Land Use/Geographical Data

Representative Patent 02

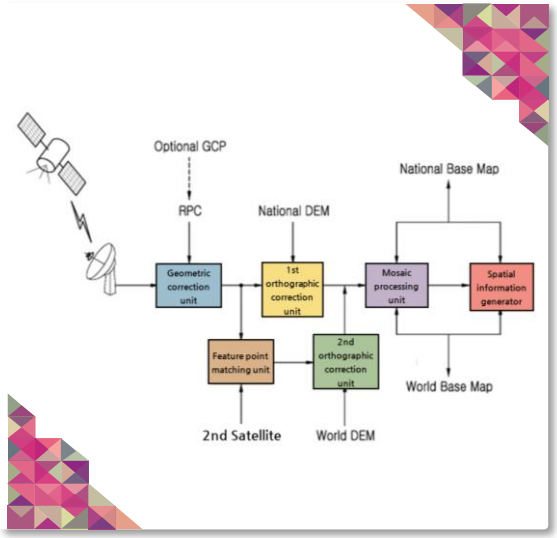
❖ Title of Invention : **Satellite based method and system for constructing 3d gis data**
❖ Application Number. : **KR2015-0126857**

Application of Technology and Field of Use

◆ **Spatial information construction**

◆ **Difficult to obtain location accuracy when constructing spatial information**

- In the case the performance of the star tracker is low, the positional precision of the satellite image is lowered.
- It is difficult to secure practical positioning accuracy for inaccessible areas that do not have ground reference points such as border areas or military areas.



〈Representative drawing〉

Features of Technology

- Generating a standard image by geometrically correcting a first satellite image taken by a first satellite based on a Rational Polynomial Coefficient (RPC)
- Generating a first orthogonal image by ortho-correcting the generated standard image based on a digital elevation model (DEM)
- Generating a 2D image by matching a tie point of a second satellite image with a higher positional accuracy than the first satellite image taken by a second satellite with a tie point of the standard image
- Generating a second orthogonal image by ortho-correcting the generated 2D image based on World DEM
- Generating a first mosaic image and a second mosaic image by mosaicizing the first and second orthogonal images, respectively, based on a map for a predetermined region and a map for the whole world
- Creating 3D spatial information around the world by matching the first mosaic image and the second mosaic image with the DEM and the World DEM

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Technical Effects

◆ **Improvement of positional precision of 3D spatial information**

- Improves the accuracy of the location of three-dimensional spatial information for accessible areas.
- It is possible to generate high-precision three-dimensional spatial information even for non-access areas.

◆ **Ability to improve location accuracy for inaccessible areas**

- It is possible to improve the positional accuracy for the inaccessible area through the method of extracting and correcting the tie point using the second satellite image.

〈Mobile satellite monitoring earth's surface〉

Social, Environmental, Economical Effects

◆ **3D spatial information of the world with high location precision can be obtained.**

- It is possible to build high-precision 3D spatial information around the world by improving location accuracy for non-access areas.

◆ **Possible to use for monitoring disasters such as earthquakes**

- Disaster can be predicted in advance by monitoring changes such as elevation or subsidence of the surface that occur before an earthquake.