

Land Use/Geographical Data

Representative Patent 01

- ❖ Title of Invention : **Method and apparatus for constructing reference layer, method and system for constructing 3d gis data using reference layer**
- ❖ Application Number. : KR2016-0090986

Application of Technology and Field of Use

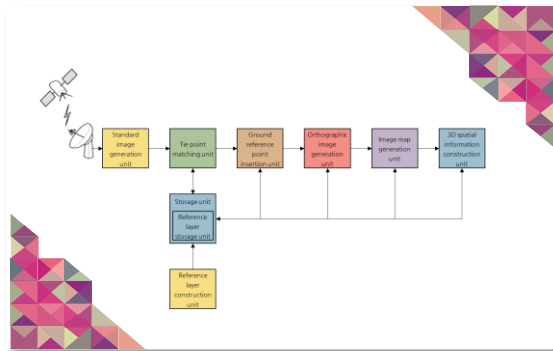
◆ 3D spatial information construction, Non-access area monitoring

◆ Difficulty in constructing spatial information of non-access area

- Difficulties in constructing spatial information around the world due to lack of ground reference point for non-access areas such as border areas or military areas.

◆ Limit of Landsat satellite

- In order to overcome the existing limitations, an independent 3-dimensional spatial information system was constructed using the Landsat satellite, but when using the Landsat satellite, the positioning accuracy of spatial information is deteriorated due to the low resolution.
- Structuring spatial information so that it can be edited requires a lot of money.



<Representative drawing>

Features of Technology

- Constructing a second reference layer by inserting coordinate information of a first reference layer consisting of a numerical map into a first satellite image
- Constructing a third reference layer by tie-point matching a non-residential area image taken by a second satellite with the second reference layer
- Constructing a fourth reference layer by tie-point matching a residence area image taken by the second satellite and the second reference layer and inserting the ground reference point of the first reference layer into the residence area image of the second satellite

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Technical Effects

◆ Possible to construct 3D spatial information according to positioning accuracy required by area

- In non-residential areas such as deserts, mountains, fields, and rural areas, the positioning accuracy of Landsat satellite images can be maintained.
- In residential areas such as cities, the positioning accuracy can be improved to the level of OSM.

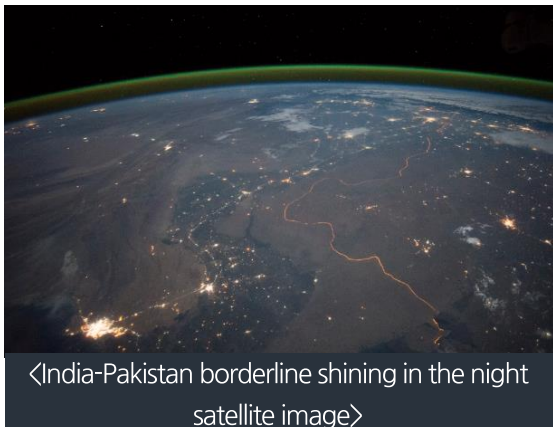
◆ Possible to reduce structuring costs while improving positioning accuracy

- Constructing a plurality of reference layers with different resolutions and positioning accuracy, and constructing 3D spatial information using images of the reference layer corresponding to a shooting area among the constructed plurality of reference layers.

◆ Possible to improve resolution and accuracy

- By preferentially selecting the reference layer with the highest resolution and tie-point matching a standard image, it is possible to improve the resolution and positioning accuracy of the standard image.

Social, Environmental, Economical Effects



<India-Pakistan borderline shining in the night satellite image>

◆ Available for monitoring development of territory

- It is possible to analyze the current state of land use and establish a power generation plan by performing an accurate diagnosis on the current state of territory use through territory monitoring using the construction of earth's surface spatial information

◆ Possible to construct spatial information of inaccessible area

- It is possible to construct accurate spatial information on border areas by securing ground reference points in inaccessible areas such as border areas

◆ Available for monitoring disasters such as earthquakes

- It is possible to predict disasters in advance by monitoring changes such as uplift or subsidence of the earth's surface which occur before an earthquake