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(54) Title: AUTONOMOUS SATELLITE ORBITAL DEBRIS AVOIDANCE SYSTEM AND METHOD

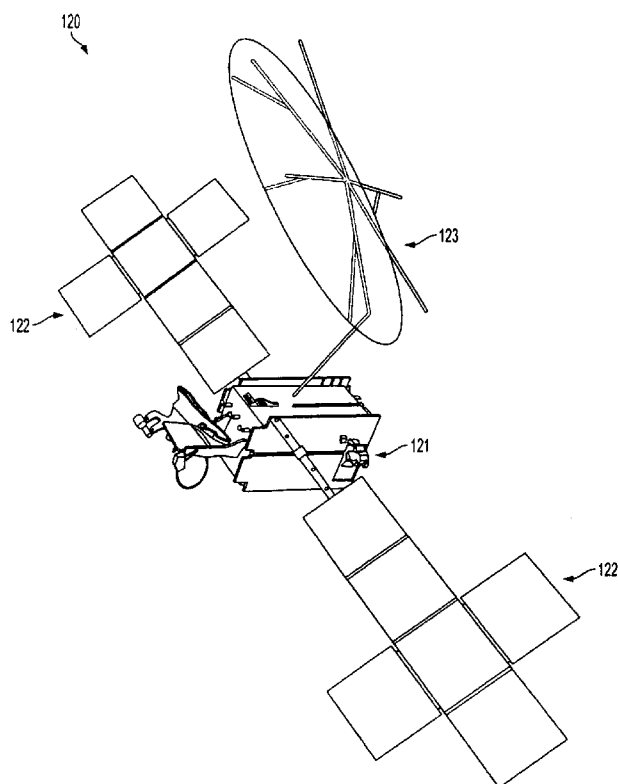


FIG. 1

(57) Abstract: An autonomous system for a satellite which calculates collision paths of debris from anywhere within the spheroid around the satellite by using its radar/ladar data and from data on its own orbit derived by onboard sensors such as star, earth and sun sensors or from stored data sent from its ground control station through the satellite's command subsystem. If a collision would be likely, the system calculates the minimum change in the satellite's orbit to avoid such collision and generates and executes commands for firing on-board orbital control thrusters to put the satellite in a suitable avoidance orbit.

**Declarations under Rule 4.17:**

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *of inventorship (Rule 4.17(iv))*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*
- *with information concerning request for restoration of the right of priority in respect of one or more priority claims (Rules 26bis.3 and 48.2(b)(vii))*

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - G08G 5/04; B64G 1/24 (2013.01)

USPC - 701/301; 342/455; 244/158.8

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)

IPC(8) - G08G 5/04; B64G 1/24 (2013.01)

USPC - 701/301; 342/455; 244/158.8

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC - 701/468, 482; 340/961; 342/350, 352, 357.2, 450, 451, 454; 224/158, 158.6, 158.8 (text search - see terms below)

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

PatBase; Google Scholar; Google Patents

Search Terms: Satellite, space, craft, ship, spacecraft, spaceship, collision, collide, strike, hit, impact, avoid, miss, deter, junk, debris, garbage, asteroid, track, find, locate, monitor, ephemeris, reposition, move, propulsion, thrust, adjust, changer, maneuver, radar,... etc.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2008/0033648 A1 (Kelly et al.) 07 February 2008 (07.02.2008), para [0024]-[0033], [0057]-[0059], [0064]-[0066], [0088]-[0093], [0101] and [0115]-[0116]	1-32
A	US 2011/0196550 A1 (Carrico, JR. et al.) 11 August 2011 (11.08.2011), para [0012]-[0013], [0028] and [0045]	1-32
A	US 6,142,423 A (Wehner) 07 November 2000 (07.11.2000), col 4, ln 39-67, col 6, ln 50-63, col 7, ln 6-19	1-32
A	US 2004/0075605 A1 (Bradford et al.) 22 April 2004 (22.04.2004), para [0011], [0062]-[0065], [0085], [0133] and [0144]	3-4, 12, 19-21 and 29
A	US 2010/0049440 A1 (Alfano) 25 February 2010 (25.02.2010), entire document	1-32

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

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