NEWSLETTER

ISSUE 3

BORDER UAS

EDITORIAL

BorderUAS has successfully started its second running phase from September 2021, and now the focus is on releasing and first testing flight of the BorderUAS UAV over summer, with follow up integration of the individual BorderUAS sensors in early autumn.

Parallel to the first releasing of BorderUAS **UAV** the first BorderUAS platform prototype for introducing the **C2** environment and basic sensor access and data processing principles to the LEAs is being prepared and we ultimately trying to be used during the pilot planning period, in summer.

In this second running phase, and specifically on the **13th** and **14th** of **December 2021**, two closed focus group interviews with external experts and NGO representatives, as part of the project NGO cooperation strategy, hosted online. The scope of those focus groups was to advise NGOs and introduce them in the process of the BorderUAS project getting valuable feedback and insights related to personal data protection and human rights.

EVENTS

JUL 21 - 1ST ANNUAL PROGRESS REVIEW

READ MORE

BorderUAS project achieved this summer one very significant milestone regarding its progress. On June 23rd , the 1st Progress Review meeting took place with the presence of the Project Officer, the two external experts reviewing the work done so far and the representatives of all 19 consortium partners.

All project's achievements during the first twelve (12) months of the project, were presented on a result-based overview. During this online meeting, short videos, brief demos, explanatory presentations assisted the Project Officer and the Reviewers to get a better idea on the developments of BorderUAS. Fruitful discussions on different matters were the key for the Consortium partners to resolve pending issues and consequently accomplish the future work successfully to reach the desired objectives.

OCT 21 - CYPSEC 2021 CONFERENCE

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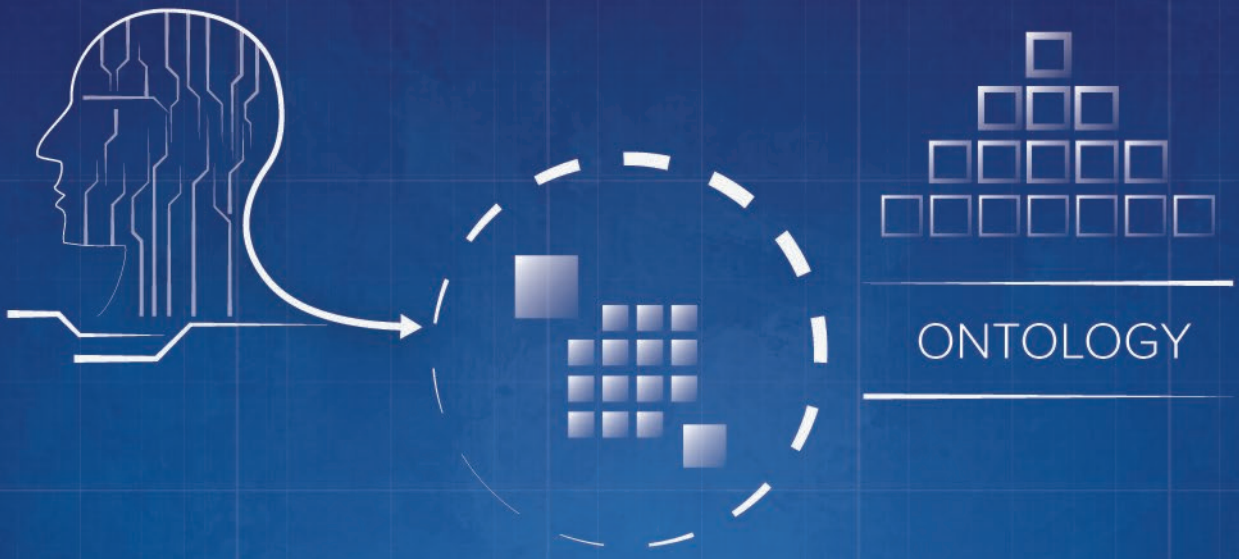
The BorderUAS project was presented to a variety of exhibitors and visitors by our consortium partner ADDITESS LTD during the Cyprus Defence & Security Conference (CYPSEC) 2021 Nicosia.

Cyprus Defence & Security Conference (CYPSEC) 2021 Nicosia took place on 4-5 October 2021, at Hilton Nicosia Hotel supported by the Deputy Minister of research, Innovation & Digital Policy and Cyprus Ministry of Defence.



THE CONTRIBUTION OF ONTOLOGIES IN BORDERUAS

An ontology defines common vocabulary for researchers who aim to share information in a specific domain. It includes both human and machine interpretable definitions of basic and complex concepts in the domain, as well as their hierarchy and the relations among them.

Some of the reasons behind the development of an ontology in the context of the **BorderUAS** project are:

- To decompose the domain knowledge and spell out its fundamentals as holistically as possible
- To expose hidden, high-level knowledge that is not explicitly provided by the deep learning algorithms
- To share common understanding of the structure of information among Law Enforcement Agency stakeholders or software agents
- To enable the reuse of the domain knowledge when extending the representation, in order to further capture more specific applications and tasks
- To make the domain assumptions distinct and eliminate ambiguity among the different users of the platform
- To separate the domain knowledge from the operational knowledge and bridge the gap between the technical terminology and the human comprehension

Read here the full article

HUMAN RIGHTS IN THE NEW DIGITAL WORLD

We appear to be on the verge of yet another technological revolution. Over the last two centuries, the inventions of the steam engine, electricity, and, more recently, the computer have resulted in the transformation of society. And, just like that, the next so-called Fourth Industrial Revolution, or Industry 4.0 [1], will bring even more changes to our world. Most likely there will be no flying cars or time travel, as depicted in science fiction films, but we can certainly expect more substantive and interesting changes. These changes may not have a large impact on the appearance of our apartments and cities, but they will have a significant impact on how we raise our children, build our careers, earn money, and participate in political life.

The expansion of broadband and satellite Internet, the use of machine learning, big data analytics, Internet of Things, e-commerce – these areas have been determining business development directions around the world for quite some time. Only two of the world's top ten most expensive companies are not directly related to technology. The technology and telecommunications sectors account for more than 40% of the top one hundred most successful technology companies. While the economy easily adapts to the trends and dynamics of technological development, the social aspect of our lives, which is equally important, cannot always fully respond to the challenges of the digital age. How can we maintain privacy in the digital age? Is it possible to avoid sharing your personal data and information when using services and apps? How do we ensure that different kind of actors do not constantly monitor us in order to assess our loyalty, and they do not exploit our biometric data? Surprisingly, we voluntarily give away the majority of this information to different actors without even realizing it.

Read here the full article

HUMAN RIGHTS

IN THE DIGITAL WORLD

ADD-C3: AN INTEGRATED SOLUTION FOR ENRICHED SITUATION AWARENESS FOR SURVEILLANCE BORDER SECURITY

Nowadays, one of the most important aspects of European Countries is the need to adopt systems and solutions for guarding their territory against illegal activities such as smuggling, and terrorism demands and also for dealing with incidents of irregular migration. Such systems include reliable long-range threat detection and prevention technology that can operate anytime during the day and regardless of the weather conditions. Thus, border security and surveillance are a 24/7 operation that can't afford downtime or periods of reduced readiness. The increased migratory pressures in Europe and the economy behind illegal activities, highlight the limitations of traditional surveillance and control centers to satisfy the needs and requirements of modern border control systems for homeland protection.

One of the main objectives of the proposed solution is the configuration and deployment of a state-of-the-art surveillance system capable of visualizing, monitoring and managing data sources and platforms. The surveillance system will be offered to the end-user through ADD-C3, a web-based Surveillance Command, Control and Coordination (C3). In the market (civilian or military) there is a variety of Command & Control systems especially developed to accompany surveillance sensors (e.g. the HMI for a radar system). ADD-C3 can integrate a large amount of heterogeneous data sources providing a homogenized representation (visualization) of activity in a web-based HMI. Another novelty of the ADD-C3 surveillance and situation awareness solution is the capability to manage any level of operation (tactical, operational and strategic level) simultaneously. Based on the identity manager and different access rights, users can see the information that is related with their role.

Read here the full article

INFRARED SENSOR - WHAT IT IS, CLASSIFICATION...

Infrared (IR) sensor is most often used in wireless technology that includes remote control functions and detection of surrounding objects or obstacles. It is a simple electronic device that emits and detects IR (thermal) radiation, so that it can detect objects or obstacles in its range. He has the ability to recognize heat and movement. IR sensors use infrared radiation of wavelengths between 0.75 μm and 1 mm, which is located between the visible and microwave regions of the electromagnetic spectrum. The infrared area is invisible to the human eye, but can be felt on the skin, like a feeling of warmth.

One of the classifications of IR radiation is that of the electronic senses that have a response in these areas:

- Near Infrared (NIR) – 0.7 μm to 1.0 μm; the area from the end of the human eye sensation to the silicon response
- Shortwave Infrared Area (SWIR) – 1.0 μm to 3 μm; from the silicon response to the "atmospheric window" area; covered by the InGaAs semiconductor at a wavelength of about 1.8 μm
- Mediumwave Infrared Area (MWIR) – 3 μm to 5 μm; "atmospheric window" area, covered by InSb, HgCdTe and partially PbSe semiconductors
- Longwave Infrared Area (LWIR) – 8 μm to 12 or 7 μm to 14 μm: covered by HgCdTe semiconductors and microbolometers
- Very Longwave Infrared Area (VLWIR) – 12 dom to 30 μm: covered with silicon with impurities

Read here the full article

IR SENSOR

WHAT IT IS, CLASSIFICATION, HOW IT WORKS,
TYPES, APPLICATIONS, A&D

CLUSTERING ACTIVITIES

BorderUAS is happy to announce two new synergies with the EU Funded H2020 projects, **EFFECTOR** and **NESTOR**.

EFFECTOR offers an Interoperability Framework and associated Data Fusion and Analytics services for Maritime Surveillance and Border Security. EFFECTOR enhances the current state of art, by improving the decision support process, and fostering collaboration of maritime stakeholders from local, regional and transnational level. With EFFECTOR, new events are detected faster, decision making is enhanced, while a joint understanding and undertaking of a situation is achieved across borders. EFFECTOR allows a seamless cooperation between the operating authorities and on-site intervention forces, through a secure and privacy protected network.

NESTOR is an EU-funded project of 21 partners from 13 countries aiming to address a common challenge among EU Member States: the protection and safeguarding of the European marine and land borders. To meet this challenge, NESTOR develops a next generation holistic border surveillance system providing pre-frontier situational awareness reaching maritime and land borders. The solution follows the concept of the European Integrated Border Management.

These consortia share common interests with BorderUAS (Border surveillance, security and ethics) and are actively in discussions to investigate ways of collaboration between BorderUAS and the abovementioned projects in areas of dissemination, information exchange, transfer of knowledge, ontologies, ethics and social acceptance.

Anyone interested in the BorderUAS project for clustering activities, is encouraged to contact us at info@borderuas.eu for a potential new synergy.

NEXT STEPS

- 11th & 12th of May 2022: Presence with an exhibition stand and presentation of BorderUAS by Vicomtech on TECNOSEC event for high global security technologies.
- 17th of May 2022: Participation on EFECTOR's VIP DAY regarding the French trials in Toulon.
- BorderUAS plenary meeting on 8-10 June 2022 in Zagreb, Croatia.
- Second review period finishing in September 2022.

If you are interested in our progress and developments, stay tuned through our various dissemination channels and the frequent blogposts that are available through our website.

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