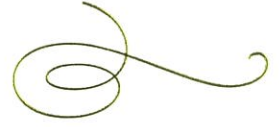
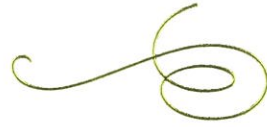


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*Therefore, this United States*

*Patent*

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*Donna H. Hampel*

Performing the Functions and Duties of the Under Secretary of Commerce for Intellectual Property and

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(12) **United States Patent**  
**Huang et al.**

(10) **Patent No.:** **US 11,244,172 B2**

(45) **Date of Patent:** **Feb. 8, 2022**

(54) **TIME VARIANT GEOGRAPHICAL INFORMATION SYSTEM DATA ACQUISITION DEVICE FOR MOBILE VEHICLES AND THE SYSTEM THEREOF**

(58) **Field of Classification Search**  
None  
See application file for complete search history.

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Taoyuan (TW)

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**Chia-Ming Chuang**, Taoyuan (TW)

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(73) Assignee: **Mintron Energy Technology Co., Ltd.**,  
Taoyuan (TW)

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(\* ) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

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(21) Appl. No.: **16/956,778**

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*Primary Examiner* — Gelek W Topgyal  
(74) *Attorney, Agent, or Firm* — Wang Law Firm, Inc.

(86) PCT No.: **PCT/CN2019/118352**

§ 371 (c)(1),  
(2) Date: **Jun. 22, 2020**

(57) **ABSTRACT**

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PCT Pub. Date: **May 28, 2020**

An time variant geographical information acquisition system for mobile vehicles and the system thereof is disclosed, which provides the time variant geographic information system to at least one mobile vehicle located in the aforementioned three-dimensional space, wherein the system comprises: a plurality of image capturing apparatus, at least one monitoring host and at least one time variant geographical information acquisition system for mobile vehicles installed on the above-said mobile vehicle, in which the data capture device includes: a wireless communication unit, connected to the image capturing apparatus and/or the monitoring host; a timing unit, used to output a timing signal in cooperation with the wireless communication unit; a memory module, storing the geographic information corresponding to at least the aforementioned mobile vehicle in the three-dimensional space; and a traffic scenario output interface, collectively displaying the geographic information and the time variant object information.

(65) **Prior Publication Data**

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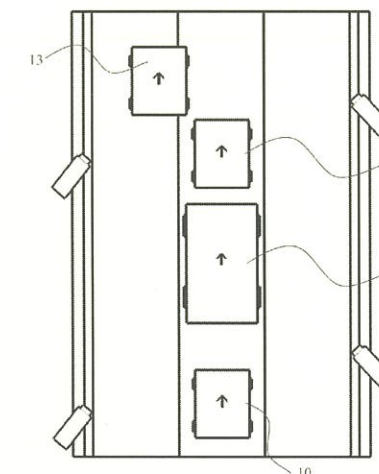
(30) **Foreign Application Priority Data**

Nov. 23, 2018 (CN) ..... 201811404443.1

(51) **Int. Cl.**  
**G06K 9/00** (2006.01)  
**G08G 1/04** (2006.01)  
(Continued)

(52) **U.S. Cl.**  
CPC ..... **G06K 9/00785** (2013.01); **G06K 9/00671** (2013.01); **G08G 1/04** (2013.01);  
(Continued)

**11 Claims, 11 Drawing Sheets**



### Maintenance Fee Notice

If the application for this patent was filed on or after December 12, 1980, maintenance fees are due three years and six months, seven years and six months, and eleven years and six months after the date of this grant, or within a grace period of six months thereafter upon payment of a surcharge as provided by law. The amount, number and timing of the maintenance fees required may be changed by law or regulation. Unless payment of the applicable maintenance fee is received in the United States Patent and Trademark Office on or before the date the fee is due or within a grace period of six months thereafter, the patent will expire as of the end of such grace period.

### Patent Term Notice

If the application for this patent was filed on or after June 8, 1995, the term of this patent begins on the date on which this patent issues and ends twenty years from the filing date of the application or, if the application contains a specific reference to an earlier filed application or applications under 35 U.S.C. 120, 121, 365(c), or 386(c), twenty years from the filing date of the earliest such application ("the twenty-year term"), subject to the payment of maintenance fees as provided by 35 U.S.C. 41(b), and any extension as provided by 35 U.S.C. 154(b) or 156 or any disclaimer under 35 U.S.C. 253.

If this application was filed prior to June 8, 1995, the term of this patent begins on the date on which this patent issues and ends on the later of seventeen years from the date of the grant of this patent or the twenty-year term set forth above for patents resulting from applications filed on or after June 8, 1995, subject to the payment of maintenance fees as provided by 35 U.S.C. 41(b) and any extension as provided by 35 U.S.C. 156 or any disclaimer under 35 U.S.C. 253.