PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT3741016

| SUBMISSION TYPE: | CORRECTIVE ASSIGNMENT |
|-----------------------|---|
| NATURE OF CONVEYANCE: | Corrective Assignment to correct the OMISSION OF THE SECOND ASSIGNEE LISTED ON THE ASSIGNMENT/DECLARATION FORM SUBMITTED HEREWITH previously recorded on Reel 037722 Frame 0538. Assignor(s) hereby confirms the ASSIGNMENT OF ASSIGNOR'S INTEREST. |

CONVEYING PARTY DATA

| Name | Execution Date |
|---------------|----------------|
| YOUNG-SU MOON | 01/26/2016 |
| KUK-JIN YOON | 01/12/2016 |
| JAE-HYUN KIM | 01/19/2016 |

RECEIVING PARTY DATA

| Name: | SAMSUNG ELECTRONICS CO., LTD. | |
|-----------------|---|--|
| Street Address: | 129, SAMSUNG-RO, YEONGTONG-GU, GYEONGGI-DO | |
| City: | SUWON-SI | |
| State/Country: | KOREA, REPUBLIC OF | |
| Postal Code: | 16677 | |
| Name: | GWANGJU INSTITUTE OF SCIENCE AND TECHNOLOGY | |
| Street Address: | 123, CHEOMDANGWAGI-RO, BUK-GU | |
| City: | GWANGJU | |
| State/Country: | KOREA, REPUBLIC OF | |
| Postal Code: | 61005 | |

PROPERTY NUMBERS Total: 1

| Property Type | Number |
|---------------------|----------|
| Application Number: | 15017792 |

| CORRESPONDENCE DATA | | |
|-------------------------|-------|---|
| Fax Number: | (202) | 293-7860 |
| | | e-mail address first; if that is unsuccessful, it will be sent nat is unsuccessful, it will be sent via US Mail. |
| Email: | cpace | e@sughrue.com, sughrue@sughrue.com |
| Correspondent Name: | SUGI | HRUE MION PLLC |
| Address Line 1: | 2100 | PENNSYLVANIA AVE NW |
| Address Line 2: | SUIT | E 800 |
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| ATTORNEY DOCKET NUMBER: | | Q224442 |

| ATTORNEY DOCKET NUMBER: Q22444 |
|--------------------------------|
| |

| NAME OF SUBMITTER: | CHARLES PACE |
|--|--|
| SIGNATURE: | /Charles Pace/ |
| DATE SIGNED: | 02/16/2016 |
| | This document serves as an Oath/Declaration (37 CFR 1.63). |
| Total Attachments: 6 source=Q224442Recordation#page1.t source=Q224442Recordation#page2.t source=Q224442Recordation#page3.t source=Q224442CombinedDecandAss source=Q224442CombinedDecandAss source=Q224442CombinedDecandAss | if if signmentExecuted#page1.tif signmentExecuted#page2.tif |

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Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT3736706

| UBMISSION TYPE: | | NEW ASSIGNMENT | |
|--|--------------------------------|--|----------------|
| IATURE OF CONVEYA | NCE: | NCE: ASSIGNMENT | |
| CONVEYING PARTY | ΔΤΑ | | |
| | | Name | Execution Date |
| YOUNG-SU MOON | | | 01/26/2016 |
| KUK-JIN YOON | | | 01/12/2016 |
| JAE-HYUN KIM | | | 01/19/2016 |
| RECEIVING PARTY D | ΑΤΑ | | |
| Name: | SAMSU | JNG ELECTRONICS CO., LTD. | |
| Street Address: | 129, SA | AMSUNG-RO, YEONGTONG-GU, GYEON | IGGI-DO |
| City: | SUWO | N-SI | |
| State/Country: | KOREA | A, REPUBLIC OF | |
| Postal Code: | 16677 | 7 | |
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| Property Type | | Number | |
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| Property Type Application Number: CORRESPONDENCE Fax Number: <i>Correspondence will</i> | DATA be sent to | Number 15017792 (202)293-7860 o the e-mail address first; if that is unsue | via US Mail. |
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| Property Type Application Number: CORRESPONDENCE Fax Number: <i>Correspondence will I using a fax number, if</i> Email: Correspondent Name Address Line 1: Address Line 2: | DATA be sent to | Number 15017792 (202)293-7860 o the e-mail address first; if that is unsuccessful, it will be sent with the sent se | via US Mail. |
| Property Type Application Number: CORRESPONDENCE Fax Number: Correspondence will I using a fax number, if Email: Correspondent Name Address Line 1: | DATA be sent to | Number 15017792 (202)293-7860 o the e-mail address first; if that is unsuccessful, it will be sent with the sent withe sent with the sent withe sent with the sent | via US Mail. |
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| Property Type Application Number: CORRESPONDENCE Fax Number: <i>Correspondence will I using a fax number, if</i> Email: Correspondent Name Address Line 1: Address Line 2: Address Line 4: | DATA be sent to provideo | Number 15017792 (202)293-7860 D the e-mail address first; if that is unsuccessful, it will be sent with the sent withe sent with the sent with the sent withe sen | via US Mail. |
| Property Type Application Number: CORRESPONDENCE Fax Number: <i>Correspondence will I using a fax number, if</i> Email: Correspondent Name Address Line 1: Address Line 2: Address Line 4: | DATA be sent to provideo | Number 15017792 (202)293-7860 o the e-mail address first; if that is unsuccessful, it will be sent with the sent withe sent with the sent with the sent with the se | via US Mail. |
| Property Type Application Number: CORRESPONDENCE Fax Number: <i>Correspondence will I using a fax number, if</i> Email: Correspondent Name Address Line 1: Address Line 1: Address Line 2: Address Line 4: NTTORNEY DOCKET N IAME OF SUBMITTER | DATA be sent to provideo | Number 15017792 (202)293-7860 o the e-mail address first; if that is unsue d; if that is unsuccessful, it will be sent with the s | via US Mail. |

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> PATENT REEL: 037828 FRAME: 0346

Docket No.: Q224442 Only After Sept 16, 2012 US Rights Only

ASSIGNMENT WITH DECLARATION FOR PATENT APPLICATION (37 CFR 1.63)

특허 출원 관련 양도 및 선언(연방규칙집 제 37 조 1.63 항)

Korean Language Assignment with Declaration

이하 양도인으로 지칭되는 하기 서명 발명자인 본인(들)은 _ 아래에 평시된총원에서서술한특정개선을발명하였으므로그리고

에 소재한 <u>(양수인)는(은)</u> 총원 및 발명의 그리고 이에 따라 획득될 일체의 미국 특허에 대한 모든 권리, 소유권 및 이권을 획득하기 % 원하므로,

이제대가를 위한 그 수령을 안정합니다.

상기 양도인인 본인(들)은 상기 명칭의 양수인, 그 승제가 및 그 양수인에게모든 분할파그연속을 포함하여 미국용으로 공개된 출원파 발명그리고그에 대해 승인될 수 있는 미국의 모든 특허증서과 미합중국 코드 제 35 장 제\$[19 항에 의거한 우선권 청구권과 파거의 손해에 대한 소송권을 포함한 모든 그 재발행에 대한 전체 권리, 소유권 및 이끈을 판매, 양도 및 이건하며 그리고 본인(들)은 출원서에 제시된 발명에 대해 승인된 일체의 특허증서를 양수인, 그 승제자 또는 그 양수인에게 발급하도록 미국 특허정장에게 요정하는 바이며 또한 본인(들)은 당수인의 요정할 경우 미국 출원과 관련하여 양수인이 필요하다고 생각하는 모든서류높더 이상의 보수없이 서명날인할 것입니다.

공인은 기록을 위해 요구되지는 않지만 미합중국 코드 제 35 장 제\$201 향에 의거서명날인에 대한일응의 증거입니다)

본인은아래성명의 발명가로서 다음과 같이 선언합니다.

본양도및전언서는다음사항을위한것입니다.

- 🛛 궘부송원또는
- □ 미함증국☆원또는PCT 국제출원번호·_____ 총원임·_____

본출원의제목은다음과같습니다.

Whereas, I/We, the undersigned inventor(s) hereinafter called assignor(s), have invented certain improvements described in the application identified below; and

Whereas, <u>SAMSUNG ELECTRONICS CO., LTD. of 129</u>, <u>Samsung-ro. Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677</u>, <u>Republic of Korea and GWANGJU INSTITUTE OF SCIENCE</u> <u>AND TECHNOLOGY of Oryong-dong, Buk-gu, Gwangju,</u> <u>Republic of Korea</u>, (assignee), desires to acquire the entire right, title, and interest in the application and invention, and to any United States patents to be obtained therefor;

Now therefore, for valuable consideration, receipt whereof is hereby acknowledged,

I/We, the above named assignor(s), hereby sell, assign and transfer to the above named assignce, its successors and assigns, the entire right, title and interest in the application and the invention disclosed therein for the United States of America, including all divisions, and continuations thereof, and all Letters Patent of the United States that may be granted thereon, and all reissues thereof, including the right to claim priority under 35 USC 119 and the right to sue for past damages, and I/we request the Director of the U.S. Patent and Trademark Office to issue any Letters Patent granted upon the invention set forth in the application to the assignee, its successors and assigns; and I/we will execute without further consideration all papers deemed necessary by the assignee in connection with the United States application when called upon to do so by the assignee.

(Legalization not required for recording but is prima facie evidence of execution under 35 USC 261)

As the below named inventor, I hereby declare that:

This assignment with declaration is directed to:

- M The attached application, or
- United States Application or PCT International Application Number ______ filed on

The application is entitled:

METHOD AND APPARATUS FOR ESTIMATING IMAGE OPTICAL FLOW

Korean Language Assignment with Declaration

위에 표시된 총원은 본인이 신청하였거나 또는 신청하도록 허가용 받았습니다.

본인은, 본인이 본 총원에서 청구된 발명의 원 발명자 또는 원 공동 발명자라고믿습니다.

본인은 본 양도 및 선언서 제출과 관련된 출원의 내용을 검트하였으며 가울러 이해합니다.

본인은 연방 규정 코드 제 37 장 제 L36 항에 규정된 바에 따라, 특허성의 한단에 중요한본인이 아는 모든 정보를 특허청에 공개할 의문가 있음을 같고 있습니다.

본 양도및 선언서 내에 의도적 허위 진술이 있을 경우 미합중국 코트 제 18 장의 1001 항에 의거 벌금이나 5년 이하의 징역 또는 두 가지 처벌을 모두 받을 수 있음을 인정합니다. The above identified application was made or was authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I have reviewed and understand the contents of the application for which this assignment with declaration is being submitted.

I am aware of the duty to disclose to the Office all information known to me to be material to patentability as defined in 37 CFR 1.56.

I hereby acknowledge that any willful false statement made in this assignment with declaration is punishable under 18 USC 1001 by fine or imprisonment of not more than five (5) years, or both.

STATEMENT OF ACCURATE TRANSLATION IN ACCORDANCE WITH 37 CFR 1.69(b);

The assignment with declaration is an accurate translation of the corresponding English language assignment with declaration.

nag 1977 instand

Signature

Date

March 17, 2014

| 단독 혹은 최초 발명자의 성명 | INVENTOR: | | |
|--|------------------------------------|--|--------------------|
| | | | |
| Given Name (first and middle [i 이름(성씨는 제외) | f any]) Young-su | Family Name or 付(姓) | Sumame MOON |
| Inventor's signature 말명자의 서명 | YOUND SU | ~ Moon | Date January 26.20 |
| Residence: 거주지: Secul Repu | blic of Korea | | |
| Mailing Address: 오파 프스. | 03, 70, Mokdongseo-ro, Yangcheon-j | zu Secul Republic of Kor | eg |
| NAME OF SECOND INVENT 두번째 발명자의 성명 | | 54, 50041, 1054010 01 1401 | |
| Jiven Name (first and middle [if 기륨(성씨는 계외) | f any]) Kuk-jin | Family Name or 성(姓) | Surname YOON |
| nventor's signalure 발명자의 서명 | Kuk-Jin You | ∧ . | Date January 12.20 |
| Residence: 시주지: Gwangju, Re | epublic of Korea | ······································ | |
| Mailing Address: 9.16 조소. | san Building, 123, Cheomdangwagi- | ro, Buk-gu, Gwangju, Rep | ublic of Korea |
| NAME OF THIRD INVENTO 세번째 말명자의 성명 | | | |
| Jiven Name (first and middle [if 기름(성씨는 제외) | any]) Jae-Hyun | Family Name or ! 성(姓) | Surname KIM |
| nventor's signature 갈명자의 시명 | Kim Jae Hyum | I | Date Jan. 19. 2016 |
| Kesidence: 적주지: Casul Deruk | | | 1 |
| 기구·시: Seoul, Reput Mailing Address: | olic of Korea | | |
| 0 因 乏人, | 42, Sapyeong-daero, Seocho-gu, Seo | ul. Republic of Korea | |
| | 12, oup frong march ocosto ga, oco | un republic of Rolen | |
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