



- (51) **International Patent Classification:**  
*G06F 17/00* (2006.01)
- (21) **International Application Number:**  
PCT/US2012/067109
- (22) **International Filing Date:**  
29 November 2012 (29.11.2012)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**  
13/342,610 3 January 2012 (03.01.2012) US
- (71) **Applicant:** THE BOEING COMPANY [US/US]; 100 North Riverside Plaza, Chicago, Illinois 60606-2016 (US).
- (72) **Inventors:** ATMUR, Robert J.; 100 North Riverside Plaza, Chicago, Illinois 60606-2016 (US). BERON-RAWDON, Deborah Ann; 100 North Riverside Plaza, Chicago, Illinois 60606-2016 (US).
- (74) **Agents:** SATERMO, Eric K et al.; The Boeing Company, P.O. Box 2515, MC 110-SD54, Seal Beach, California 90740-1515 (US).
- (81) **Designated States** (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM,

AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

- (84) **Designated States** (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Published:**

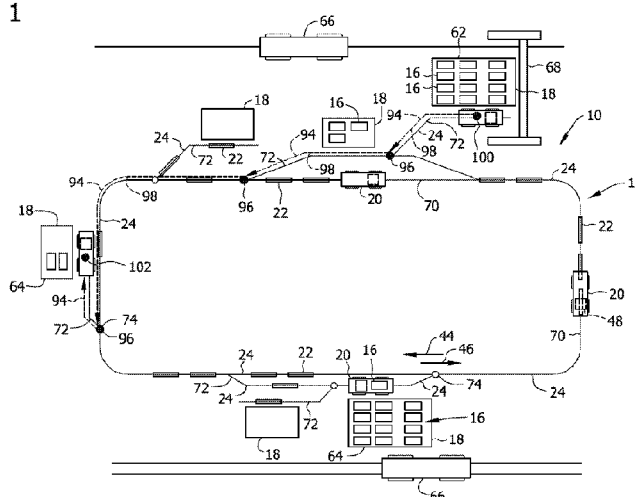
— with international search report (Art. 21(3))

- (88) **Date of publication of the international search report:**

8 January 2015

(54) **Title:** TRANSPORT AND HANDLING SYSTEM AND METHODS OF TRANSPORTING A COMMODITY

FIG. 1



(57) **Abstract:** A transportation system for use in transporting commodities is described herein. The transportation system includes a transportation network that includes a plurality of predefined paths of travel extending between a plurality of locations, and a plurality of transport vehicles. Each transport vehicle of the plurality of transport vehicles is configured to independently travel along the transportation network. A plurality of motor assemblies is oriented along the transportation network. Each motor assembly of the plurality of motor assemblies is oriented with respect to a predefined segment of the transportation network, and configured to move the transport vehicle along the predefined segment. A control system is operatively coupled to each motor assembly to selectively operate each motor assembly to independently convey each transport vehicle of the plurality of transport vehicles along the transportation network.



## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 12/67109

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - G06F 17/00 (2013.01)

USPC - 701/23

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
USPC-701/23Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
IPC(8): G06F 17/00 (2013.01)  
USPC-701/1, 19-20, 23-26, 533;

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

PatBase; Google Patents &amp; Scholar

Search terms: transport, convey, relocate, deliver, distribute, network, path, track, road, pathway, route, rail, trajectory, direction, map, guide, motor, actuator, propeller, drive, management system, processor, cpu, controller, predetermine, predefine, Id, tag, serial number

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category*       | Citation of document, with indication, where appropriate, of the relevant passages                                                         | Relevant to claim No.                     |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|
| X<br>-----<br>Y | US 2010/0076591 A1 (Lert, Jr.). 25 March 2010 (25.03.2010) entire document; especially para [0022], [0056], [0066], [0067], [0071], [0072] | 1-2, 6-7, 9, 11-13<br>-----<br>3-5, 8, 10 |
| Y               | US 2011/0241845 A1 (Sullivan et al.) 06 October 2011 (06.10.2011) entire document; especially para [0035], [0036]                          | 3-5, 8, 10                                |
| A               | US 7,698,029 B2 (Atmur et al.) 13 April 2010 (13.04.2010) entire document                                                                  | 1-13                                      |
| A               | US 6,853,876 B2 (Wehrung et al.) 08 February 2005 (08.02.2005) entire document                                                             | 1-13                                      |
| A               | US 7,689,230 B2 (Spadafora et al.) 30 March 2010 (30.03.2010) entire document                                                              | 1-13                                      |
| A               | US 7,484,663 B2 (Olsen, III et al.) 03 February 2009 (03.02.2009) entire document                                                          | 1-13                                      |

☐ Further documents are listed in the continuation of Box C.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&amp;" document member of the same patent family

Date of the actual completion of the international search

27 March 2013 (27.03.2013)

Date of mailing of the international search report

19 APR 2013

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US, Commissioner for Patents  
P.O. Box 1450, Alexandria, Virginia 22313-1450  
Facsimile No. 571-273-3201

Authorized officer:

Lee W. Young

PCT Helpdesk: 571-272-4300  
PCT OSP: 571-272-7774