

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF APPEALS

In re Patent Application of:	)
<b>GARCEAU ET AL.</b>	)
	)
Serial No. <b>11/328,678</b>	) Examiner: <b>M. JEN</b>
	)
Confirmation No.: <b>6572</b>	) Art Unit: <b>3664</b>
	)
Filing Date: <b>JANUARY 10, 2006</b>	) Attorney Docket No.
	) <b>GCSD-1780 (51454)</b>
For: <b>ENVIRONMENTAL CONDITION</b>	)
<b>DETECTING SYSTEM USING</b>	)
<b>GEOSPATIAL IMAGES AND</b>	)
<b>ASSOCIATED METHODS</b>	)
	)

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**APPELLANTS' APPEAL BRIEF**

**EFILE**

Commissioner for Patents

Commissioner:

Submitted herewith is Appellants' Appeal Brief together with the requisite \$620.00 large entity fee for filing a brief. If any additional extension and/or fee is required, authorization is given to charge Deposit Account No. **08-0870**.

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(1) Real Party in Interest

The real party in interest is Harris Corporation, assignee of the present application as recorded at reel 017760, frame 0037.

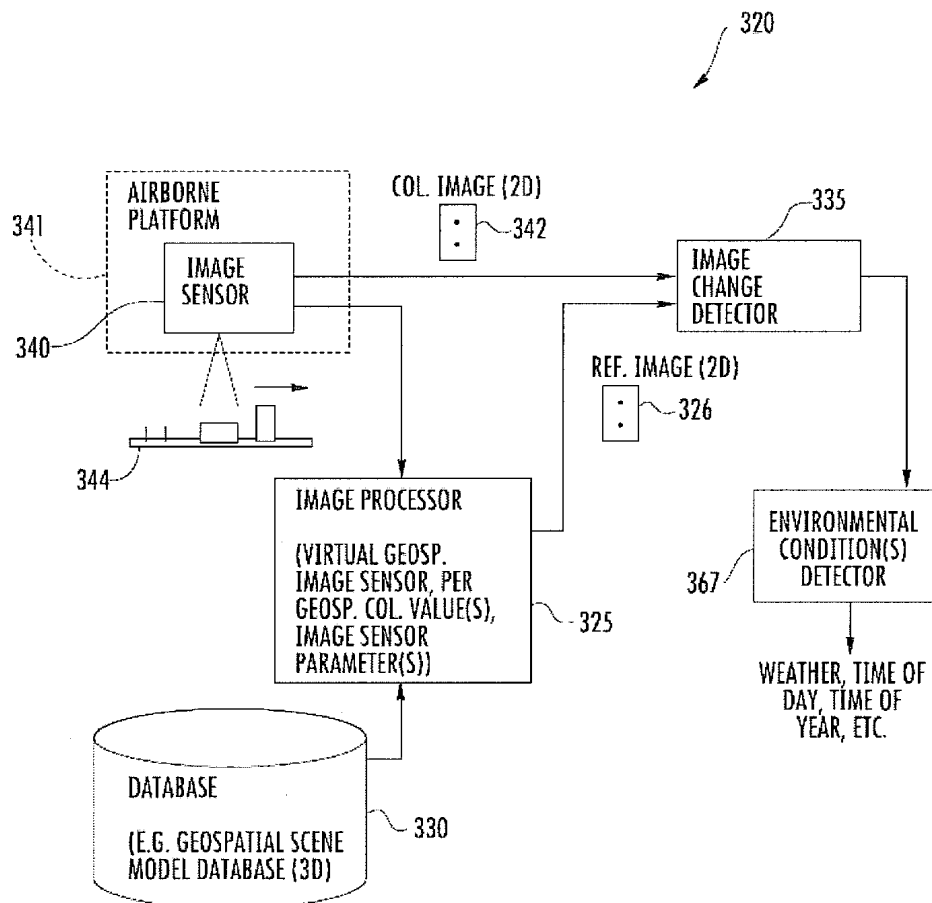
(2) Related Appeals and Interferences

At present there are no related appeals, interferences, or judicial proceedings.

(3) Summary of the Claimed Subject Matter

Independent Claim 1 is directed to an environmental condition detecting system 320 to detect at least one environmental condition associated with a collected geospatial image 342 from a geospatial image sensor 240 carried by an airborne platform 341. The environmental condition detecting system comprises a database 330, an image processor 325 operable with the database to generate a reference geospatial image 326 corresponding to the collected geospatial image, a change detector 335 operable with the image processor to detect a change between the collected geospatial image and the reference geospatial image, and an environmental condition detector 367. The environmental condition detector is operable with the change detector to detect the at least one environmental condition associated with the collected geospatial image based upon the change between the collected geospatial image and the reference geospatial image. The at least one environmental condition comprises at least one weather condition relating to at least one of image obscuration and surface reflectivity. (Specification:

Page 15, line 16 through page 17, line 19; and Figure 9, reproduced below).



**Figure 9 of the Present Application**

Independent Claim 10 is directed to a weather condition detecting system 320 to detect at least one weather condition associated with a collected geospatial image 342 from a geospatial image sensor 340 carried by an airborne platform 341. The weather condition detecting system includes a geospatial scene model database 330, and an image processor 325 operable with the database to generate a reference geospatial image 326 corresponding to the collected geospatial image. The weather condition detecting system includes a change detector 335

operable with the image processor to detect a change between the collected geospatial image and the reference geospatial image, and a weather condition detector 367 operable with the change detector to detect the at least one weather condition associated with the collected geospatial image based upon the change between the collected geospatial image and the reference geospatial image. The at least one weather condition relates to at least one of image obscuration and surface reflectivity.

(Specification: Page 15, line 16 through page 17, line 19; and Figure 9, reproduced above).

Independent Claim 15 is directed to an environmental condition detecting method to detect at least one environmental condition associated with a collected geospatial image 342 from a geospatial image sensor 340 carried by an airborne platform 341. The environmental condition detecting method includes using an image processor 325 cooperating with a database 330 for generating a reference geospatial image 326 corresponding to the collected geospatial image, and detecting a change between the collected geospatial image and the reference geospatial image. The environmental condition detecting method includes detecting the at least one environmental condition associated with the collected geospatial image based upon the change between the collected geospatial image and the reference geospatial image. The at least one environmental condition comprises at least one weather condition relating to at least one of image obscuration and surface reflectivity. (Specification: Page 15, line 16 through page 17, line 19; and Figure 9, reproduced above).

(4) Argument

After twice receiving proper relief from the Pre-Appeal Brief Review Panel, i.e. overturning prior improper rejections by the Examiner, and receiving issued patents on the related applications,<sup>1</sup> which were also subject to rejections similar to the current rejection in the present application, the Examiner continues to wrongly reject the present application for the reasons detailed herein. Indeed, the Examiner has repeatedly reformulated rejections based upon erroneous prior rejections.

The Examiner rejected independent Claims 1, 10, and 15 over Oldroyd in view of Stossel et al. and Wolfson et al. Oldroyd discloses a system for automatic image registration that includes a sensor collecting imagery from a mobile platform. The sensor also collects sensing parameters, e.g. field of view, resolution, and azimuth, and platform parameters. The system also includes a reference database for storing reference images. The system extracts a "chip" from the reference images to compare to the corresponding collected image. The chip is warped or distorted to conform to the known geometry of the collected image, the distortion mimicking the perspective of the sensor in the collected image.

The Examiner correctly notes that Oldroyd fails to disclose detecting the at least one environmental condition associated with the collected geospatial image based upon the change between the collected geospatial image and the reference geospatial image, as recited by independent Claim 1, for example.

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<sup>1</sup> Appellants note to the Board of Patent Appeals and Interferences that the present application is related to U.S. Patent Nos. 7,630,797, 7,603,208, and 7,528,938.

The Examiner looks to Stossel et al. to supply this deficiency of Oldroyd.

Stossel et al. discloses a change detection system that compares a collected image with a synthetic image generated from a model database. The system detects changes in vegetation, i.e. whether trees have been removed in the collected image.

The Examiner correctly notes that neither Oldroyd nor Stossel et al. discloses the environmental condition being a weather condition, and looks to Wolfson et al. for this deficiency. Wolfson et al. discloses a short term weather prediction method. The method includes receiving sequentially timed collected meteorological images (i.e. coming from "one or more external sources"),<sup>2</sup> detecting changes between the images to detect time based changes in the weather pattern, and predicting future weather based upon the growth patterns of weather patterns.

Appellants respectfully submit that neither Oldroyd, Stossel et al., nor Wolfson et al. discloses an environmental condition detector detecting the environmental condition associated with the collected geospatial image based upon the change between the collected geospatial image and the reference geospatial image, the environmental condition comprising at least one weather condition relating to at least one of image obscuration and surface reflectivity, as recited by independent Claim 1, for example. In other words, independent Claim 1 recites the environmental condition detector detecting at least one weather condition relating to at least one of image

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<sup>2</sup> Col. 9, line 43.

obscuration and surface reflectivity associated with the collected geospatial image based upon the change between the collected geospatial image and the reference geospatial image. None of the applied prior art references discloses or fairly suggests this claim feature.

As noted above, the change detection of Oldroyd and Stossel et al. does not relate to weather conditions. Moreover, Wolfson et al. discloses a typical weather forecast system that uses movement of weather patterns in collected imagery, i.e. it already knows it is inputted with weather imagery and does not detect it based upon change a collected image and a reference image.

Furthermore, Appellants submit that the proposed combination of prior art references is improper for lack of proper rationale to combine. The Examiner proposes that the skilled person would combine the change detection system with environment condition detection from Stossel et al. into Oldroyd "to provide a change detection system for environment condition."<sup>3</sup> Appellants submit that this proffered rationale suffers from a basic logical fallacy, i.e. begging the question (*petitio principia*). In essence, the Examiner argues the skilled person would add the teaching of Stossel et al. into Oldroyd to provide that same teaching. Appellants submit that under this rationale, Appellants could hypothetically obviously modify Oldroyd to have a toaster oven to provide a toaster oven. Given the fact that this proffered rationale suffers from a basic logical fallacy, Appellants submit that this proffered rationale

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<sup>3</sup> Office Action 11-04-2011 at Page 5.

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to combine does not meet the barest of minimums for making a prima facie case of obviousness.

Accordingly, because of the above noted critical deficiency of the prior art, it is submitted that independent Claims 1, 10, and 15 are patentable over the prior art. Their respective dependent claims, which recite yet further distinguishing features, are also patentable over the prior art and require no further discussion herein.



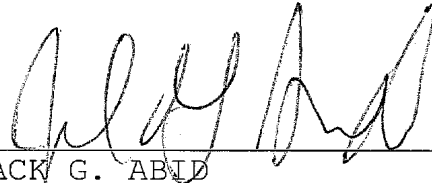
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**CONCLUSIONS**

In view of the foregoing arguments, it is submitted that all of the claims are patentable over the prior art. Accordingly, the Board of Patent Appeals and Interferences is respectfully requested to reverse the earlier unfavorable decision by the Examiner.

Respectfully submitted,



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**APPENDIX A - CLAIMS ON APPEAL**  
**FOR U.S. PATENT APPLICATION SERIAL NO. 11/328,678**

1. A environmental condition detecting system to detect at least one environmental condition associated with a collected geospatial image from a geospatial image sensor carried by an airborne platform, the environmental condition detecting system comprising:

a database;

an image processor operable with said database to generate a reference geospatial image corresponding to the collected geospatial image;

a change detector operable with said image processor to detect a change between the collected geospatial image and the reference geospatial image; and

an environmental condition detector operable with said change detector to detect the at least one environmental condition associated with the collected geospatial image based upon the change between the collected geospatial image and the reference geospatial image, the at least one environmental condition comprising at least one weather condition relating to at least one of image obscuration and surface reflectivity.

4. An environmental condition detecting system according to Claim 1 wherein the at least one environmental condition further comprises at least one of a time of day and a time of year.

5. An environmental condition detecting system according to Claim 1 wherein said database comprises a geospatial scene model database.

6. An environmental condition detecting system according to Claim 5 wherein said geospatial scene model database comprises three-dimensional (3D) scene model data; and wherein each of the collected geospatial image and the reference geospatial image comprises respective two-dimensional (2D) image data.

7. An environmental condition detecting system according to Claim 5 wherein said geospatial scene model database comprises at least one of terrain data, building data, and foliage data.

8. An environmental condition detecting system according to Claim 5 wherein the collected geospatial image has at least one geospatial collection value associated therewith; and wherein said image processor is operable to generate the reference geospatial image based upon synthetically positioning a virtual geospatial image sensor within a geospatial scene model based upon the at least one geospatial collection value.

9. An environmental condition detecting system according to Claim 8 wherein the at least one geospatial collection value comprises at least one of a geospatial collection position, a geospatial collection orientation, and a geospatial collection field-of-view.

10. A weather condition detecting system to detect at least one weather condition associated with a collected geospatial image from a geospatial image sensor carried by an airborne platform, the weather condition detecting system comprising:

a geospatial scene model database;

an image processor operable with said database to generate a reference geospatial image corresponding to the collected geospatial image;

a change detector operable with said image processor to detect a change between the collected geospatial image and the reference geospatial image; and

a weather condition detector operable with said change detector to detect the at least one weather condition associated with the collected geospatial image based upon the change between the collected geospatial image and the reference geospatial image, the at least one weather condition relating to at least one of image obscuration and surface reflectivity.

12. An weather condition detecting system according to Claim 10 wherein said geospatial scene model database comprises three-dimensional (3D) scene model data; and wherein each of the collected geospatial image and the reference geospatial image comprises respective two-dimensional (2D) image data.

13. An weather condition detecting system according to Claim 10 wherein the collected geospatial image has at least one geospatial collection value associated therewith; and wherein said image processor is operable to generate the reference

geospatial image based upon a synthetically positioned virtual geospatial image sensor within a geospatial scene model based upon the at least one geospatial collection value.

14. An weather condition detecting system according to Claim 13 wherein the at least one geospatial collection value comprises at least one of a geospatial collection position, a geospatial collection orientation, and a geospatial collection field-of-view.

15. A environmental condition detecting method to detect at least one environmental condition associated with a collected geospatial image from a geospatial image sensor carried by an airborne platform, the environmental condition detecting method comprising:

using an image processor cooperating with a database for generating a reference geospatial image corresponding to the collected geospatial image;

detecting a change between the collected geospatial image and the reference geospatial image; and

detecting the at least one environmental condition associated with the collected geospatial image based upon the change between the collected geospatial image and the reference geospatial image, the at least one environmental condition comprising at least one weather condition relating to at least one of image obscuration and surface reflectivity.

17. An environmental condition detecting method according to Claim 15 wherein the at least one environmental

condition further comprises at least one of a time of day and a time of year.

18. An environmental condition detecting method according to Claim 15 wherein the database comprises a geospatial scene model database including three-dimensional (3D) scene model data; and wherein each of the collected geospatial image and the reference geospatial image comprises respective two-dimensional (2D) image data.

19. An environmental condition detecting method according to Claim 18 wherein the geospatial scene model database comprises at least one of terrain data, building data, and foliage data.

20. An environmental condition detecting method according to Claim 18 wherein the collected geospatial image has at least one geospatial collection value associated therewith; and wherein generating the reference geospatial image is based upon synthetically positioning a virtual geospatial image sensor within a geospatial scene model based upon the at least one geospatial collection value.

21. An environmental condition detecting method according to Claim 20 wherein the at least one geospatial collection value comprises at least one of a geospatial collection position, a geospatial collection orientation, and a geospatial collection field-of-view.