Climate/Environment

Representative Patent 04
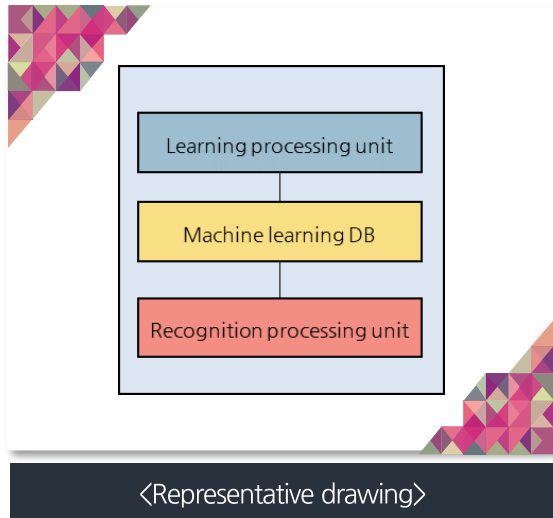
❖ Title of Invention : **Method and system for recognizing images based on machine learning**

❖ Application Number. : **KR2018-0078910**

Application of Technology and Field of Use

◆ **Weather prediction, Image recognition technology**

◆ **Existing image recognition systems have limitations when they cannot extract objects.**

- An image recognition method using an existing machine learning system may become unstable in that it cannot distinguish an object from the background if it cannot extract the object from an input image.


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Learning processing unit
        |
Machine learning DB
        |
Recognition processing unit
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〈Representative drawing〉

Features of Technology

• Recording data on a background fragment selected by processing images for training in a machine learning DB
• Determining whether the background fragment is included in an actual input image
• If it is included as a result of the determination, searching for the data in the machine learning DB, and outputting information recognized in relation to the actual image using the retrieved data on a screen

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Technical Effects

◆ **Possible to increase object recognition performance and accuracy**
- It is possible to increase recognition performance and accuracy by extracting a part of the background excluding the object from the image for training as a meaningful object and combining the object and the background fragment.

◆ **Possible to provide environment for recognizing objects in real images**
- Even in the case that an object is not extracted from the input actual image, it is possible to provide an environment in which navigation information such as location and direction can be recognized using the learned background fragment.

◆ **Possible to accurately calculate position of object**
- The position of each object can be calculated relatively accurately by using relationship information between the object and the background fragments.
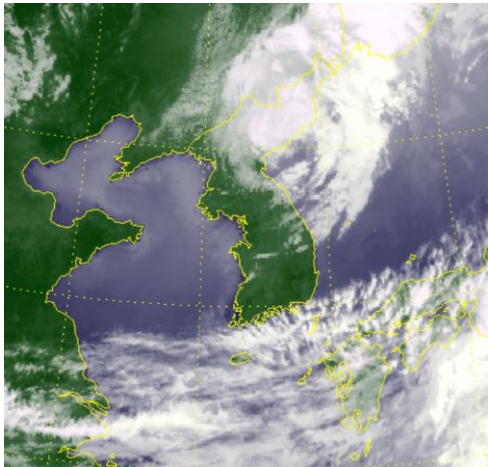

⟨Satellite image of observing weather information⟩

Social, Environmental, Economical Effects

◆ **Possible to be used for weather forecasting systems**
- By distinguishing between the surface and the cloud, the movement path of the cloud can be tracked and applied to the weather forecasting system.

◆ **Possible to provide integrated recognition system**
- It is possible to provide an integrated recognition system that can be applied to a system that refers to numerical terrain information, a system to find a matching reference point in an image, a system to extract navigation information from an image, and machine learning-based applications.