#### PATENT ASSIGNMENT

### Electronic Version v1.1 Stylesheet Version v1.1

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

#### **CONVEYING PARTY DATA**

Name	Execution Date
Alex O'Connor Gibson	08/09/2013
Jeffrey Allen Doering	08/12/2013
Seung-Hoon Lee	07/29/2013
Yuji Fujii	07/29/2013
James William Loch McCallum	08/12/2013
William Russell Goodwin	08/16/2013

#### **RECEIVING PARTY DATA**

Name:	Ford Global Technologies, LLC	
Street Address:	Fairlane Plaza South, Suite 800	
City:	Dearborn	
State/Country:	MICHIGAN	
Postal Code:	48126	

#### PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	13970527

### **CORRESPONDENCE DATA**

502464798

Fax Number: 5034594142

Correspondence will be sent via US Mail when the fax attempt is unsuccessful.

503-459-4141 Phone: Email: fulton@ahmrt.com

Correspondent Name: ALLEMAN HALL MCCOY RUSSELL & TUTTLE, LLP

Address Line 1: 806 S.W. BROADWAY, SUITE 600 Address Line 4: PORTLAND, OREGON 97205

NAME OF SUBMITTER: Maxfield Fulton

Signature:	/Maxfield Fulton/
Date:	08/20/2013
Total Attachments: 6 source=Executed Assignment 83380948#pp	age2.tif age3.tif age4.tif age4.tif

,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		~~~~~~~~~~	************	 
Attorne	y Docket Numl	ber 8:	3380948	

Title of Invention	on METHODS AND SYSTEMS FOR VEHICLE DRIVELINE TORQUE ESTIMATION			
This declaration is directed to:				
	The attached application, or United States application or PCT international application number			
The above-identif	ied application was made or authorized to be made by me.			
I hereby state that including the clair	t I have reviewed and understand the contents of the specification in the above-identified application, as.			
I believe that I am	the original inventor or an original joint inventor of a claimed invention in the application.			
I am aware of the duty to disclose information which is material to patentability as defined in 37 C.F.R. 1.56, including for continuation-in-part applications, material information which became available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.				
Pursuant to my employment agreement heretofore made or by contractual obligation, I do sell, assign and set over unto FORD GLOBAL TECHNOLOGIES, LLC, a Ford Motor Company subsidiary, organized and existing by virtue of the laws of the State of Delaware, having its principal place of business at Dearborn, County of Wayne, and State of Michigan, hereinafter referred to as the ASSIGNEE, its successors, assigns or other legal representatives, the entire right, title and interest, domestic and foreign, in and to the inventions and discoveries in the above-identified invention including the right of the ASSIGNEE, its successors, assigns or other legal representatives to make applications and to receive Letters Patent for the inventions and discoveries in any and all countries, entities and intergovernmental organizations, in its or their own name or names, or in my name, at its or their election (and I hereby authorize the ASSIGNEE or ASSIGNEE's attorney to insert the serial/application number and filing date of the application to receive Letters Patent herein: Serial No. 13/970,527 , Filing Date August 19, 2013 ), and I hereby sell, assign and set over to the ASSIGNEE, its successors, assigns or other legal representatives, all rights of priority, including any provisional applications, in and to the inventions and discoveries in any and all countries, entities and intergovernmental organizations including all applications claiming benefit of the filing date hereof, continuations, continuations-in-part, divisionals, reexaminations and reissue applications.				
And I hereby agree for myself, my heirs, successors, assigns or other legal representatives to execute any and all papers, including applications for Letters Patent of any and all kinds and in any and all countries, entities and intergovernmental organizations, and to perform any and all acts which the ASSIGNEE, its successors, assigns or other legal representatives may deem necessary to secure thereto the rights herein sold, assigned and set over.				
And I hereby represent and warrant that I have not granted any rights inconsistent with the rights granted herein.				
I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years or both.				
LEGAL NAME C				
Inventor: Ale	Date: 2/2/5			
Signature: All All All All All All All All All Al				
Note: An Applicati Use an additional de	on Data Sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form, claration form for each additional inventor.			

Attorney Docket Number   \$3380948	į
······································	٥

Title of Invention METHODS AND SYSTEMS FOR VEHICLE DRIVELINE TORQUE ESTIMATION		
This declaration is directed to:		
The attached application, or United States application or PCT international application number filed on		
The above-identified application was made or authorized to be made by me.		
I hereby state that I have reviewed and understand the contents of the specification in the above-identified application including the claims.		
I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.		
I am aware of the duty to disclose information which is material to patentability as defined in 37 C.F.R. 1.56, including for continuation-in-part applications, material information which became available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.		
Pursuant to my employment agreement heretofore made or by contractual obligation. I do sell, assign and set over unto FORD GLOBAL TECHNOLOGIES, LLC, a Ford Motor Company subsidiary, organized and existing by virtue of the laws of the State of Delaware, having its principal place of business at Dearborn, County of Wayne, and State of Michigan, hereinafter referred to as the ASSIGNEE, its successors, assigns or other legal representatives, the entire right, title and interest, domestic and foreign, in and to the inventions and discoveries in the above-identified invention including the right of the ASSIGNEE, its successors, assigns or other legal representatives to make applications and to receive Letters Patent for the inventions and discoveries in any and all countries, entities and intergovernmental organizations, in its or their own name or names, or in my name, at its or their election (and I hereby authorize the ASSIGNEE or ASSIGNEE's attorney to insert the serial/application number and filing date of the application to receive Letters Patent herein: Serial No. 13/970,527, Filing Date August 19, 2013, and I hereby sell, assign and set over to the ASSIGNEE, its successors, assigns or other legal representatives, all rights of priority, including any provisional applications, in and to the inventions and discoveries in any and all countries, entities and intergovernmental organizations including all applications claiming benefit of the filing date hereof, continuations, continuations-in-part, divisionals, reexaminations and reissue applications.		
And I hereby agree for myself, my heirs, successors, assigns or other legal representatives to execute any and all papers, including applications for Letters Patent of any and all kinds and in any and all countries, entiries and intergovernmental organizations, and to perform any and all acts which the ASSIGNEE, its successors, assigns or other legal representatives may deem necessary to secure thereto the rights herein sold, assigned and set over.		
And I hereby represent and warrant that I have not granted any rights inconsistent with the rights granted herein.		
I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years or both.		
LEGAL NAME OF INVENTOR Inventor: Jeffrey Allen Doering Date: 12 Au 6 20 19		
Signature: 4/4/2		
Note: An Application Data Sheet (PTO/SB/14 or equivalent), including naming the emire inventive entity, must accompany this form. Use an additional declaration form for each additional inventor.		

ĺ	Attorney Docket Number	83380948	

Title of Invention	METHODS AND SYSTEMS FOR VEHICLE DRIVELINE TORQUE ESTIMATION		
This declaration is directed to:			
	attached application, or ed States application or PCT international application number filed on		
The above-identified a	pplication was made or authorized to be made by me.		
I hereby state that I including the claims.	ave reviewed and understand the contents of the specification in the above-identified application,		
I believe that I am the	original inventor or an original joint inventor of a claimed invention in the application.		
I am aware of the duty to disclose information which is material to patentability as defined in 37 C.F.R. 1.56, including for continuation-in-part applications, material information which became available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.			
Pursuant to my employment agreement heretofore made or by contractual obligation, I do sell, assign and set over unto FORD GLOBAL TECHNOLOGIES, LLC, a Ford Motor Company subsidiary, organized and existing by virtue of the laws of the State of Delaware, having its principal place of business at Dearborn, County of Wayne, and State of Michigan, hereinafter referred to as the ASSIGNEE, its successors, assigns or other legal representatives, the entire right, title and interest, domestic and foreign, in and to the inventions and discoveries in the above-identified invention including the right of the ASSIGNEE, its successors, assigns or other legal representatives to make applications and to receive Letters Patent for the inventions and discoveries in any and all countries, entities and intergovernmental organizations, in its or their own name or names, or in my name, at its or their election (and I hereby authorize the ASSIGNEE or ASSIGNEE's attorney to insert the serial/application number and filing date of the application to receive Letters Patent herein: Serial No. 13/970,527 , Filing Date August 19, 2013 ), and I hereby sell, assign and set over to the ASSIGNEE, its successors, assigns or other legal representatives, all rights of priority, including any provisional applications, in and to the inventions and discoveries in any and all countries, entities and intergovernmental organizations including all applications claiming benefit of the filing date hereof, continuations, continuations-in-part, divisionals, reexaminations and reissue applications.			
And I hereby agree for myself, my heirs, successors, assigns or other legal representatives to execute any and all papers, including applications for Letters Patent of any and all kinds and in any and all countries, entities and intergovernmental organizations, and to perform any and all acts which the ASSIGNEE, its successors, assigns or other legal representatives may deem necessary to secure thereto the rights herein sold, assigned and set over.			
And I hereby represent and warrant that I have not granted any rights inconsistent with the rights granted herein.			
I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years or both.			
LEGAL NAME OF I	EVENTOR 7/20/000		
Inventor: Soung	Hoon Lee Date: 120/3		
Signature:			
Note: An Application Data Sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form.			
Use an additional declaration form for each additional inventor.			

Title of Invention

Attorney Docket Number	92290049	
Mitotile y Docket Rulling	03300740	

### ASSIGNMENT AND DECLARATION (37 C.F.R. 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 C.F.R. 1.76)

METHODS AND SYSTEMS FOR VEHICLE DRIVELINE TORQUE

ESTIMATION		
This declaration is directed to:		
The attached application, or United States application or PCT international application number filed on		
The above-identified application was made or authorized to be made by me.		
I hereby state that I have reviewed and understand the contents of the specification in the above-identified application, including the claims.		
I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.		
I am aware of the duty to disclose information which is material to patentability as defined in 37 C.F.R. 1.56, including for continuation-in-part applications, material information which became available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.		
Pursuant to my employment agreement heretofore made or by contractual obligation, I do sell, assign and set over unto FORD GLOBAL TECHNOLOGIES, LLC, a Ford Motor Company subsidiary, organized and existing by virtue of the laws of the State of Delaware, having its principal place of business at Dearborn, County of Wayne, and State of Michigan, hereinafter referred to as the ASSIGNEE, its successors, assigns or other legal representatives, the entire right, title and interest, domestic and foreign, in and to the inventions and discoveries in the above-identified invention including the right of the ASSIGNEE, its successors, assigns or other legal representatives to make applications and to receive Letters Patent for the inventions and discoveries in any and all countries, entities and intergovernmental organizations, in its or their own name or names, or in my name, at its or their election (and I hereby authorize the ASSIGNEE or ASSIGNEE's attorney to insert the serial/application number and filing date of the application to receive Letters Patent herein: Serial No. 13/970,527 , Filing Date August 19, 2013 ), and I hereby sell, assign and set over to the ASSIGNEE, its successors, assigns or other legal representatives, all rights of priority, including any provisional applications, in and to the inventions and discoveries in any and all countries, entities and intergovernmental organizations including all applications claiming benefit of the filing date hereof, continuations, continuations-in-part, divisionals, reexaminations and reissue applications.  And I hereby agree for myself, my heirs, successors, assigns or other legal representatives to execute any and all papers, in the result of the filing date and intergovernmental organizations and intergovernmental organizations in the papers of the filing date and intergovernmental organizations in the papers of the filing date hereof or myself, my heirs, successors, assigns or other legal representatives to execute any and all papers, in the filing date and inter		
including applications for Letters Patent of any and all kinds and in any and all countries, entities and intergovernmental organizations, and to perform any and all acts which the ASSIGNEE, its successors, assigns or other legal representatives may deem necessary to secure thereto the rights herein sold, assigned and set over.		
And I hereby represent and warrant that I have not granted any rights inconsistent with the rights granted herein.		
I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years or both.		
LEGAL NAME OF INVENTOR Inventor: Yuji Fujii Date: 7-29-24/3		
Signature:		
Note: An Application Data Sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form.  Use an additional declaration form for each additional inventor.		
Large are manufactured at February 2011, 2		

parameter 1 - 1 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 -		
I a second se		
L. A. Harman, I. Lantest Normanae	83380948	
Attorney Docket Number	0.7.7007240	

Title of Invention	METHODS AND SYSTEMS FOR VEHICLE DRIVELINE TORQUE ESTIMATION	
This declaration is dire		
	attached application, or ed States application or PCT international application number	
The above-identified a	pplication was made or authorized to be made by me.	
I hereby state that I hincluding the claims.	have reviewed and understand the contents of the specification in the above-identified application,	
I believe that I am the	original inventor or an original joint inventor of a claimed invention in the application.	
continuation-in-part a	to disclose information which is material to patentability as defined in 37 C.F.R. 1.56, including for pplications, material information which became available between the filing date of the prior ional or PCT international filing date of the continuation-in-part application.	
Pursuant to my employment agreement heretofore made or by contractual obligation, I do sell, assign and set over unto FORD GLOBAL TECHNOLOGIES, LLC, a Ford Motor Company subsidiary, organized and existing by virtue of the laws of the State of Delaware, having its principal place of business at Dearborn, County of Wayne, and State of Michigan, hereinafter referred to as the ASSIGNEE, its successors, assigns or other legal representatives, the entire right, title and interest, domestic and foreign, in and to the inventions and discoveries in the above-identified invention including the right of the ASSIGNEE, its successors, assigns or other legal representatives to make applications and to receive Letters Patent for the inventions and discoveries in any and all countries, entities and intergovernmental organizations, in its or their own name or names, or in my name, at its or their election (and I hereby authorize the ASSIGNEE or ASSIGNEE's attorney to insert the serial/application number and filing date of the application to receive Letters Patent herein: Serial No. 13/970,527 , Filing Date August 19, 2013 ), and I hereby sell, assign and set over to the ASSIGNEE, its successors, assigns or other legal representatives, all rights of priority, including any provisional applications, in and to the inventions and discoveries in any and all countries, entities and intergovernmental organizations including all applications claiming benefit of the filing date hereof, continuations, continuations-in-part, divisionals, reexaminations and reissue applications.  And I hereby agree for myself, my heirs, successors, assigns or other legal representatives to execute any and all papers, including applications for Letters Patent of any and all kinds and in any and all countries, entities and intergovernmental organizations, and to perform any and all acts which the ASSIGNEE, its successors, assigns or other legal representatives		
may deem necessary to	o secure thereto the rights herein sold, assigned and set over.	
And I hereby represen	t and warrant that I have not granted any rights inconsistent with the rights granted herein.	
	that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine t more than five (5) years or both.	
LEGAL NAME OF I	NOT	
Inventor: <u>James</u>	William Loch McCallum Date: 12 And 2013	
Signature:	VL Commence	
	Data Sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form.	
Use an additional declara	ation form for each additional inventor.	

***************************************	***************************************
Attorney Docket Number	83380948

Title of Invention	METHODS AND SYSTEMS FOR VEHICLE DRIVELINE TORQUE	
001 1 1 1	ESTIMATION	
This declaration is dir	ected to:	
⊠ The	e attached application, or	
	ited States application or PCT international application number	
	filed on	
The above-identified	application was made or authorized to be made by me.	
I hereby state that I including the claims.	have reviewed and understand the contents of the specification in the above-identified application,	
I believe that I am the	original inventor or an original joint inventor of a claimed invention in the application.	
continuation-in-part a	y to disclose information which is material to patentability as defined in 37 C.F.R. 1.56, including for applications, material information which became available between the filing date of the prior tional or PCT international filing date of the continuation-in-part application.	
of the State of Delaw hereinafter referred to interest, domestic and of the ASSIGNEE, its for the inventions and name or names, or in insert the serial/appli 13/970,527 ASSIGNEE, its succ applications, in and to including all applicat	chnologies, LLC, a Ford Motor Company subsidiary, organized and existing by virtue of the laws ware, having its principal place of business at Dearborn, County of Wayne, and State of Michigan, as the ASSIGNEE, its successors, assigns or other legal representatives, the entire right, title and foreign, in and to the inventions and discoveries in the above-identified invention including the right successors, assigns or other legal representatives to make applications and to receive Letters Patent discoveries in any and all countries, entities and intergovernmental organizations, in its or their own my name, at its or their election (and I hereby authorize the ASSIGNEE or ASSIGNEE's attorney to ication number and filing date of the application to receive Letters Patent herein: Serial No.  ———————————————————————————————————	
organizations, and to	or myself, my heirs, successors, assigns or other legal representatives to execute any and all papers, a for Letters Patent of any and all kinds and in any and all countries, entities and intergovernmental perform any and all acts which the ASSIGNEE, its successors, assigns or other legal representatives to secure thereto the rights herein sold, assigned and set over.	
And I hereby represen	t and warrant that I have not granted any rights inconsistent with the rights granted herein.	
or imprisonment of no	that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine t more than five (5) years or both.	
LEGAL NAME OF IN Inventor: William	m December Complete	
The state of the s	n Russell Goodwin Date: /6/45/	
Signature:		
Note: An Application D Use an additional declara	Data Sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form.	

PATENT REEL: 031045 FRAME: 0929

**RECORDED: 08/20/2013**