

## PATENT ASSIGNMENT COVER SHEET

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<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
YOUNGJUN KWAK	12/06/2018
BYUNG IN YOO	12/06/2018
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CHANG KYU CHOI	12/06/2018
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<b>Postal Code:</b>	16677
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
Application Number:	16224970
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<b>ATTORNEY DOCKET NUMBER:</b>	012052.1643
<b>NAME OF SUBMITTER:</b>	RANDALL S. SVIHLA
<b>SIGNATURE:</b>	/Randall S. Svihla/
<b>DATE SIGNED:</b>	12/19/2018
<b>Total Attachments: 2</b>	
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## COMBINED DECLARATION AND ASSIGNMENT UNDER 37 CFR 1.63(e)

### DECLARATION

As a below-named inventor, I hereby declare that this declaration is directed to the application attached hereto, or to United States Application Number or PCT International Application Number

\_\_\_\_\_ filed on \_\_\_\_\_ (if applicable), entitled

### LIVENESS TEST METHOD AND APPARATUS

The above-identified application was made or authorized to be made by me.

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

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

I have reviewed and understand the contents of the above-identified application, including the claims.

I am aware of the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in 37 CFR 1.56, including for continuation-in-part applications, material information that became available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.

### ASSIGNMENT

For valuable consideration, I, as a below-named assignor, hereby assign to:

Samsung Electronics Co., Ltd.  
129, Samsung-ro, Yeongtong-gu  
Suwon-si, Gyeonggi-do 16677  
Republic of Korea


and its successors and assigns (collectively hereinafter called "the Assignee"), the entire right, title, and interest throughout the world in the inventions and improvements that are the subject of the application identified in the above declaration, which is United States Application Number or PCT International Application Number 16/224,970 filed on December 19, 2018.

I authorize and request the attorneys appointed in the above-identified application to hereafter complete this Assignment by inserting above the application number and the filing date of the above-identified application when known, and to correct any typographical errors that may be discovered in this Assignment.

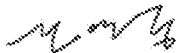
This Assignment includes the above-identified application, any and all United States and foreign patents, utility models, and design registrations granted for any of the inventions and improvements that are the subject of the above-identified application, and the right to claim priority based on the filing date of the above-identified application under the International Convention for the Protection of Industrial Property, the Patent Cooperation Treaty, the European Patent Convention, and all other treaties of like purposes; and I authorize the Assignee to apply in all countries in my name or in its own name for patents, utility models, design registrations, like rights of exclusion, and inventors' certificates for any of the inventions and improvements that are the subject of the above-identified application; and I agree for myself and my heirs, legal representatives, and assigns without further compensation to perform such lawful acts and to sign such further applications, Assignments, preliminary statements, and other lawful documents as the Assignee may reasonably request to effectuate fully this Assignment.

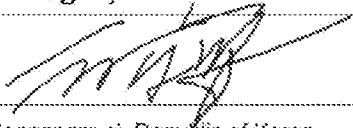
**COMBINED DECLARATION AND ASSIGNMENT UNDER 37 CFR 1.63(e)**

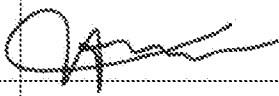
In witness whereof, I, as a below-named inventor and assignor, intending to be legally bound, have hereunto affixed my signature on the date indicated below next to my signature.

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