



US009297925B1

(12) **United States Patent**
Riley

(10) **Patent No.:** **US 9,297,925 B1**
(45) **Date of Patent:** **Mar. 29, 2016**

(54) **SMART MODULE FOR COMMUNICATIONS, PROCESSING, AND INTERFACE**

(56) **References Cited**

U.S. PATENT DOCUMENTS

(71) Applicant: **The United States of America, represented by the Secretary of Commerce, Washington, DC (US)**

6,536,272 B1 3/2003 Houston
6,859,831 B1 * 2/2005 Gelvin B60R 25/1004
340/539.19

(72) Inventor: **Rodney Eugene Riley, Long Beach, MS (US)**

8,195,395 B2 6/2012 Teng et al.
2012/0253746 A1 10/2012 Kolar
2013/0093625 A1 4/2013 Smith

FOREIGN PATENT DOCUMENTS

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 179 days.

EP 0260078 A1 9/1986
OTHER PUBLICATIONS

(21) Appl. No.: **14/159,780**

Beam Communications Iridium 9602SBD Modem, <http://www.beamcommunications.com/Products/9602SBD.aspx>, (c) 2011, downloaded and printed May 7, 2013.

(22) Filed: **Jan. 21, 2014**

SVP Iridium Drifter, (MetOcean, 21 Thornhill Drive, Dartmouth, Nova Scotia), www.metocean.com, <http://www.metocean.com/Upfiles/Products/PDF/iSVP.pdf>, no copyright date, downloaded and printed May 7, 2013.

Related U.S. Application Data

(Continued)

(63) Continuation of application No. 14/147,676, filed on Jan. 6, 2014, now abandoned.

Primary Examiner — Edward Raymond

(60) Provisional application No. 61/921,298, filed on Dec. 27, 2013.

(57) **ABSTRACT**

(51) **Int. Cl.**
G06F 19/00 (2011.01)
G01W 1/00 (2006.01)

The present invention is a unique combination and physical packaging of low power COTS electronics, real-time operating system, and custom firmware that relays data, messages, and GPS position through the Iridium Short Burst Data (SBD) satellite system. It is a data collector, processor, transmitter, location reporting, and data storage device that provides bi-directional satellite communications anywhere in the world. The combination is very low power and economical as compared to other devices. It can be used for many untended remote data collection and reporting needs. The smart module may be used in measuring and reporting remote marine data for marine weather analysis, forecasts, and warnings.

(52) **U.S. Cl.**
CPC **G01W 1/00** (2013.01)

(58) **Field of Classification Search**
CPC G07C 5/008; H04L 67/10; B60W 40/09; G01C 21/34
USPC 702/3, 116, 118, 182–185, 188
See application file for complete search history.

8 Claims, 5 Drawing Sheets

