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Graduate of the Doctoral School of the Technical University "Gheorghe Asachi" of Iasi. More than 35 years of research experience in electrical engineering. University professor at the Naval Academy "Mircea cel Bătrân" with a research activity that has resulted in: Papers published in ISI journals and ISI proceedings:1**8**; papers published în journals indexed în internationally recognized databases: **48**; papers published în journals indexed în proceedings of international conferences and another international databases: **30**; publications in extenso in the volumes of recognized international specialized conferences, not indexed by ISI or BDI: **35**; papers presented at International Conferences with program committee held abroad not indexed ISI or BDI:**15** ;international patents:4; innovations patens: **25**; project manager national grants: **15**; member of research teams of national grants: **25**; member of research teams POCA and POSDRU projects:**4**; Books with ISBN/chapters as author, didactic or monographs: **20**; Didactic supports (including in electronic format) :**22**; lab guidance and application:**18**.

Relevant professional projects

Year	Description - Role
2023 - 2025	„System based on autonomous vehicles aerial and maritime, for the identification sea mines and support the intervention team in neutralization mission" ; Project in the Sectorial Research Plan of the Ministry of National Defence" https://www.anmb.ro/ro/files/cercetare/proiecte_cercetare/proiecte_in_derulare.html -Project manager
2021 - 2023	FAST Project nr. 2020-1-RO01-KA226-VET-095380 "Innovative assessments tools and practices for formal education processes for defence and public order educational sector - enhanced digital and online methods and technologies; researcher, member of the project team

2016 "Autonomous naval surface autonomous platform for data acquisition and transmission from a maritime district"; in the Sectorial Research Plan of the Ministry of National Defence" 2016; value:42.000 Ron ; Project manager

2015 - 2016 **"**European Coast Guard Functions Academy for European Sectorial Qualification's framework for Coast Guardians- Network Project" ECGFA NET Project. ANMB:24.075 EURO. Project manager**.** **http://www.ecgff.eu/**

2013 - 2015 "Maritime network of education for the development of the maritime culture in the Black Sea basin" MARINE; Joint Operational Programme "BLACK SEA BASIN 2007-2013",Project"MARINE" nr.2.3.1.72789.230,2013-2015, MIS ETC code 1463. Partners:Odessa Maritime University, Ucraina; University of Chișinău, Republic Moldova; Piri Reiss University, Istanbul ,Turkey.project value: 296.682 euro, (ANMB 193.509,81 euro); Project manager**.** http://www.anmb.ro/marine/project.php

2014 - 2016 "Development of Common Curricula Modules for Merchant Marine Officers - DECOMAR", 2014-1RO01- KA203 - 002916**"DECOMAR" -** „*Erasmus*+" Proogrram, European Comission, partners: Naval Academy "Nikola Vaptsarov" from Varna, Bulgaria; Naval Academy of Poland, Gdynia, Maritime University "Piri Reis" from Istanbul, Turkey. researcher, member of the project team**.**

2009 - 2011 Internaţional Romanian-Norvegian Maritime Project (RoNoMar) în cadrul acordului „Norwegian Cooperation Programes for Economic Growth and Sustenainable – „Measurements of the underwater background noise on the Romanian continental platform of the Black Sea and the impact on the ecosystem with economical implications" Nr. contract: 111922/2008 (**2009-2011**); Partners: Aalesund Knowledge Park (NCE-Maritime), The University College of Aalesund (AAUC), Sivatech, Maritime University from Constantza, Naval Academy "Mircea cel Bătrân" Constantza -researcher, member of the project team**.**

2006 - 2008 " Modeling and realization of a conventional combat component for the generation of an electromagnetic pulse for blocking C4I systems " ; National grant project CEEX Nr.14/2006-2008; 1.800.000 Ron ; https://www.researchgate.net/publication/304453335 ; Project manager

List of the relevant scientific outputs

[**1**] **Dobref Vasile** ; Sotir Al.; Constantinescu M.; Ignat M.; Pislaru L.; Puflea I.; Teisanu A.; Iordache I.; Badic M.,"SYSTEM FOR GENERATING AN ELECTROMAGNETIC PULSE IN CONTROLLED EXPLOSION WITH CURRENT LOOP" ***Pattent RO127230***. http://worldwide.espacenet.com

[**2**] Popa I.; **Dobref Vasile**; Iordache V.; Iordache L. ; "Laser fire detector", ***Pattent RO121400***. http://worldwide.espacenet.com/**;**

[**3**] **Vasile Dobref**, O. Tarabuta, N. Bădără, **"**The behavior of the ferrous materials magnetized in extreme conditions causing electromagnetic interference ", "Environmental Engineering and Management Journal" February 2012, Vol. 11, No. 2, 239-510, pp.307- ISI JOURNAL, impact factor **1,117**: **DOI**: 10.30638/eemj.2012.039;

[**4**] V. Mocanu, M. Popescu, **Vasile Dobref**, N.Popa, ''OPTIMIZATION OF COIL INDUCTANCE EQUATIONS USED IN WIRELESS POWER TRANSFER FOR DRONE CHARGING'', U.P.B. Sci. Bull., **Series C Electrical Engineering and Computer Science,** U.P.B. Sci. Bull., Series C, Vol. 85, Iss. 3, 2023, ISSN **2286-3540, (ISI-WoS, SCOPUS, INSPEC,** Ulrich's**, ELSEVIER, ENGINEERING VILLAGE;**

[**5**] **Vasile DOBREF**,I.Popa, P. Popov, I.Scurtu; ''Unmanned surface vessel for marine data acquisition''; The 4th International Scientific Conference SEA-CONF 2018; IOP Conf. Series: Earth and Environmental Science 172 (2018) 012034 **DOI** :10.1088/1755-1315/172/1/012034

[**6**] Ol.Matei, A.Delinschi**, Vasile DOBREF,** P.Burlacu, V.Mocanu, E.G. Robe -Voinea; "Virtual reality and augmented reality in marine education and training" ;Scientific Bulletin of Naval Academy, issue no.1/2024, Vol. XXVII 2024, . ISSN: 2392-8956; ISSN-L: 1454-864X pg. 175-180, ; **DOI**: 10.21279/1454-864X-24-I1-023; Indexing: Google Scholar,Open Academic Journal Index,SCIPIO, I2OR,ROAD, JIFACTOR, CNCSIS Code: 884.

[**7**] **Vasile DOBREF,** Levent ALI, Vlad MOCANU; ''Digital system based on augmented reality technologies for remote technical assisteance for maritime vessels''; Scientific Bulletin of Naval Academy, issue no.2/2023, Vol. XXVI 2023, . ISSN: 2392-8956; ISSN-L: 1454-864X pg. 186-200; **DOI**: 10.21279/1454-864X-23-I2-002. Indexing: Google Scholar,Open Academic Journal Index,SCIPIO, I2OR,ROAD, JIFACTOR, CNCSIS Code: 884.

[**8**] **Vasile Dobref**, M. Tănase, A. Pintilie, G. Ichimoaei and V. Mocanu; '' System based on autonomous aerial and maritime surface vehicles to identify sea mines and support the intervention team in the neutralization mission '' ; Scientific Bulletin of Naval Academy, issue no.1/2023, Vol. XXVI 2023, . ISSN: 2392-8956; ISSN-L: 1454-864X pg. 186-200. **DOI**: 10.21279/1454-864X-23-I1-023. Indexing: Google Scholar,Open Academic Journal Index,SCIPIO, I2OR,ROAD, JIFACTOR, CNCSIS Code: 884.

[**9**] **Vasile DOBREF**, I.Ciocioi, V.Mocanu, F.Deliu,L.Pană, E.Dragomir; ''Critical aspects of electromagnetic compatibility on board ships'' ; Scientificv Bulletin of Naval Academy; issue no.1/2023, Vol. XXVI/2023, pg. 15-24. ISSN: 2392-8956; ISSN-L: 1454-864X; **DOI**: 10.21279/1454-864X-23-I1-002. Indexing: Google Scholar,Open Academic Journal Index,SCIPIO, I2OR,ROAD, JIFACTOR, CNCSIS Code: 884.

[**10**] V. Mocanu, P.Popov, **V. Dobref**, F.Deliu, O. Cristea, -Improving the Inductive Wireless Power Transfer for Marine Aerial Drones Charging-Revista Electrotehnică, Electronică, Automatică (EEA), 69 (2021), nr.3, pp55-63.Indexed SCOPUS. DOI:10.46904/eea.21.69.3.1108007 **(SCOPUS, PROQUEST)**

Title of presentation

System based on autonomous vehicles aerial and maritime, for the identification sea mines

and support the intervention team in neutralization mission

Abstract

This paper presents an innovative autonomous system consisting of unmanned aerial and naval surface vehicles, unmanned on board, designed to identify drifting sea mines in the Black Sea basin and support the intervention team in the neutralization mission. The recent challenges generated by the conflict in the Black Sea Basin have required finding solutions for the search and identification of drifting sea mines, which represent a

potential danger to maritime vessels and offshore engineering infrastructure. The system concept, consisting of two aerial UAVs and one maritime surface drone (USV), was designed to be deployed quickly and efficiently in operation in the run-up to the outbreak of the conflict in Ukraine in February 2022. The paper describes the system architecture and then the characteristics of the aerial and surface UAVs. The surface drone was realized by transforming a commercial skyjet into a remotely controlled naval platform, starting from the hardware and software control experience applied to aerial drones . The tactical scenarios proposed and tested during 2023, 2024 have validated the efficiency of the proposed solution , but also the extension possibilities for other types of missions. An aspect that gives novelty and upgrade to the system is the processing of video streaming from video cameras placed on the drones using AI (artificial intelligence) algorithms and the prediction of the displacement of identified mines, based on predictive algorithms, using real-time data from weather stations.

After identification of the target by the aerial UAV-AUV, the maritime component-USV is sent to the maritime district, where the drifting sea mine has been located, the coordinates of the drifting sea mine are marked with a beacon; thus, the target can be monitored until the intervention of the destruction team**.**

Furthermore, a mini-submarine-ROV can be launched from the surface drone , which can travel to the mine, inspect it underwater and attach a float-transmitter, that transmits the GPS location of the mine in real time for a predetermined time interval so that, the district can be monitored by decision-makers and the neutralization mission can be planned.