

## 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>
SIEMENS AKTIENGESELLSCHAFT	12/01/2016
<b>RECEIVING PARTY DATA</b>	
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<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
Application Number:	15115169
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<b>NAME OF SUBMITTER:</b>	DOTTIE MANOS
<b>SIGNATURE:</b>	/Dottie Manos/
<b>DATE SIGNED:</b>	12/05/2016
<b>Total Attachments: 2</b>	
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ASSIGNMENT OF RIGHTS  
Company to Company

WHEREAS, Siemens Aktiengesellschaft (Hereafter "Assignor") and Siemens Industry, Inc. (Hereafter "Assignee") (individually referred to as "Party" and collectively as "Parties")

Hereby, (I)(A) acknowledge they have entered into certain agreements (hereinafter referred to as "the Agreements") which set forth certain rights, limitations and obligations regarding inventions developed by or among Parties, and/or Intellectual Property owned by one or both of the Parties and the Parties agree that the terms of the Agreements apply to any and all inventions; or

(B)(i) Agree to the extent such Agreement(s) or similar legal document(s) failed or fails, in whole or part, to have assigned, sold or transferred the entire right (including priority rights), title and interest, in and for the United States and all foreign countries, in and to all inventions which are disclosed in an invention disclosure and/or in the below-identified application or application already filed for Letters Patent, or (ii) if no such agreement(s) exist assigning, selling or transferring any such right (including priority rights), title or interest; then for good and valuable consideration, Assignor now and hereby, effective Nunc Pro Tunc on the filing date of the below identified patent application(s), pending patent application(s) or granted Letter Patent(s), assigns, sell and transfers to Assignee, its successors, assigns and legal representatives, the entire right, (including all priority rights), title and interest in and for the United States and all foreign countries, in and to any and all inventions and improvements which are disclosed in the following identified; patent application(s), pending patent application(s) or granted Letter Patent(s) which are disclosed in the application for Letters Patent or granted patent, entitled:

Patent Application Title: **METHOD AND DEVICE FOR DETERMINING AN N+1-DIMENSIONAL ENVIRONMENT MODEL AND MINING APPARATUS**

Filing Date: **28 Jul 2016**

Filing Number: **15/115,169**

Internal Case Number(s): **2013P21230WOUS**

Patent Application Title: **METHOD AND DEVICE FOR DETERMINING AN N+1-DIMENSIONAL ENVIRONMENT MODEL AND MINING APPARATUS**

Filing Date: **30 Jan 2014**

Filing Number: **61/933,623**

Internal Case Number(s): **2013P21230US**

and in and to said application or granted patents and all applications claiming priority to said application or granted patent, including, without limitation, and all divisional, continuing, substitute, renewal, reissue, and all other applications for Letters Patent which have been or shall be filed in the United States and all foreign countries on any of the inventions or improvements; and in and to all original and reissued patents which have been or shall be filed in the United States and all foreign countries on the inventions or improvements;

(II) Agree that the Assignee may apply for and receive Letters Patent for said improvements in its own name; and that, when requested, without charge to but at the expense of said Assignee, its successors, assigns and legal representatives, to carry out in good faith the intent and purpose of this assignment, the undersigned will execute all divisional, continuing, substitute, renewal, reissue, and all other patent applications on any and all the inventions or improvements; execute all rightful oaths, assignments, powers of attorney and other papers; communicate to said Assignee, its successors, assigns, and legal representatives, all facts known to the undersigned relating to the inventions or

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improvements and the history thereof; and generally do everything possible which said Assignee, its successors, assigns or legal representatives shall consider desirable for aiding in securing and maintaining proper patent protection for the inventions or improvements and for vesting title to the inventions or improvements and all applications for patents and all patents on the inventions or improvements, in said Assignee, its successors, assigns and legal representatives; and

(III) Covenant with said Assignee, its successors, assigns and legal representatives that no assignment, grant, mortgage, license or other agreement affecting the rights and property

herein conveyed has been made to others by the undersigned, and that full right to convey the same as herein expressed is possessed by the undersigned.

The Parties acknowledge and agree that the inventor(s) may have previously assigned its rights (including all and any priority rights) in one or more above-referenced applications for Letters Patents directly to a Party as directed by the other Party, consistent with the Agreements. Any such directed assignment shall remain in full force and effect and shall take precedence over this Assignment to the extent any conflict exists.

Siemens Aktiengesellschaft

Signature(s) *I. V. Klinger* *i.v. Wimmer*  
Name(s) Klinger Wimmer  
Title both authorized officers  
Date December 1, 2016

Siemens Industry, Inc.

Signature(s) *M. Wallace*  
Name(s) Michael Wallace  
Title Assistant Secretary, Intellectual Property  
Date 12/05/16