505117476 09/28/2018

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT5164237

SUBMISSION TYPE:	CORRECTIVE ASSIGNMENT
NATURE OF CONVEYANCE:	Corrective Assignment to correct the ASSIGNEE'S NAME WHICH IS SENSOR NETWORKS AND CELLULAR SYSTEMS RESEARCH CENTER previously recorded on Reel 038348 Frame 0990. Assignor(s) hereby confirms the ASSIGNEE'S NAME HAS A TYPOGRAPHICAL ERROR WHICH READS AS SENSOR NETWORKS AND CELLULAR SYSTEM CENTER, UNIVERSITY OF TABUK.

CONVEYING PARTY DATA

Name	Execution Date
RAED MESLEH	12/10/2017
SALAMA IKKI	12/12/2017
EL-HADI M. AGGOUNE	12/21/2017

RECEIVING PARTY DATA

Name:	SENSOR NETWORKS AND CELLULAR SYSTEMS RESEARCH CENTER
Street Address:	UNIVERSITY OF TABUK
Internal Address:	P.O. BOX 741
City:	TAUBK
State/Country:	SAUDI ARABIA
Postal Code:	71491

PROPERTY NUMBERS Total: 3

Property Type	Number
Application Number:	61897894
Application Number:	14141004
Application Number:	14972379

CORRESPONDENCE DATA

Fax Number: (305)858-0008

Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent

using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.

Phone: 3058588000

Email: patents@malloylaw.com MALLOY & MALLOY, P.L. **Correspondent Name:** Address Line 1: 2800 SW 3RD AVENUE Address Line 4: MIAMI, FLORIDA 33129

ATTORNEY DOCKET NUMBER: 6674.1260A.15

NAME OF SUBMITTER: PETER A. MATOS

> **PATENT REEL: 047188 FRAME: 0848**

505117476

SIGNATURE:	/Peter A. Matos/			
DATE SIGNED: 09/28/2018				
Total Attachments: 4				
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PATENT REEL: 047188 FRAME: 0849

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PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 EPAS ID: PAT3841442 Stylesheet Version v1.2

 SUBMISSION TYPE:
 NEW ASSIGNMENT

 NATURE OF CONVEYANCE:
 ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
RAED MESLELH	02/05/2014
EL-HADI M AGGOUNE	02/05/2014
SALAMA IKKI	02/10/2014

RECEIVING PARTY DATA

Name:	SENSOR NETWORKS AND CELLULAR SYSTEM CENTER, UNIVERSITY OF TABUK
Street Address:	P.O. BOX 741
City:	TABUK
State/Country:	SAUDI ARABIA
Postal Code:	71491

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	14972379

CORRESPONDENCE DATA

Fax Number: (305)858-0008

Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.

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Correspondent Name: MALLOY & MALLOY, P.L.
Address Line 1: 2800 SW THIRD AVENUE
Address Line 2: HISTORIC CORAL WAY
Address Line 4: MIAMI, FLORIDA 33129

ATTORNEY DOCKET NUMBER: 6674.1260A.15

NAME OF SUBMITTER: PETER A. MATOS

SIGNATURE: /PETER A. MATOS/

DATE SIGNED: 04/22/2016

Total Attachments: 3

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> PATENT REEL: 047188 FRAME: 0850

ASSIGNMENT

(1)	Insert	Name(s) of	Inventor(s)	(1)	Raed Mesleh, Salama Ikki and el-Hadi M. Aggoune In consideration of the sum of one dollar (\$1.00), and other good and valuable consideration paid to each of the undersigned, each of the undersigned assigns, transfers and sets over unto
		<u>Name(s)</u> of Address of		(2)	Sensor Networks and Cellular Systems Research Center University of Tabuk, P.O. Box 741 Tabuk, Saudi Arabia 71491 (hereinafter designated as the Assignee), its successors and assigns, the entire right, title and interest for the United States, its territories, dependencies and possessions, in and to the invention known as
(4)	Insert	Identificat	tion of Invention,	(4)	QUADRATURE SPATIAL MODULATION SYSTEM for which the undersigned has (have) executed an application for patent in the United states of America on
(5)	Insert	Serial No.	of Application(s)	(5)	U.S. Provisional Serial No. 61/897,894 filed on October 31, 2013; U.S. Utility Serial No. 14/141,004 filed on December 26, 2013; and U.S. Utility Serial No. 14/972,379 filed or December 17, 2015 and assigns, transfers and sets over to Assignee the entire right, title and interest in and to said application for patent in the United States of America and worldwide rights and any patents, original, reissue, continuation-in-part, divisional, substitute or extension, which may issue therefrom.

- 1) The undersigned agree(s) to execute all papers necessary in connection with this application and any continuing, divisional or reissue applications thereof and also to execute separate assignments in connection with such applications as the Assignee may deem necessary or expedient.
- 2) The undersigned agree(s) to execute all papers necessary in connection with any interference which may be declared concerning this application or continuation, divisional or reissue thereof and to cooperate with the Assignee in every way possible in obtaining evidence and going forward which such interference.
- 3) The undersigned agree(s) to execute all papers and documents and perform any act which may be necessary in connection with claims or provisions of the International Convention for Protection of Industrial Property or similar agreements.
- 4) The undersigned agree(s) to perform all affirmative acts which may be necessary to obtain a grant of a valid United States patent to the Assignee.
- 5) The undersigned hereby authorize(s) and request(s) the Commission of Patents to issue any and all Letters Patent of the United States resulting from said application or any divisional or continuing or reissue applications thereof to the said Assignee, as Assignee of the entire interest, and hereby covenants that he has (they have) full right to convey the entire interest herein assigned, and the has (they have) not executed, and will not execute, any agreement in conflict herewith.

The undersigned hereby grant(s) Jennie S. Malloy, Reg. No. 37,670; Peter A. Matos, Reg. No. 37,884; John Fulton, Jr., Reg. No. 45,716; David Roncayolo Betancourt, Reg. No. 75,026 the power to insert on this assignment any further identification which may be necessary or desirable in order to comply with the rules of the United States Patent Office for recordation of this document.

IN WITNESS WHEREOF, executed by the undersigned on the date(s) opposite the undersigned name(s).

Date 10 DPCember 2017 Inventor's Signature	RAED MESLEH (SEAL)
This assignment should preferably be signed before a Unpy the inventor(s) should be witnessed by at least two witnessed by the least two witnesse	
WITNESS	WITNESS OF
By:	By:
Print Hame: RAMI ALAZRAT	Print Name: Ala Khalifth
Mill-WAT\WAT 3015\APP\1860A-18 SNCS\Corr-Cu\Assignment Documents\2017-12-06 Ass	ignment - Raed Meslehidoc

PATENT REEL: 047188 FRAME: 0851

ASSIGNMENT

(1) Insert <u>Hame(s)</u> of inventor(s) (1)	Page Strick, Stimes Ikki and el-Hadi M. Aggorne To consideration of the sum of one dollar (\$1.00), and other good and valuable consideration paid to each of the undersigned, each of the undersigned assigns, transfers and sets over unto
(2) Insert Name(s) of Assignes (2) (3) Insert Address of Assignes (3)	
(4) Insert Identification of Invention, (4)	QUADRATURE SPATIAL MODULATION SYSTEM for which the undersigned has (have) executed an application for patent in the United States of America on
(5) Insert <u>Serial No.</u> of Application(s) (b)	U.S. Provisional Serial Bo. 61/897.896 filed on Octaber 11. 2013; U.S. Utility Serial Do. 14/141.036 filed on December U.S. 2013; Sus U.S. Utility Serial No. 16/972.379 filed on December 12. 2015 and ansigns, transfers and sets over to Basignse the entire right, title and interest in and to said application for patent in the United States of Regrice and worldwide rights and any patents, original, reissus, continuation-is-part, divisional, substitute or extension, which may issue therefrom.
continuing, divisional of releade applications as the Association with such applications as the Association with such applications as the Association with the application of the applic	all papers necessary in connection with any interference which icon or continuation, divisional or raissue thereof and to possible in obtaining evidence and going forward which such
necreasity in consection with dialms of a longitude of the constraint Property or similar agreements.	s all papers and documents and perform any act which may be provisions of the International Convention for Protection of
- a valid Usited States patent to the assigne	33 efficative acts which may be recessary to obtain a grant of $lpha$.
reissue applications thereof to the esh covenants that he has (they have) full rigit (they have) not executed, and will not executed.	and request(s) the Commission of Patents to issue any and sil ring from said application or sny divisional or continuing or a Assignee, as Assignee of the entire interest, and hereby it to convey the entire interest herein assigned, and the he has mite, any agreement in conflict herewith.
Fulton: Jr., Reg. 80, 46,7107 Davis found exeignment any further identification whi rules of the United States Patent Office fo	Malloy, Meg. No. 37.678: Peter A. Matos, Reg. No. 37,834; John syolo Betancourt, Reg. No. 75.026 the power to insert on this on may be necessary or desirable in order to comply with the or recordation of this document.
the state of the s	related on the Markist officials the undersigned name(s).
9898 12/0/2017 Invent	or's Signature SALANNA IKKI
	Segmental Asserts
This ensignment should preferably be sign by the inventor(s) should be witnessed by a	and before a Chited States Consul. If not, then the execution of least two witnesses who sign berg:
***********	WOTERS
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- 1821 1930 1930 - <u>Q</u>	- Malek Albudy ************************************
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A SECTION OF THE PROPERTY OF T	

PATENT

REEL: 047188 FRAME: 0852

ASSIGNMENT

(1) Insert Name(s) of Inventor(s)	(i)	Road Mesieh, Salawa Ikki and al-Radi M. Aggouse In consideration of the sum of one dollar (\$1.90), and other good and valuable consideration paid to each of the undersigned, each of the undersigned assigns, transfers and sets over unto
(2) Insert Name(s) of Assignes (3) Insert Address of Assignes	(2) (3)	Sensor Networks and Ceilplar Systems Research Cester University of Tabuk, P.O. Box 741 Tabuk, Saudi Arabis 71491 (bereinsfter designated as the Assignes), its successors and assigns, the entire right, title and interest for the United States, its territories, dependencies and possessions, in and to the invention known as
(4) Insert <u>Identification</u> of Invention,	(4)	QUADRATURE SPATIAL MODULATION SYSTEM for which the undersigned has (have) executed an application for patent in the United states of America on
(5) insert <u>Serial No. of Application(s)</u>	(5)	V.S. Provisional Serial No. 61/697,894 filed on October 31, 2013; U.S. Otility Serial No. 18/141,004 filed on Occasiber 26, 2013; and U.S. Utility Serial No. 14/972,379 filed on December 17, 2015 and assigns, transfers and sets over to Assignee the entire right, title and interest in and to said application for patent in the United States of America and worldwide rights and any patents, original, reissue, continuation-in-part, divisional, substitute or extension, which may issue therefrom.
 The undersigned agree(s) to exect continuing, divisional or reissue ap- connection with such applications as th 	53 A C.S.E.	papers necessary in connection with this application and any ions thereof and also to execute separate assignments in gnee may deam necessary or expedient.
2) The undersigned agree(s) to exec	ute al	l papers necessary in connection with any interference which on or continuation, divisional or reissue thereof and to ossible in obtaining evidence and going forward which such
3) The undersigned agree(s) to ex necessary in connection with claims Industrial Property or similar agreement	or bro	all papers and documents and perform any act which may be ovisions of the International Convention for Protection of
 the undersigned agree(s) to perform valid United States patent to the Ass 	orm all dignee.	affirmative acts which may be necessary to obtain a great of
Lettere Patent of the United States I reissue applications thereof to the covenants that he has (they have) full (they have) not executed, and will not	execut right searcr	
The undersigned hereby grant(s) Jennic Pulton, Jr.; Reg. Ro. 46,718; David I assignment any further identification rules of the United States Patent Offic	roncayı Shidh	tiloy, Reg. No. 37,870; Peter A. Matos, Reg. Ro. 37,884; John the Betancourt, Reg. No. 78,026 the power to insert on this may be necessary or desirable in order to comply with the recordation of this document.
to ormande warprop, evenued by the	anders:	igned on the date(s) opposite the ymdersegmed name(s).
588 21 December 25/2	rventoz	(SEAL)
This assignment should preferably be by the inventor(s) should be withessed	sions	s before a United States Consul. If not, then the execution
	₩.	areassa /
		Marie

Mili-partrat 2015/Appyl250A-15 GMCB/Corr-Criausignment Dobgments/2617-12-US Assignment - el-Hauf S. Appoint for

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brahim

reini name: Faisal

RECORDED: 09/28/2018