#### 504465914 07/20/2017

# PATENT ASSIGNMENT COVER SHEET

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**SUBMISSION TYPE: NEW ASSIGNMENT NATURE OF CONVEYANCE: ASSIGNMENT** 

### **CONVEYING PARTY DATA**

Name	Execution Date
JIAN CAO	07/19/2017
SAUL E. GREENHUT	07/18/2017
XUSHENG ZHANG	07/19/2017

## **RECEIVING PARTY DATA**

Name:	MEDTRONIC, INC.
Street Address:	710 MEDTRONIC PARKWAY NE
Internal Address:	MS: LC340 LEGAL PATENTS
City:	MINNEAPOLIS
State/Country:	MINNESOTA
Postal Code:	55432

#### **PROPERTY NUMBERS Total: 1**

Property Type	Number
Application Number:	15655082

## CORRESPONDENCE DATA

Fax Number: (651)367-0471

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: 763-526-0929

Email: madonna.schroeder@medtronic.com

MICHAEL J. OSTROM **Correspondent Name:** 

710 MEDTRONIC PARKWAY NE Address Line 1:

Address Line 2: MS: MVC22

Address Line 4: MINNEAPOLIS, MINNESOTA 55432

ATTORNEY DOCKET NUMBER:	C00013321.USU2
NAME OF SUBMITTER:	MADONNA M. SCHROEDER
SIGNATURE:	/Madonna M. Schroeder/
DATE SIGNED:	07/20/2017

# **Total Attachments: 6**

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**PATENT REEL: 043054 FRAME: 0348** 504465914

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PATENT REEL: 043054 FRAME: 0349

Attorney Docket No.: C00013321.USU2

#### ASSIGNMENT OF APPLICATION(S)

Whereas I/we, the below named inventor(s), with residence and citizenship as indicated below, have made an invention in

# CARDIAC ELECTRICAL SIGNAL MORPHOLOGY AND PATTERN-BASED T-WAVE OVERSENSING REJECTION

$\bowtie$	for which an application for a United States Patent or a U.S. Provisional Application is beir contemporaneously herewith;	ig filed	
	for which an application for a United States Patent identified as U.S. Patent Application No	.; was filed on	
$\boxtimes$	for which an application for a U.S. Provisional Application No. 62/367,221; was filed on J	uly 27, 2016;	
	for which above application claims priority to U.S. Provisional Patent Application No.	; filed on	,
	which application is identified as PCT International Patent Application No.; filed;		
	Whereas, Medtronic, Inc., a corporation organized and existing under the laws of the		
hav	ring a principle place of business at 710 Medtronic Parkway N.E., Minneapolis, Minnesota	a 55432-5604, <sup>°</sup>	hereinafter
refe	erred to as "Corporation," is desirous of acquiring the entire right, title and interest in and	to said invention	on for the

United States and for all foreign countries and in and to any and all foreign and domestic Letters Patent which may be

NOW, Therefore, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, we have sold, assigned, transferred and set over and by these presents do sell, assign, transfer and set over unto Corporation, its successors and assigns, the entire right, title and interest in and to said invention and the application(s) identified above and in and to any application claiming benefit thereto and the entire right, title and interest in and to any and all Letters Patent of the United States and any foreign countries which may be granted therefore including our rights under the International Convention for the Protection of Industrial Property, and in and to any and all extensions, divisions, continuations, continuations-in-part or reissues of said Letters Patent that may be granted, the same to be held and enjoyed by Corporation for its own use and benefit and use and benefit of its successors and assigns to the full end of the term for which said Letters Patent may be granted, as fully and entirely as the same would have been held and enjoyed by me had this assignment and sale not been made, including the right to enforce such Letters Patent as fully and entirely as the same would have been held and enjoyed by the assignors if this assignment had not been made; together with all claims by assignors for damages by reason of past infringement or for provisional rights and including the right to sue for, and collect the same for its own use and benefit, and for the use and

AND, for the consideration aforesaid, we materially represent to Corporation, its successors and assigns, that at the time of the execution and delivery of these presents, we are the sole lawful owners of the entire right, title and interest in and to the invention, application and Letters Patent above mentioned, and that the same are unencumbered, and that we have good right and lawful authority to sell and convey the same in the manner herein set forth;

benefit of its successors, assigns, and other legal representatives;

AND, for the consideration aforesaid, we hereby individually covenant and agree to and with Corporation, its successors and assigns, that whenever its counsel or the counsel of its successors or assigns, learned in the law, shall advise that an amendment or division of, or continuation or any continuation-in-part thereof, or any other proceeding in connection with the filing or prosecution of said domestic or foreign patent applications, including interference proceedings, is lawful and desirable, or that a reissue of extension of said Letters Patent is lawful and desirable, we, or our executors, administrators or assigns will sign all papers and drawings, take all rightful oaths, and do all acts necessary or required to be done for the procurement of valid Letters Patent for said invention, or for the reissue or extension of the same, without charge to Corporation, its successors or assigns, but at Corporation's expense.

Assignment

granted therefore;

Attorney Docket No.: C00013321.USU2

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I/We do hereby authorize and request the Commissioner of Patents to issue any and all Letters Patent which may be granted upon any of the said applications, to said Medtronic, Inc., as the assignee of the entire right, title, and interest therein.

In witness whereof, I/we have signed my/our name(s) on the day and year set forth below.

Given Name (first and middle initial [if any]): Family Name or Surname (last name): Jian CAO Inventor's Signature: Date: 19,201 City and State: Citizenship: Country: Shoreview, Minnesota US STATE OF MINNESOTA ) COUNTY OF RAMSEY day of , 2017, before me personally appeared the above-named Jian CAO, and who executed the foregoing instrument, as said person's free act and deed, on the day and year aforesaid. (Seal) Notary Public My Commission Expires Jen. 31, 2021 Given Name (first and middle initial [if any]): Family Name or Surname (last name): Saul E. GREENHUT Inventor's Signature: Date: Residence (City and State): Country: Citizenship: Aurora, Colorado US US STATE OF COLORADO ) COUNTY OF ) ... day of before me personally appeared the above-named Saul E. GREENHUT, and who executed the foregoing instrument, as said person's free act and deed, on the day and year aforesaid. (Seal) Notary Public

Attorney Docket No.: C00013321.USU2

Given Name (first and middle initial [if any]): <b>Xusheng</b>	ZHANG	ame or Surname (las ;	t name):
Inventor's Signature:		Date: 07/	19/2017
Residence (City and State):		Country:	Citizenship:
Shoreview, Minnesota		US	US
STATE OF MINNESOTA ) ) ss.  COUNTY OF RAMSEY ) On this	ng instrume FNEY C		me personally appeared the above-named see act and deed, on the day and year

Attorney Docket No.: C00013321.USU2

# ASSIGNMENT OF APPLICATION(S)

Whereas I/we, the below named inventor(s), with residence and citizenship as indicated below, have made an invention in

# CARDIAC ELECTRICAL SIGNAL MORPHOLOGY AND PATTERN-BASED T-WAVE OVERSENSING REJECTION

$\boxtimes$	for which an application for a United States Patent or a U.S. Provisional Application is being contemporaneously herewith;	ng filed	
	for which an application for a United States Patent identified as U.S. Patent Application No	o.; was filed on	
$\boxtimes$	for which an application for a U.S. Provisional Application No. 62/367,221; was filed on J	uly 27, 2016;	
	for which above application claims priority to U.S. Provisional Patent Application No.	; filed on	ş
	which application is identified as PCT International Patent Application No.; filed;		

Whereas, <u>Medtronic</u>, Inc., a corporation organized and existing under the laws of the State of Minnesota and having a principle place of business at 710 <u>Medtronic Parkway N.E.</u>, <u>Minneapolis</u>, <u>Minnesota 55432-5604</u>, hereinafter referred to as "Corporation," is desirous of acquiring the entire right, title and interest in and to said invention for the United States and for all foreign countries and in and to any and all foreign and domestic Letters Patent which may be granted therefore;

NOW, Therefore, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, we have sold, assigned, transferred and set over and by these presents do sell, assign, transfer and set over unto Corporation, its successors and assigns, the entire right, title and interest in and to said invention and the application(s) identified above and in and to any application claiming benefit thereto and the entire right, title and interest in and to any and all Letters Patent of the United States and any foreign countries which may be granted therefore including our rights under the International Convention for the Protection of Industrial Property, and in and to any and all extensions, divisions, continuations, continuations-in-part or reissues of said Letters Patent that may be granted, the same to be held and enjoyed by Corporation for its own use and benefit and use and benefit of its successors and assigns to the full end of the term for which said Letters Patent may be granted, as fully and entirely as the same would have been held and enjoyed by me had this assignment and sale not been made, including the right to enforce such Letters Patent as fully and entirely as the same would have been held and enjoyed by the assignors if this assignment had not been made; together with all claims by assignors for damages by reason of past infringement or for provisional rights and including the right to sue for, and collect the same for its own use and benefit, and for the use and benefit of its successors, assigns, and other legal representatives;

AND, for the consideration aforesaid, we materially represent to Corporation, its successors and assigns, that at the time of the execution and delivery of these presents, we are the sole lawful owners of the entire right, title and interest in and to the invention, application and Letters Patent above mentioned, and that the same are unencumbered, and that we have good right and lawful authority to sell and convey the same in the manner herein set forth;

AND, for the consideration aforesaid, we hereby individually covenant and agree to and with Corporation, its successors and assigns, that whenever its counsel or the counsel of its successors or assigns, learned in the law, shall advise that an amendment or division of, or continuation or any continuation-in-part thereof, or any other proceeding in connection with the filing or prosecution of said domestic or foreign patent applications, including interference proceedings, is lawful and desirable, or that a reissue of extension of said Letters Patent is lawful and desirable, we, or our executors, administrators or assigns will sign all papers and drawings, take all rightful oaths, and do all acts necessary or required to be done for the procurement of valid Letters Patent for said invention, or for the reissue or extension of the same, without charge to Corporation, its successors or assigns, but at Corporation's expense.

Page 1 of 3 Altomey Docket No.: C00013321.USU2

Medtronic, Inc., 710 Medtronic Parkway, Minneapolis, MN 65432

Assignment

I/We do hereby authorize and request the Commissioner of Patents to issue any and all Letters Patent which may be granted upon any of the said applications, to said Medtronic, Inc., as the assignee of the entire right, title, and interest therein.

		ir set forth below.	
Given Name (first and middle initial [if any]): Jian	Pamily Name or Surname (last name): CAO		
Inventor's Signature:	Date:		
inventor a dignature;	Jac.		
City and State:	Country:	Citizenship:	
Shoreview, Minnesota	US	US	
STATE OF MINNESOTA ) ) ss. COUNTY OF RAMSEY )			
On this day of	, before	ne personally appeared the above-nam	ed
Jian CAO, and who executed the foregoing instri	iment, as said person's free act an	I deed, on the day and year aforesaid.	
(Seal)			
``	Notary Public		
<u> </u>			************
Given Name (first and middle initial [if any]): Saul E.	Family Name or Surname (last GREENHUT	name):	umumu
Inventor's Signature:	Date: July	8,2017	
3 To the section of the College was 1997 of	~ ~ / /		
Residence (City and State):	Country:	Citizenship:	
\$	Country: US	Citizenship: US	
Residence (City and State):		Citizenship: US	
Residence (City and State): Aurora, Colorado STATE OF COLORADO )		Citizenship: US	***************************************
Residence (City and State): Aurora, Colorado STATE OF COLORADO )	US	US	ad
Residence (City and State): Aurora, Colorado  STATE OF COLORADO ) ss.  COUNTY OF 1 (1)(2) ) On this 12 day of (1)(1)(1)	US	ne personally appeared the above-nam	ned
Residence (City and State): Aurora, Colorado STATE OF COLORADO )	US	ne personally appeared the above-nam	sed
Residence (City and State):  Aurora, Colorado  STATE OF COLORADO ) ss.  COUNTY OF 1016/10 )  On this 122 day of 1114  Saul E. GREENHUT, and who executed the fore	US  SEN  SEN  SEN	ne personally appeared the above-nam	sed

Assignment

Given Name (first and middle initial [if any]): Xusheng	Family Name or Surname (last name): ZHANG	
Inventor's Signature:	Date:	
Residence (City and State): Shoreview, Minnesota	Country: US	Citizenship; US
STATE OF MINNESOTA ) ) ss.  COUNTY OF RAMSEY ) On this day of Xusheng ZHANG, and who executed the forego- aforesaid.	, before ing instrument, as said person's fr	me personally appeared the above-named ee act and deed, on the day and year
(Seal)	Notary Public	

Assignment

**RECORDED: 07/20/2017** 

Page 3 of 3 Medtronic, Inc., 710 Medtronic Parkway, Minneapolls, MN 55432

Attorney Docket No.: C00013321 USU2