Forestry/Wildfire

Representative Patent 01

❖ Title of Invention : **Method and system for automatically generating satellite image map**
❖ Application Number. : **KR2016-0132047**

### Application of Technology and Field of Use

◆ **Generation of satellite image maps, Monitoring of change in forest land**

◆ **Occurrence of errors when constructing spatial information for generation of satellite image maps, depending on shooting conditions**

- Since it is difficult to extract a geometric position from a satellite image according to various observation conditions, it is necessary to correct the satellite image using information detected by various sensors.

- In the case of estimating the location information of the satellite image using only the information provided by the resolution satellite, an error of several hundred meters occurs depending on the shooting conditions.

◆ **High cost and manpower required to improve location accuracy**

- Ground Control Point (GCP) is used to correct the position error, but correction to improve the position accuracy of the satellite image requires a large amount of manpower and cost.

〈Representative drawing〉
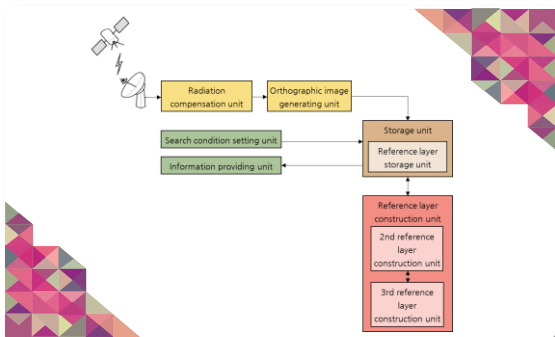
Features of Technology

• Constructing a second reference layer by manually inserting coordinate information of a first reference layer consisting of a numerical map into a first satellite image having a medium resolution

• Generating a matched satellite image by matching a high-resolution second satellite image with the first satellite image

• Constructing a third reference layer by automatically inserting coordinate information of the first reference layer into the matched satellite image based on relationship between the first satellite image and the coordinate information of the first reference layer inserted into the first satellite image

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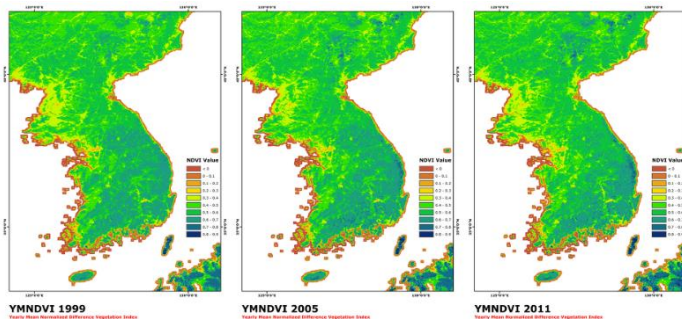## Representative Patent 01

Technical Effects

◆ **Possible to reduce costs while improving positioning accuracy**

- By generating the matched satellite image using a medium-resolution satellite image with accurate location information and automatically matching a high-precision numerical map to the matched satellite image, it is possible to reduce costs while improving positioning accuracy.

◆ **Possible to build global-scale satellite image map**

- It is possible to improve the positional accuracy of a high-resolution satellite image by using the medium-resolution first satellite image in which the position information is accurate, and to generate a high-resolution satellite image map on a global scale.
- In the case of applying additional geometric correction using an auxiliary information file, it is possible to reduce quality degradation occurring in the image processing process.

Social, Environmental, Economical Effects

YMNDVI 1999
Yearly Mean Normalized Difference Vegetation Index

YMNDVI 2005
Yearly Mean Normalized Difference Vegetation Index

YMNDVI 2011
Yearly Mean Normalized Difference Vegetation Index

⟨Korea's regular vegetation index analyzed every 6 years⟩

◆ **Possible to monitor changes in green area of forest**

- It is possible to extract green areas using NDVI values related to vegetation and to extract change information of green areas based on this.

◆ **Possible to accurately determine damaged area in the event of disasters based on satellite map**

- By constructing a high-resolution satellite map, it is possible to collect data on disaster-prone areas and establish plans and countermeasures for disasters.