Document details

International Journal of Recent Technology and Engineering
Volume 7, Issue 6, March 2019, Pages 203-209

Autonomous boat for underwater surveillance (Article)

Rashid, M.M., Embong, A.H., Bin Hazim, A., Nayen, J., Roy, R.

Department of Mechatronics Engineering, Kulliyyah of Engineering, International Islamic University, Malaysia

Abstract

View references (14)

Generally, an autonomous boat with vision ability faces difficulties in navigation and data processing. In this work, implementation on image processing in underwater environment is implemented using autonomous for surveillance purposes. In this endeavor, the focus will be on analyzing the use of single vision cameras in providing data for research on environmental front underwater and also detecting depth and obstacles for better navigation. The system is able to detect solid objects in underwater and it can provide different information of marine environment using correct algorithm and technique. The result is accurate enough to detect obstacles or objects above and beneath the water taking into account the diffraction of light needed for perfect vision. In this research, OpenCV library is used for digital image processing and color feature analysis rather than MATLAB due to the complexity for real time process. The design structure is mainly based on Pontoon style because it is more stable and reliable especially on the river wave condition. Moreover, additional sensors and actuators are implemented in this project to monitor underwater information for navigation purposes. © BEIESP.

SciVal Topic Prominence

Topic: Autonomous underwater vehicles | Docking | Underwater docking

Prominence percentile: 77.908

Author keywords

Autonomous boat | OpenCV | Pontoon style | Surveillance

Funding details

Funding sponsor	Funding number	Acronym
Ministry of Higher Education, Malaysia		

Funding text

This project is funded by ministry of education PRGS 15-013-0023 development of multi agent marine robots using MOOS-IvP autonomy software

ISSN: 22773878
Source Type: Journal
Original language: English

Document Type: Article
Publisher: Blue Eyes Intelligence Engineering and Sciences Publication

Metrics

PlumX Metrics

Usage, Captures, Mentions, Social Media and Citations beyond Scopus.

Cited by 0 documents

Inform me when this document is cited in Scopus:

Set citation alert >

Set citation feed >

Related documents

Video enhancement methods for monitoring submersible biological resources
Chernov, V. , Koljonen, J. , Alander, J.
(2013) IFAC Proceedings Volumes (IFAC-PapersOnline)

Reconfigurable platform based design in FPGA for underwater image color correction
Alex Raj, S.M. , Supriya, M.H.
(2016) IIOAB Journal

Underwater image/video enhancement using wavelet based color correction (WBCC) method
Singh, G. , Jaggi, N. , Vasamsetti, S.
(2015) 2015 IEEE Underwater Technology, UT 2015

View all related documents based on references

Find more related documents in Scopus based on:

Authors > Keywords >

References (14)

View in search results format >

All | Export | Print | E-mail | Save to PDF | Create bibliography

1 Gonzalez, R., Woods, R.
(2002) Digital Image Processing. Cited 30101 times.

2 Kumar, C.J., Prabhaka, P.
An Image Based Technique for Enhancement of Underwater Images
(2011) Inernational J. Mach. Intell, 3 (4), pp. 217-224. Cited 30 times.

3 Iqbal, K., Salam, R.A., Osman, A., Talib, A.Z.
Underwater Image Enhancement Using an Integrated Colour Model
(2007) Int. J. Comput. Sci, 34 (2), pp. 239-244. Cited 145 times.

4 Umar, K., Suzuki, H.D., Chang, H.
We are Intech Open, the world ' s leading publisher of Open Access books Built by scientists, for scientists
TOP 1 % Control of a Proportional Hydraulic System
Intech Open, 2, p. 64. Cited 8 times.
Sciences Publication Retrieval Number: F02400376S19/19 ©BEIESP

5 Sulaiman, R., Prabuwono, A.S.
(2008) 10. Intelligent Visual Inspection of Bottling Production Line through Neural Network, 68 (4), pp. 57-63.

6 Pram, K., William, W., Report, P.
"Histogram-Based Color Image Retrieval
(2008) ," Image (Rochester, N.Y.), pp. 1-21. Cited 3 times.

7 Kamenetzky, J., Rangwala, N., Glenn, J., Maloney, P.R., Conley, A.
(2014) A Survey of the Molecular Ism Properties of Nearby Galaxies Using the Herschel FTS, 795 (2).

8 Wang, H., Kalam, Q., Tao, J.
Resistive switching properties and physical mechanism of cobalt ferrite thin films
(2014) Appl. Phys. Lett, 104 (14).

9 Bazeille, S., Lion, D., Wusa, K.T., Qarti, W.
(2010) Automatic Underwater Image Pre-Processing to Cite This Version : HAL Id : Hal-00504893

10 Wuthishuwong, C., Silawatchananai, C., Parnichkun, M.
Navigation of an intelligent vehicle by using stand-alone GPS, compass and laser range finder

(2008) 2008 IEEE International Conference on Robotics and Biomimetics, ROBIO 2008, art. no. 4913330, pp. 2121-2126. Cited 15 times.

ISBN: 978-142442679-9
doi: 10.1109/ROBIO.2009.4913330

View at Publisher

11 Hamid, M.H.A., Adom, A.H., Rahim, N.A., Rahiman, M.H.F.
Navigation of mobile robot using Global Positioning System (GPS) and obstacle avoidance system with commanded loop daisy chaining application method

(2009) Proceedings of 2009 5th International Colloquium on Signal Processing and Its Applications, CSPA 2009, art. no. 5069211, pp. 176-181. Cited 9 times.
ISBN: 978-142444150-1
doi: 10.1109/CSPA.2009.5069211

View at Publisher

12 Yoon, B.-J., Park, M.-W., Kim, J.-H.
UGV(Unmanned Ground Vehicle) navigation method using GPS and compass

(2006) 2006 SICE-ICASE International Joint Conference, art. no. 4108391, pp. 3621-3625. Cited 15 times.
ISBN: 8995003855; 978-899500385-5
doi: 10.1109/SICE.2006.314891

View at Publisher

13 Prabowo, A.R., Power, W.S., Sami, K., Urard, T.
(2018) Analysis of Structural Crashworthiness on a Non-Ice Class Tanker during Stranding Accounting for the Sailing Routes, pp. 645-654.
June 2018

14 Shakir, M., Izhar-Ul-Haq, Khan, M.A., Malik, S.A., Khan, S.A.
Alternate energy resources for Pakistan: Sustainable solutions for fulfilling energy requirements

(2014) World Applied Sciences Journal, 31 (5), pp. 718-723. Cited 3 times.
http://idosi.org/wasj/wasj31%285%2914/6.pdf
doi: 10.5829/idosi.wasj.2014.31.05.1526

View at Publisher

Embong, A.H.; Department of Mechatronics Engineering, Kulliyyah of Engineering, International Islamic University, Malaysia; email:ehalim@iium.edu.my