

Concept 0617

RIF PROPOSAL NUMBER	TITLE	COORDINATOR	HOST ORGANISATION (HO)	PROGECT BUDGET	RIF FUNDING	PUBLISHABLE SUMMARY
CONCEPT/0617/0004	Automated multistage filtration prototype device for on-line liquid analysers	Stavros Hadjiyiannis	CY.R.I.C CYPRUS RESEARCH AND INNOVATION CENTER LTD	35.703,60 €	24.992,52 €	<p>There is a large number of industries that rely on water or other fluids periodical quality analysis for meeting regulatory requirements or for ensuring safety and security for the population. This need has led to the development of real-time monitoring and on-line analysis instruments that have become a major trend nowadays. On-line analysis of water quality is necessary in the food and the aquaculture industries. The pharmaceutical industry has also the same need and in this case not only for water quality analysis, but also for the analysis of other fluids used for pharmaceuticals production.</p> <p>One of the major problems when dealing with on-line fluid analysers is sample filtration. In fact, in all aforementioned examples of application, the sample cannot be used directly for the analysis. Furthermore, for on-line analysers, sample contamination is also a problem due to the frequency of the analysis. Some technical solutions have been developed and used for overcoming this issue, including self-cleaning filters. Nevertheless, those solutions are very expensive and large in terms of dimensions, thus applicable only to specific application fields where cost and size might not be an issue. Most importantly, the lifetime of such solutions is still limited, while in many cases such filters cannot guarantee high retention rates.</p> <p>On-FiSy project answers the need of the on-line analysers industry for a low-cost, compact, flexible and reliable automatic liquid sample filtering device. The overall objective of the On-FiSy project is to design, develop and verify an automated multistage filtration concept to be used in various types of on-line liquid analysers. The On-FiSy prototype device is based on the use of common, low-cost filters combined with a novel, automatic filters replacement mechanism and a smart, modular design for combining multiple filtration steps in a single process. The concept will be verified through a prototype to be developed and used for laboratory tests, reaching TRL 4.</p>
CONCEPT/0617/0005	STRIA: an app for social skills training	Kleanthis Neokleous	SILVERSKY3D VR TECHNOLOGIES LTD	35.700,00 €	24.990,00 €	<p>Project STRIA aims to (1) the further development and (2) laboratory validation of a software suite that will allow scientists – clinicians, therapists, and others -- to design and set up research studies on social anxiety, combining Virtual Reality (VR) with physiological recordings. This software suite, codenamed as the STRIA platform, will initially target a particular form of social anxiety, known as Public Speaking Anxiety (PSA). PSA, -- also known as speech anxiety, stage fright, or fear of public speaking--, refers to the fear of being scrutinized or evaluated by others while giving a speech or a presentation. With this project we aim to take a basic VR app we have created for PSA to the next level. In particular, our goal is to develop this app into a platform with which users will be able to create their own custom VR set ups to conduct experiments and develop clinical interventions for PSA. The project will allow us to achieve TRL 3 and TRL 4, with the ultimate aim of developing a final product for commercial exploitation.</p>

CONCEPT/0617/0056	TOWARDS GPU-ACCELERATED ENALOS+ NODES	Antreas Afantitis	NovaMechanics Ltd	35.700,00 €	24.990,00 €	<p>The success of drug discovery as well as chemoinformatics-aided material design significantly depends on the success of in silico methods and tools to process, integrate, analyze and interpret chemical and biological data and properties. The need for efficient data mining and analysis has become very intense especially after the increasing volume of data produced from High Throughput Screening (HTS) experiments. To address this emerging need NovaMechanics Ltd has developed and integrated within Enalos+ toolbox a wide range of nodes, functional within KNIME platform, dedicated to the cheminformatics analysis of chemical data and their corresponding activity/properties.</p> <p>EnalosGPU project will build upon existing knowhow and investigate and verify the advantage of GPU calculations in an effort to: (i) allow big data analysis through Enalos+ KNIME nodes, (ii) accelerate computations performed within Enalos+ KNIME nodes and (ii) propose new time and cost efficient nodes integrated within Enalos+ toolbox.</p> <p>Recent studies have highlighted the advantages of GPU- over CPU- computations for software and such an approach is considered crucial for accelerating computations within Enalos+ nodes mainly due to the increasing amount of processing data, the demand for time and cost efficient calculations that would speed up computations and the need for the exploitation of the increasing capabilities of available supercomputers that are now easily and widely accessed.</p> <p>The main objectives of EnalosGPU project are summarized as follows:</p> <ul style="list-style-type: none"> <li>- Investigation of possible applications of GPU- accelerated computations performed by the in house developed KNIME nodes included in the proprietary Enalos+ toolbox (TRL3)</li> <li>- Verifying the advantages of GPU- accelerated computations within a part of available Enalos+ nodes with the possibility to a future extent to the full range of Enalos+ nodes. (TRL4)</li> </ul>
CONCEPT/0617/0065	Realistic Planning for Effective Wireless Sensor Networks in Smart Cities	Nicos Antoniou	SIGINT SOLUTIONS LIMITED	35.336,80 €	24.735,76 €	<p>The main objective of the proposed project is to interconnect a physical layer and a Network layer simulator through a user friendly but very powerful Smart City wireless sensor network simulation tool which focuses on the Internet of Things (IoT). Additionally, in the course of this project, the team will validate and test the proposed module/tool in large scale real environments. It is considered that the innovative and unique / disruptive capabilities of the proposed tool will allow the easy planning of functional sensor networks in complex urban environments. Currently there are no simulators capable to implement the whole OSI network stack. The majority of Network simulators (NS-3, Omni++, Cooja, etc.) focus on simulating algorithms and protocols starting from the MAC layer and above while they ignore the physical layer. Thus, these types of simulators are being used just for comparison purposes, mostly for Academic Purposes.</p> <p>Ignoring physical layer provides unrealistic results, in scenarios where the industry needs to deploy a Wireless Sensor Network in real environment.</p> <p>A more detailed analysis of the problem indicates that existing network layer simulators implement and use simple propagation models such as free space loss, plane earth loss, or utilize statistical or semi-empirical models, which are inadequate to extract realistic coverage results in complex urban environments. This leads to miscalculation of radio coverage and erroneously predictions propagate at the network layer resulting in erroneously network performance predictions.</p> <p>Thus, in this project we attempt to develop and validate a tool, which interconnects an in-house developed -and globally commercialized- fully deterministic simulator (TruNET wireless) that will be capable to design an optimized wireless sensor network and inject realistic results in a Cooja, an open source popular network layer simulator, for realistic network level calculations.</p>

CONCEPT/0617/0071	PRODUCTION OF SELF-COMPACTING CONCRETE IN THE BUILDING INDUSTRY OF CYPRUS	Pericles Savva	Latomia Pharmakas PLC	41.665,60 €	24.999,36 €	<p>The main objective of the proposed project is the development a self-compacting concrete (SCC) mixture, the performance and cost of which will allow the immediate utilization in the market of Cyprus. SCC is a material internationally known since the late 1980's. It was originally developed in Japan, aiming to eliminate the material's dependence on human factor (e.g. poor compaction) and the noise resulting from mechanical vibrators. SCC's wide adoption in the construction sector of Cyprus has not yet been achieved, due to lack of knowledge.</p> <p>This proposal aims to provide a firm and sound guide to the host organization in adopting and utilizing SCC as one of its major products. The guidance will provide accurate and clearly defined information regarding the constituent materials, the utilized by-products, the cost, the full-scale manufacturing, the transportation and the placement of SCC. The current proposal aims to implement the existing knowledge found in the literature to develop a technically excellent cost-effective SCC mixture using local materials. The development of the optimum SCC mixture will be comprised of three major steps, beginning from a small-scale lab-development, followed by a full-scale industrial development and finishing with the transportation and cast. The attention of the proposed work will focus on addressing fundamental industrial demands such as the material's quality and cost.</p>
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