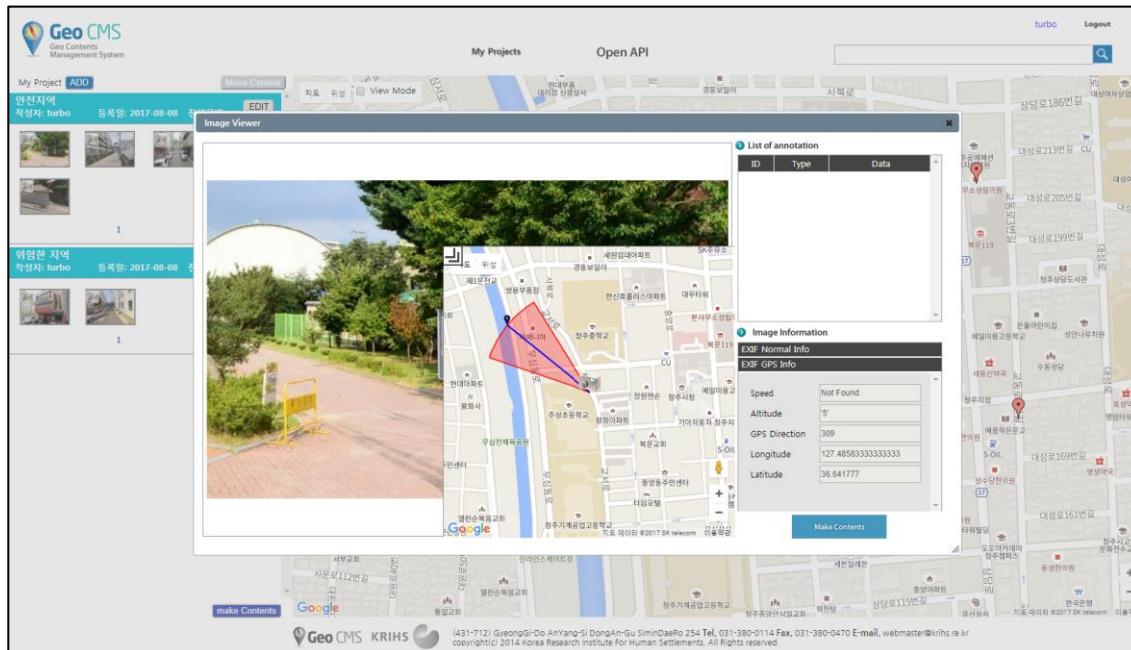


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- When clicking the marker, a window showing the picture appears.



- In the Image Viewer window, EXIF information and Map information and the radius of the corresponding photo are displayed together.

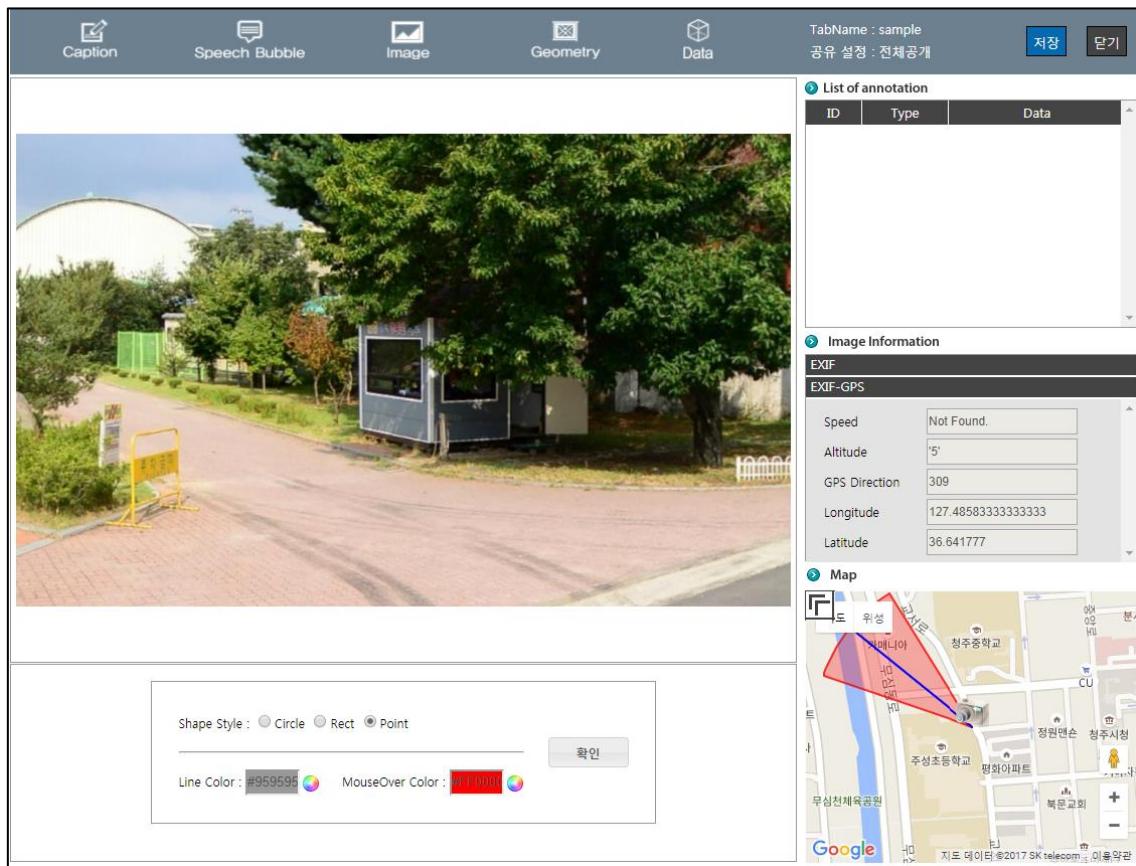


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- When you click the Make Contents button on the bottom right, a window for editing the picture appears.

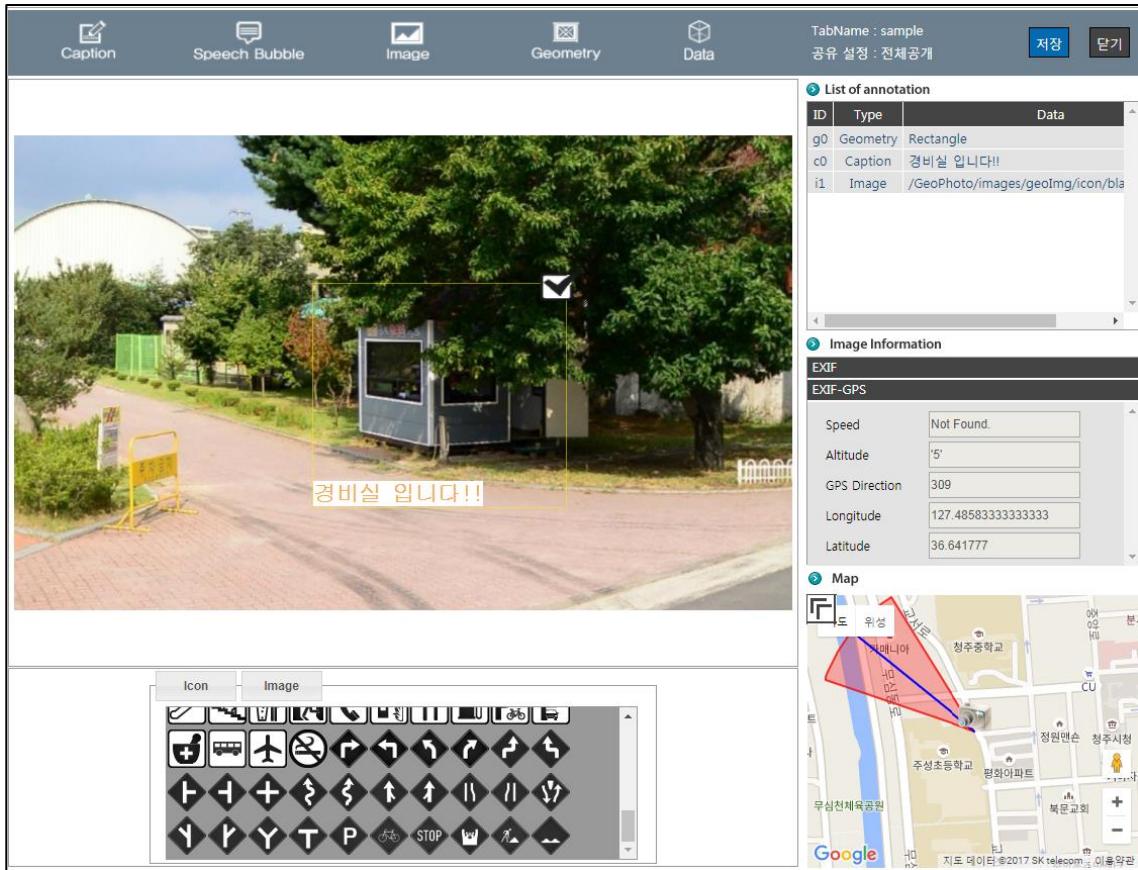
Representing authoring information with zoning and captions

- Top menu: Caption / speech bubble / icon / area setting / data information
- Free area representation using area setting options
- Expressed in caption
- Check the list of objects added to the right



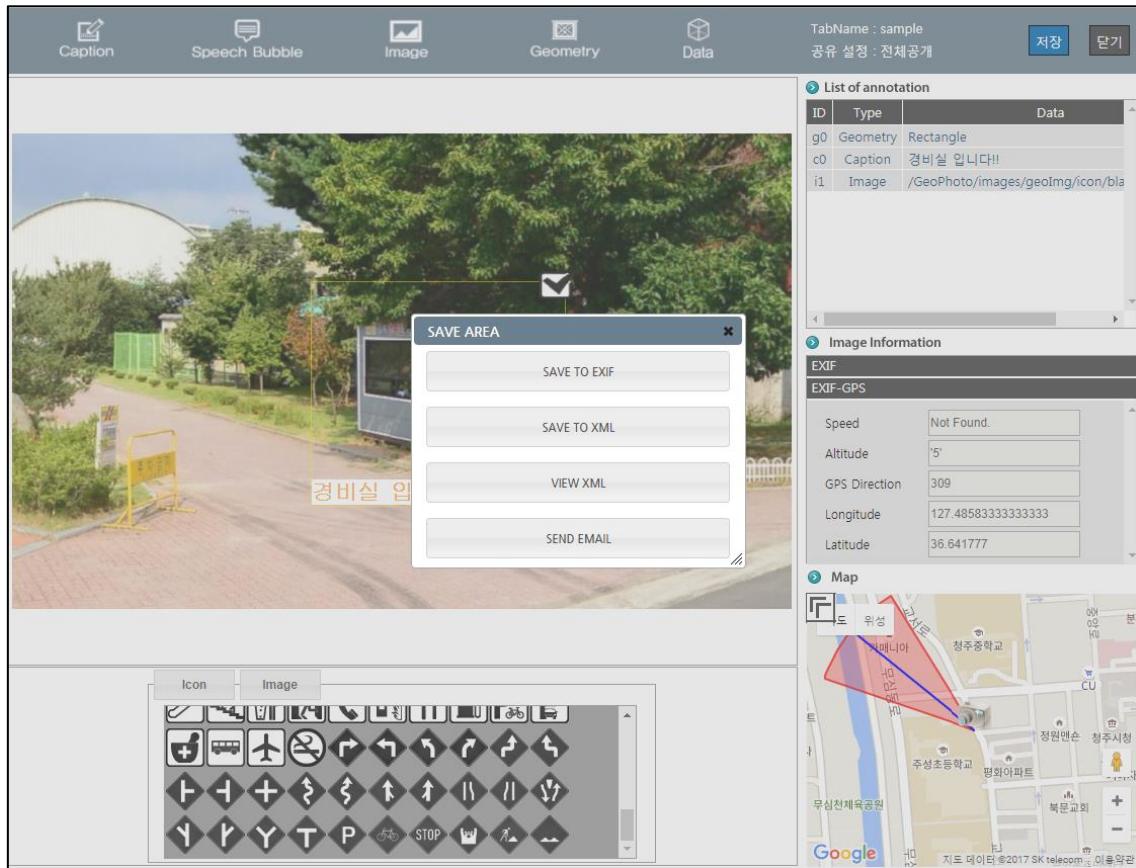
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- Additional expression by application of various icons



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- Select the save method after authoring
 - Save to EXIF
 - Save to XML
 - Content sharing via e-mail



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- Check XML file

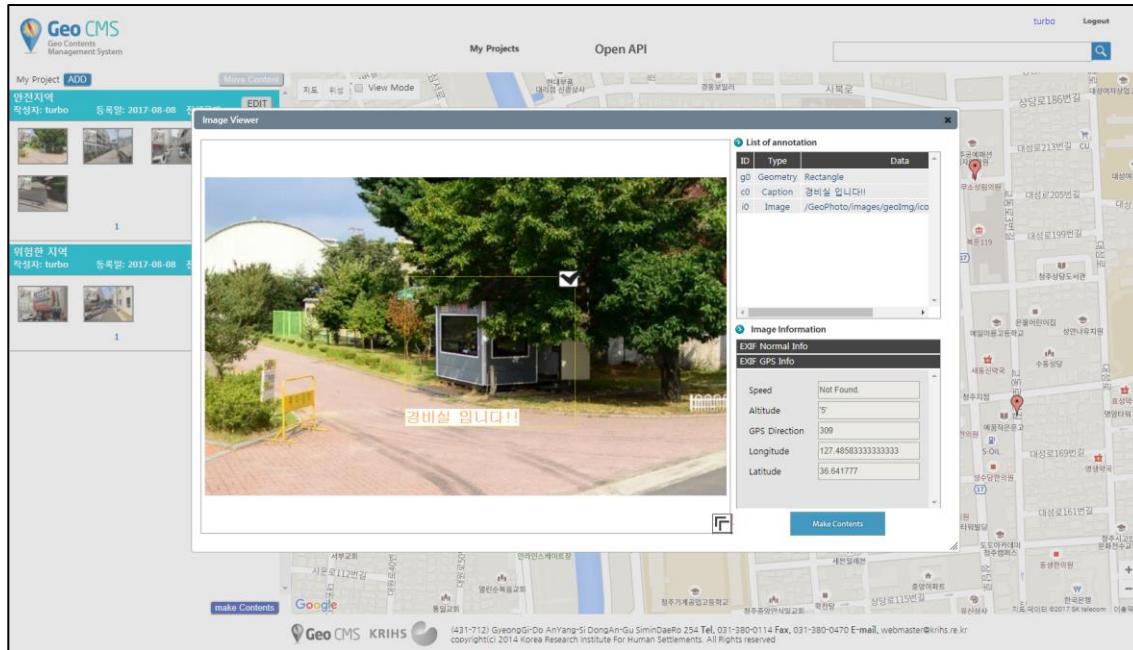
```

<?xml version="1.0" encoding="utf-8"?>
<upcm_obj>
<obj>
<id>g</id>
<top>201</top>
<left>300</left>
<xstr>295_547</xstr>
<ystr>147_370</ystr>
<linecolor>#fff100</linecolor>
<backgroundcolor>#FF0000</backgroundcolor>
<type>rect</type>
</obj>
<obj>
<id>c</id>
<top>375</top>
<left>301</left>
<href>false</href>
<underline>false</underline>
<italic>false</italic>
<bold>true</bold>
<fontsize>H1</fontsize>
<fontcolor>#fbaf5a</fontcolor>
<backgroundcolor>#ffffff</backgroundcolor>
<text>경비실 입니다!!</text>
</obj>
<obj>
<id>i</id>
<top>182</top>
<left>520</left>
<width>53px</width>
<height>42px</height>
<src>/GeoPhoto/images/geoImg/icon/black/d25.png</src>
</obj>
</upcm_obj>

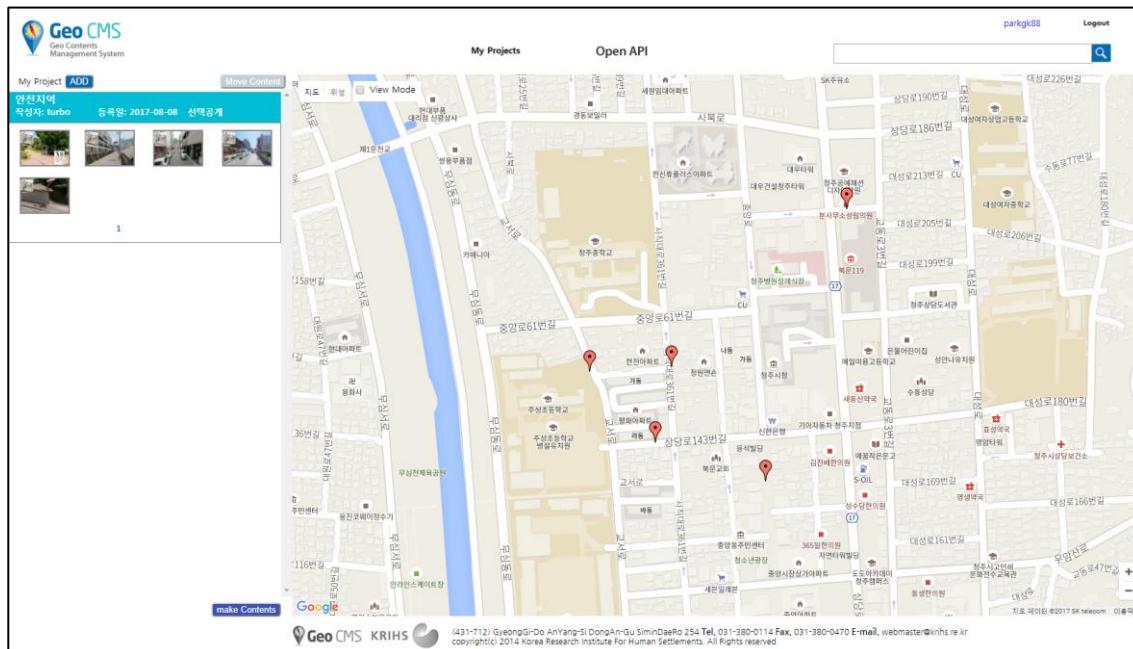
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- Checking the contents of author through Viewer

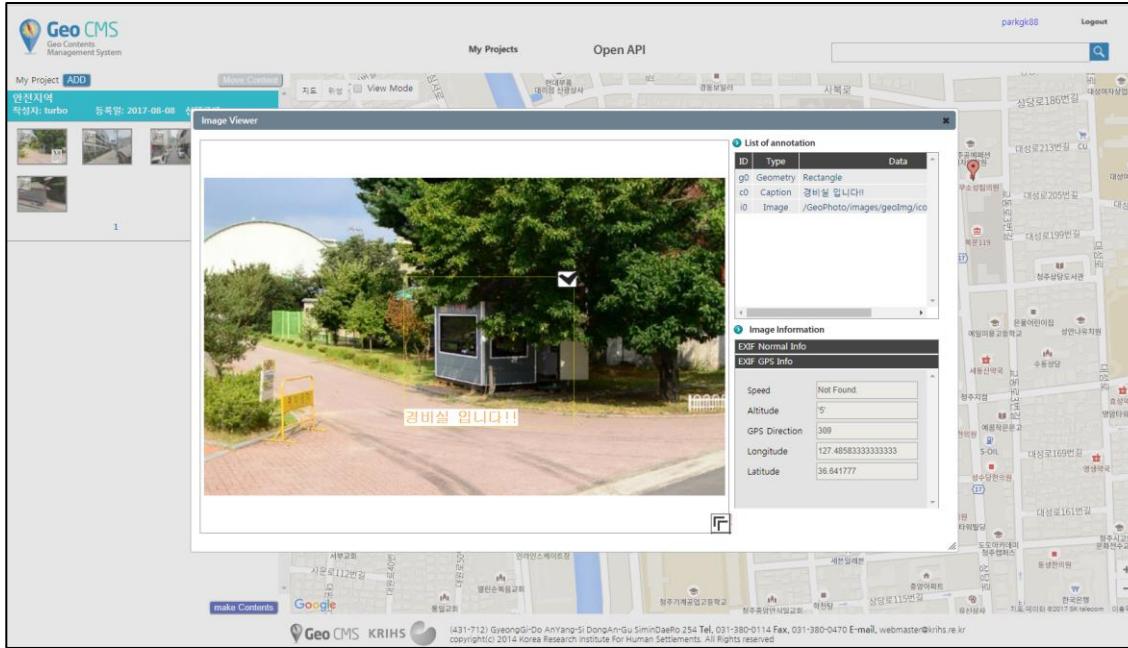


- When you are logged in as a project user (Share O, Edit X)
 - A list of shared projects appears in the My Project list.

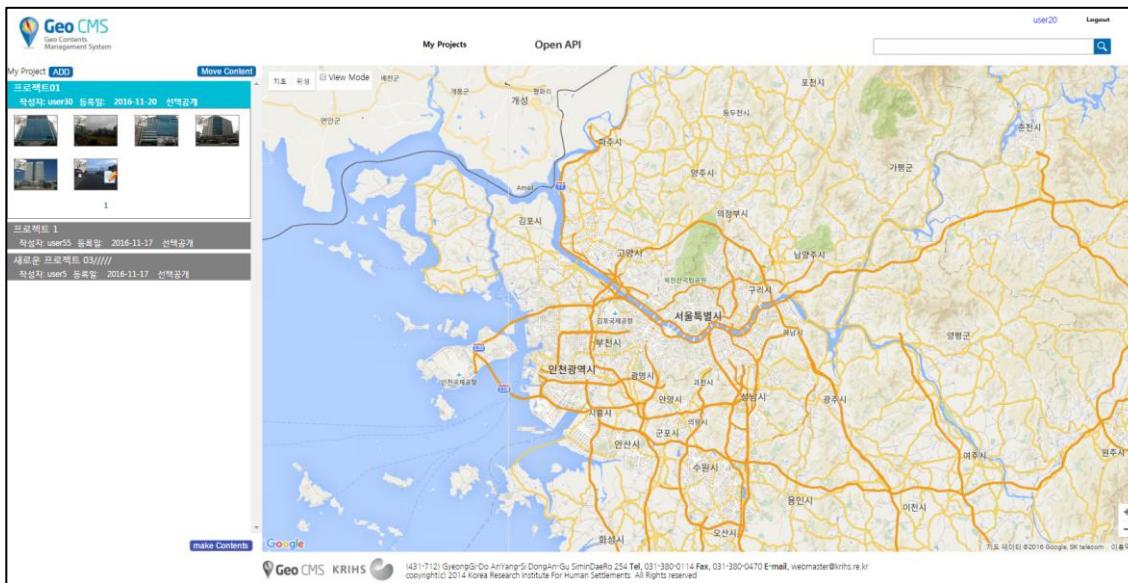


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- There is no editing authority, so it is only possible to view authored content.

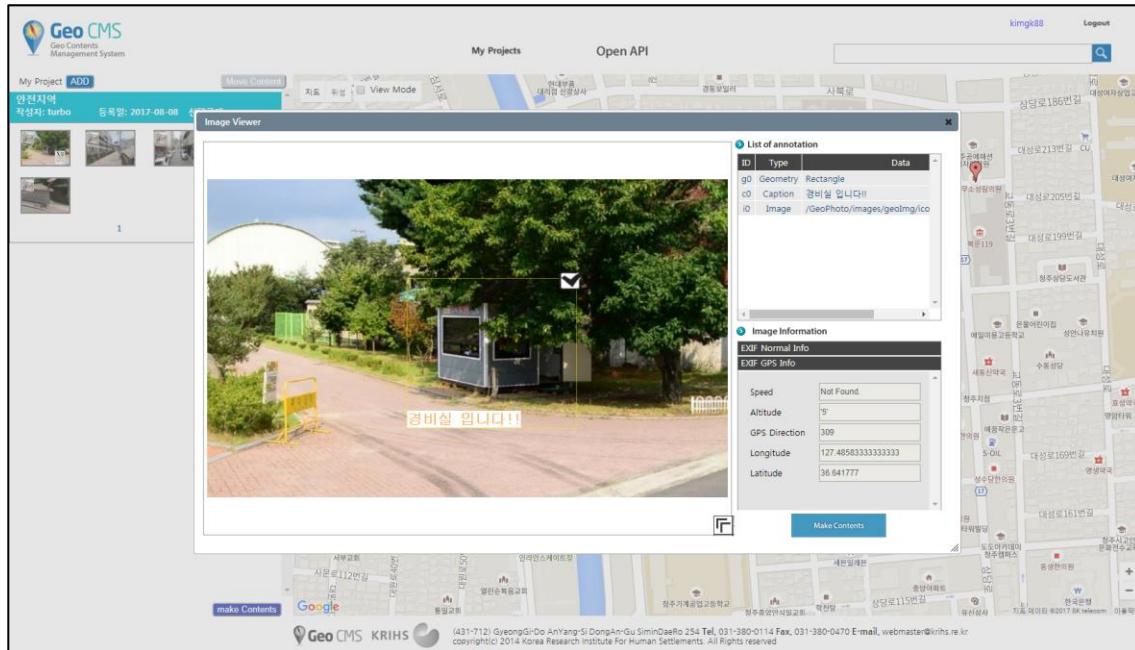


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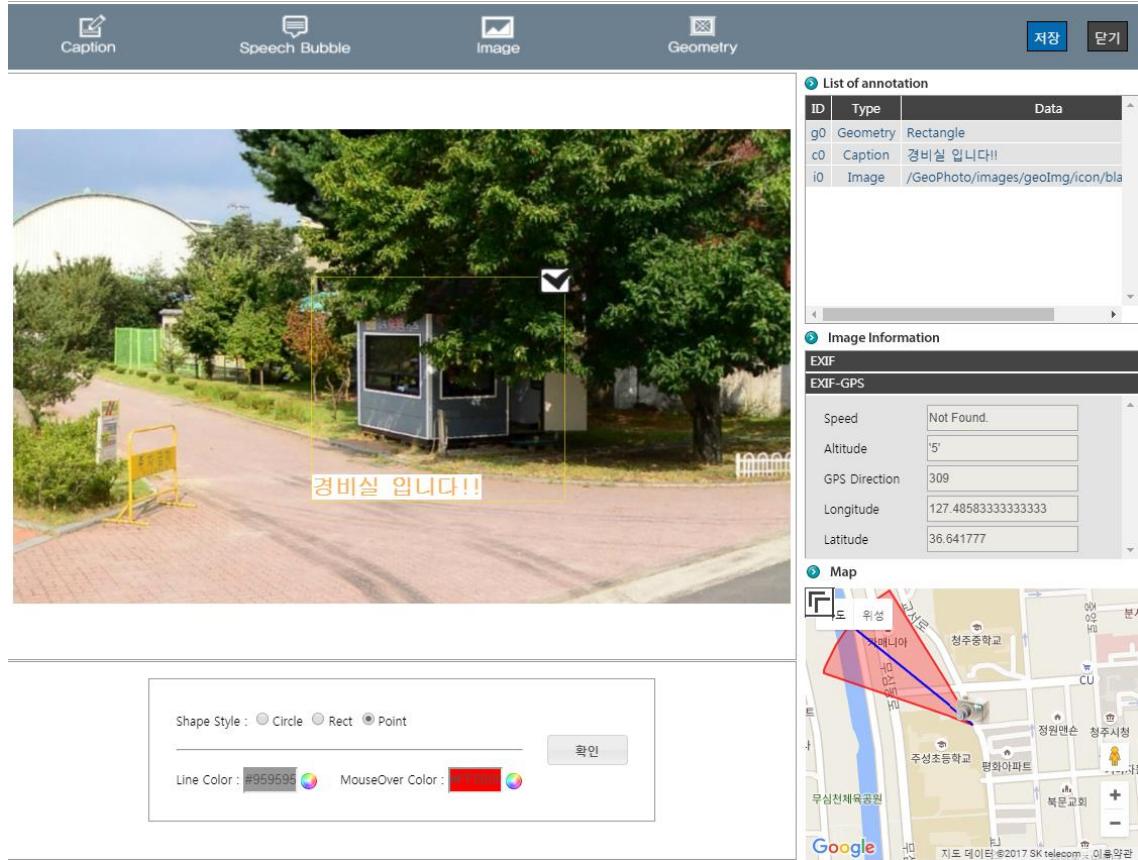
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- The Make Contents button appears in the lower right corner because it has editing authority.



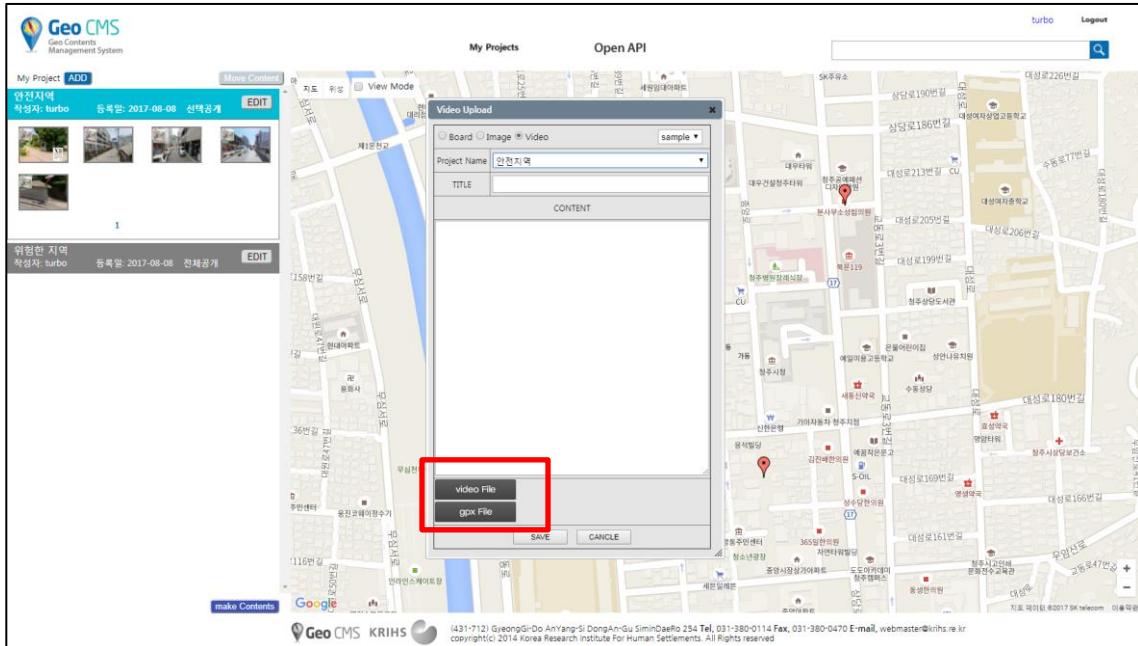
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- Because you have editing authority, when you click the Make Contents button, the authoring window appears and you can author without data.



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- Upload video
 - Click the make Contents button to create the content and then select the video to upload the video.
 - When uploading the video, upload the video file and the gpx file containing the location information.



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- The GPX eXchange format (GPX) file GPS mapping software such as VP, MapSource, OziExplorer, MapSend Lite, GTM It is a file created to enable sharing, and incorporates GPS data information such as waypoints, tracks, and routes.

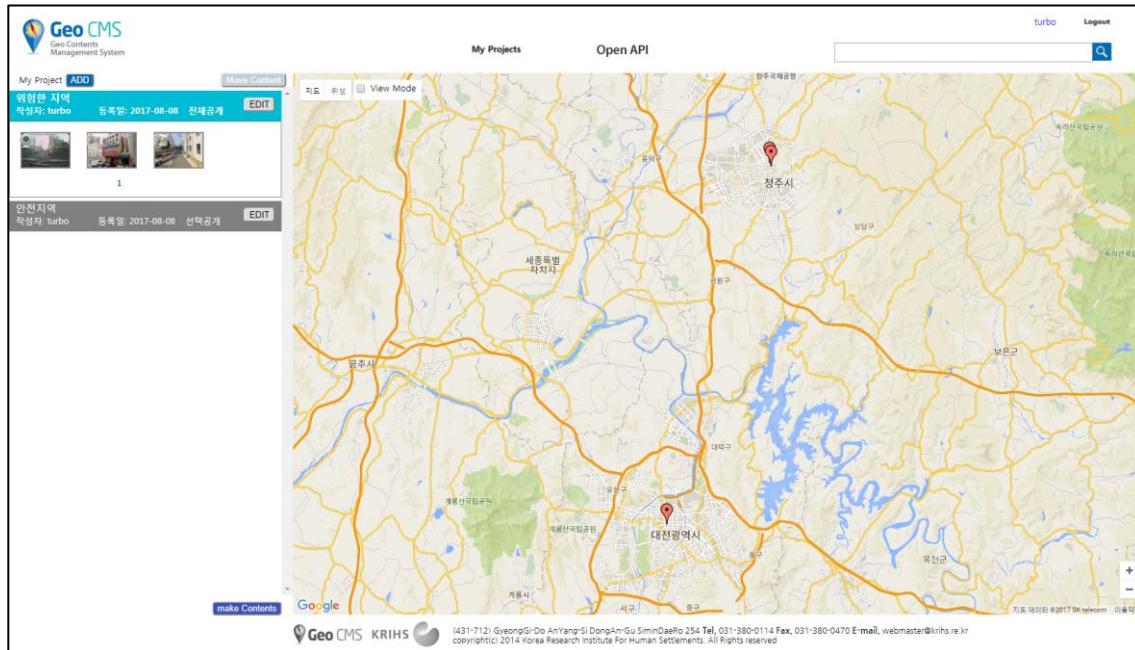
```

<?xml version="1.0" encoding="UTF-8"?>
<gpx xmlns="http://www.topografix.com/GPX/1/1" creator="GPS "
<metadata>
<link href="http://www.gpstm.com">
<text>Geo Studio Technology Ltd</text>
</link>
<time>2010-03-07T03:17:44Z</time>
</metadata>
<trk>
<name>25-video_20100305_112506 on GPSies.com</name>
|<trkseg>
<trkpt lat="36.349095424" lon="127.38477134698378"></trkpt>
<trkpt lat="36.349095424" lon="127.38456749909865"></trkpt>
<trkpt lat="36.349095424" lon="127.3843421935414"></trkpt>
<trkpt lat="36.349095424" lon="127.38417053216445"></trkpt>
<trkpt lat="36.349095424" lon="127.38398814195143"></trkpt>
<trkpt lat="36.349095424" lon="127.38379502290236"></trkpt>
<trkpt lat="36.349095424" lon="127.38352680200087"></trkpt>
<trkpt lat="36.349095424" lon="127.38330149644362"></trkpt>
<trkpt lat="36.349173195" lon="127.38320493691909"></trkpt>
<trkpt lat="36.349268249" lon="127.38319420808303"></trkpt>
<trkpt lat="36.349389225" lon="127.383162021574"></trkpt>
<trkpt lat="36.349458355" lon="127.383162021574"></trkpt>
<trkpt lat="36.349579331" lon="127.383151292738"></trkpt>
<trkpt lat="36.349683025" lon="127.383151292738"></trkpt>
|</trkseg>
</trk>
</gpx>

```

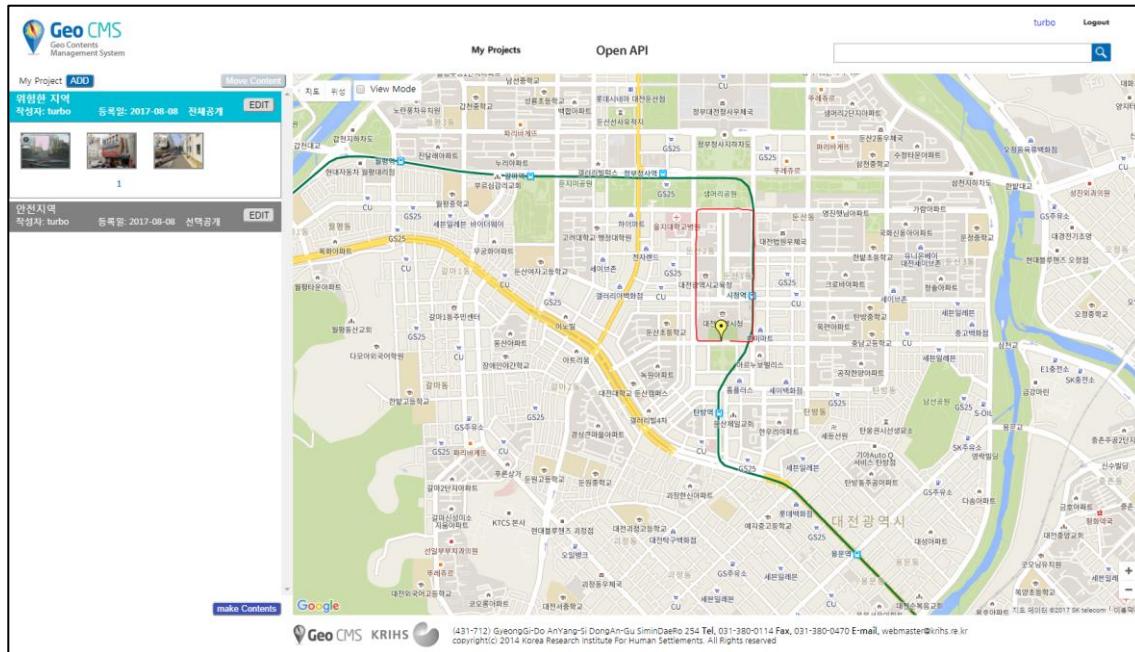
GeoCMS manual	Project classification	Land Spatial Information Research Project
	Project Name	GeoCMS

- After uploading the video, the thumbnail image of the corresponding video is displayed in the left list in the project, and the position information corresponding to the first position of the gpx file is displayed on the right map.



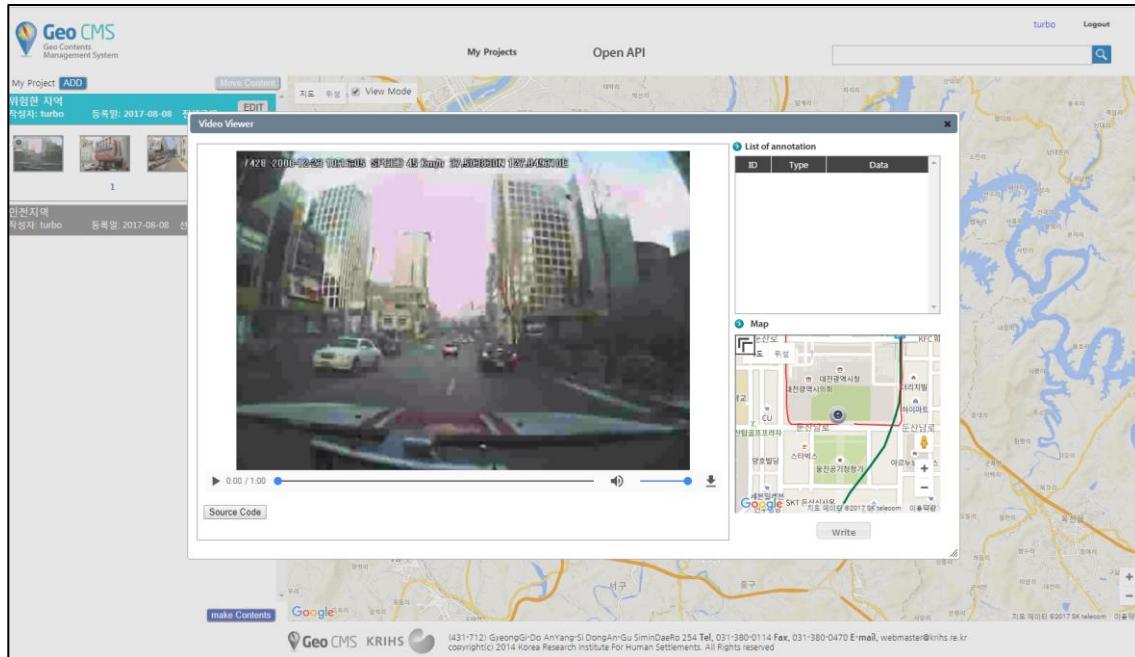
GeoCMS manual	Project classification	Land Spatial Information Research Project
	Project Name	GeoCMS

- Click the image of the video on the left side and it will be displayed as a yellow marker at the start position. The path corresponding to the gpx file will be displayed as a red line, and the corresponding thumbnail and thumbnail name will be displayed when the mouse is overlaid.



GeoCMS manual	Project classification	Land Spatial Information Research Project
	Project Name	GeoCMS

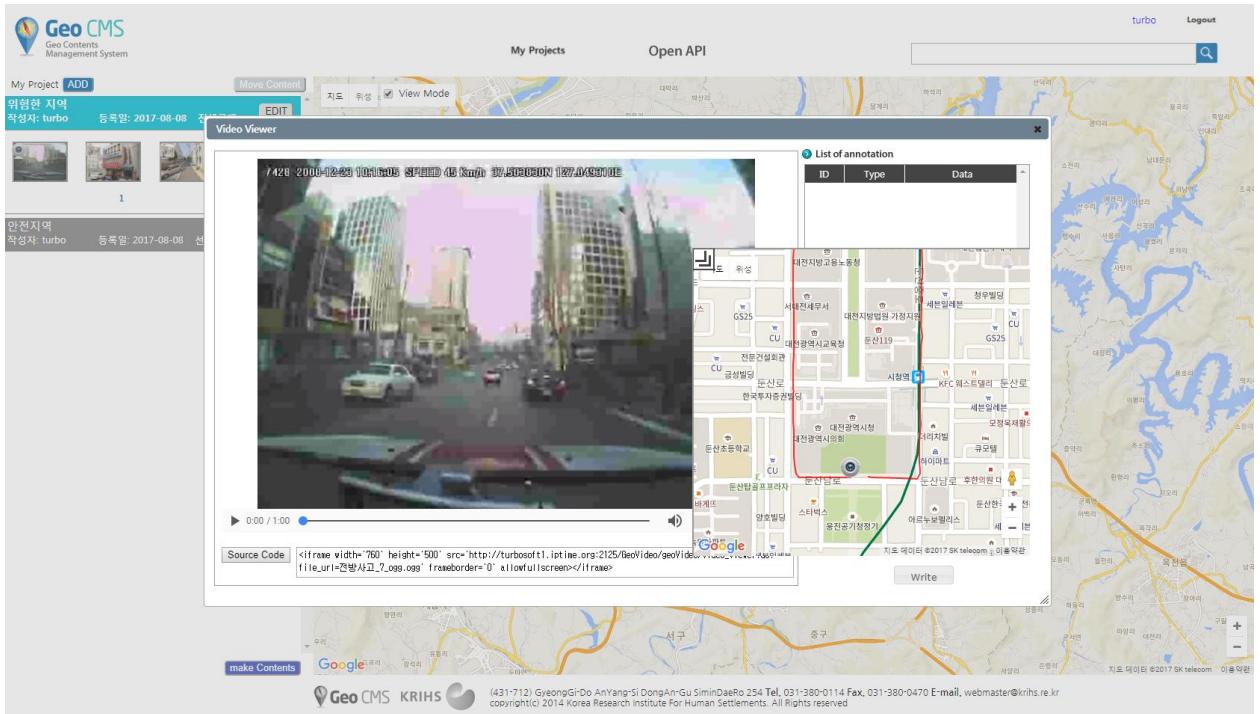
- When clicking the marker, a window showing the video is displayed.



GeoCMS manual	Project classification	Land Spatial Information Research Project
	Project Name	GeoCMS

- In the video viewer window, click the Source Code button at the bottom of the video and the source code for attaching the video is displayed.

When the play button is clicked, the corresponding movie is played back and the marker on the right side is also moved.

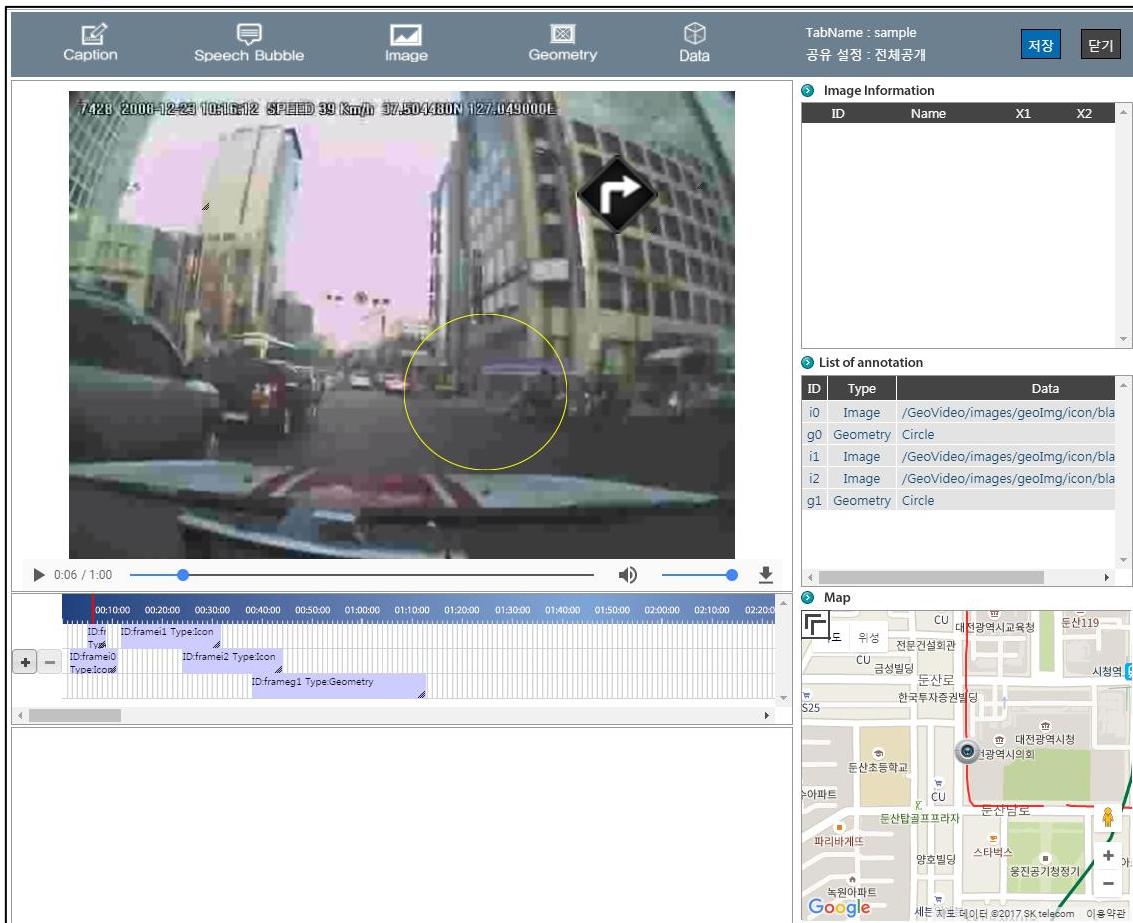


GeoCMS manual	Project classification	Land Spatial Information Research Project
	Project Name	GeoCMS

- When you click the Write button on the bottom right, a window for editing the video appears.

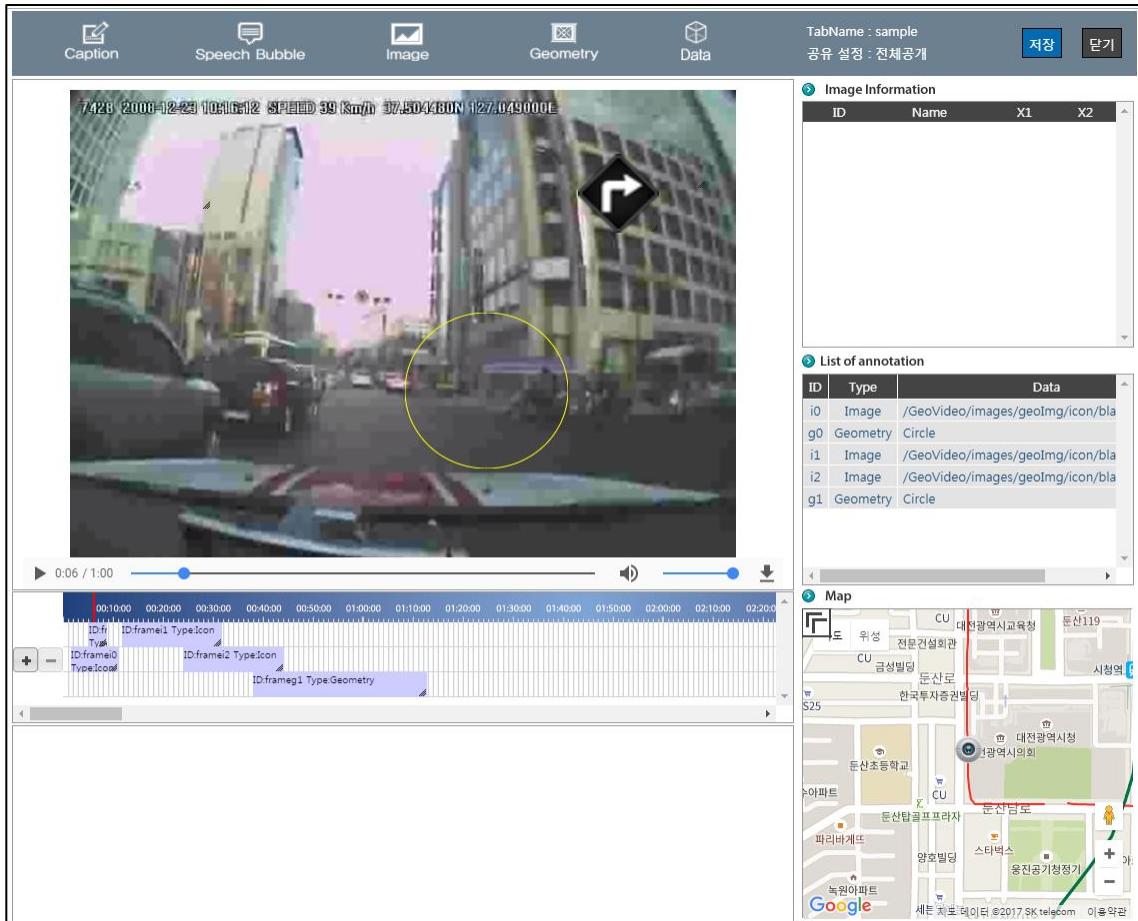
Representing authoring information with zoning and captions

- Top menu: Caption / speech bubble / icon / area setting / data information
- Free area representation using area setting options
- Expressed in caption
- Check the list of objects added to the right
- The frame area at the bottom of the video (information of the objects to be displayed in the corresponding frame of the moving picture)



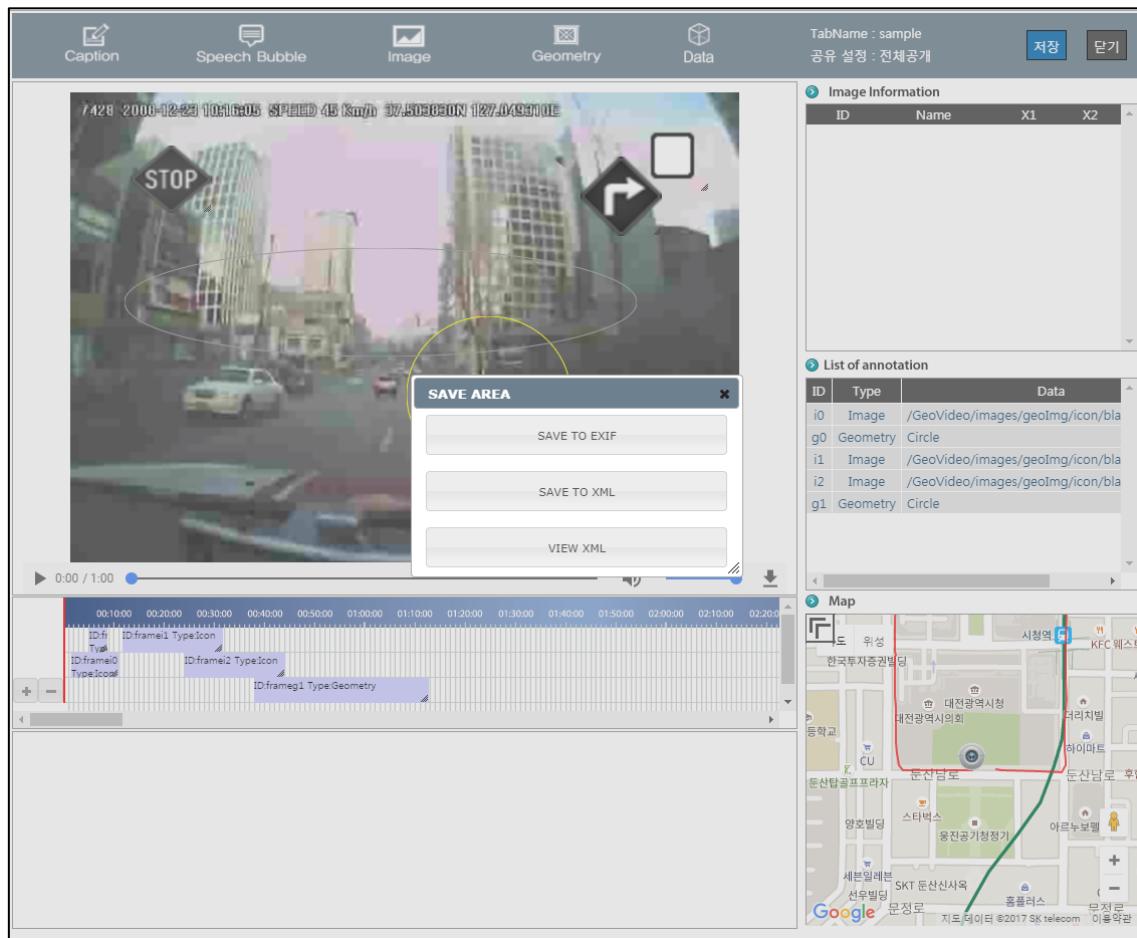
GeoCMS manual	Project classification	Land Spatial Information Research Project
	Project Name	GeoCMS

- Additional expression by application of various icons



GeoCMS manual	Project classification	Land Spatial Information Research Project
	Project Name	GeoCMS

- Select the save method after authoring
 - Save to EXIF
 - Save to XML
 - View XML



GeoCMS manual	Project classification	Land Spatial Information Research Project
	Project Name	GeoCMS

- Check XML file

```

<?xml version="1.0" encoding="utf-8"?>
<upcm_obj>
<obj>
<id>i</id>
<top>74</top>
<left>565</left>
<width>81px</width>
<height>79px</height>
<src>/GeoVideo/images/geoImg/icon/black/d105.png</src>
<frameline>25</frameline>
<framestart>8</framestart>
<frameend>55</frameend>
</obj>
<obj>
<id>g</id>
<top>233</top>
<left>392</left>
<xstr>382_545</xstr>
<ystr>223_379</ystr>
<linecolor>#ff0</linecolor>
<backgroundcolor>#fff</backgroundcolor>
<type>circle</type>
<frameline>0</frameline>
<framestart>26</framestart>
<frameend>44</frameend>
</obj>
<obj>
<id>i</id>
<top>63</top>
<left>117</left>
<width>81px</width>
<height>67px</height>
<src>/GeoVideo/images/geoImg/icon/black/d127.png</src>
<frameline>0</frameline>
<framestart>59</framestart>
<frameend>76</frameend>
</obj>

```

GeoCMS manual	Project classification	Land Spatial Information Research Project
	Project Name	GeoCMS

- Checking the contents of author through Viewer

