



MULTIMOND₂

復旦大學



INTELLIGENT INTEGRATED PLATFORM
FOR SPECIAL MISSION CONTROL BY
ROBOT VECTORS

3DVERO CAO VIPRO

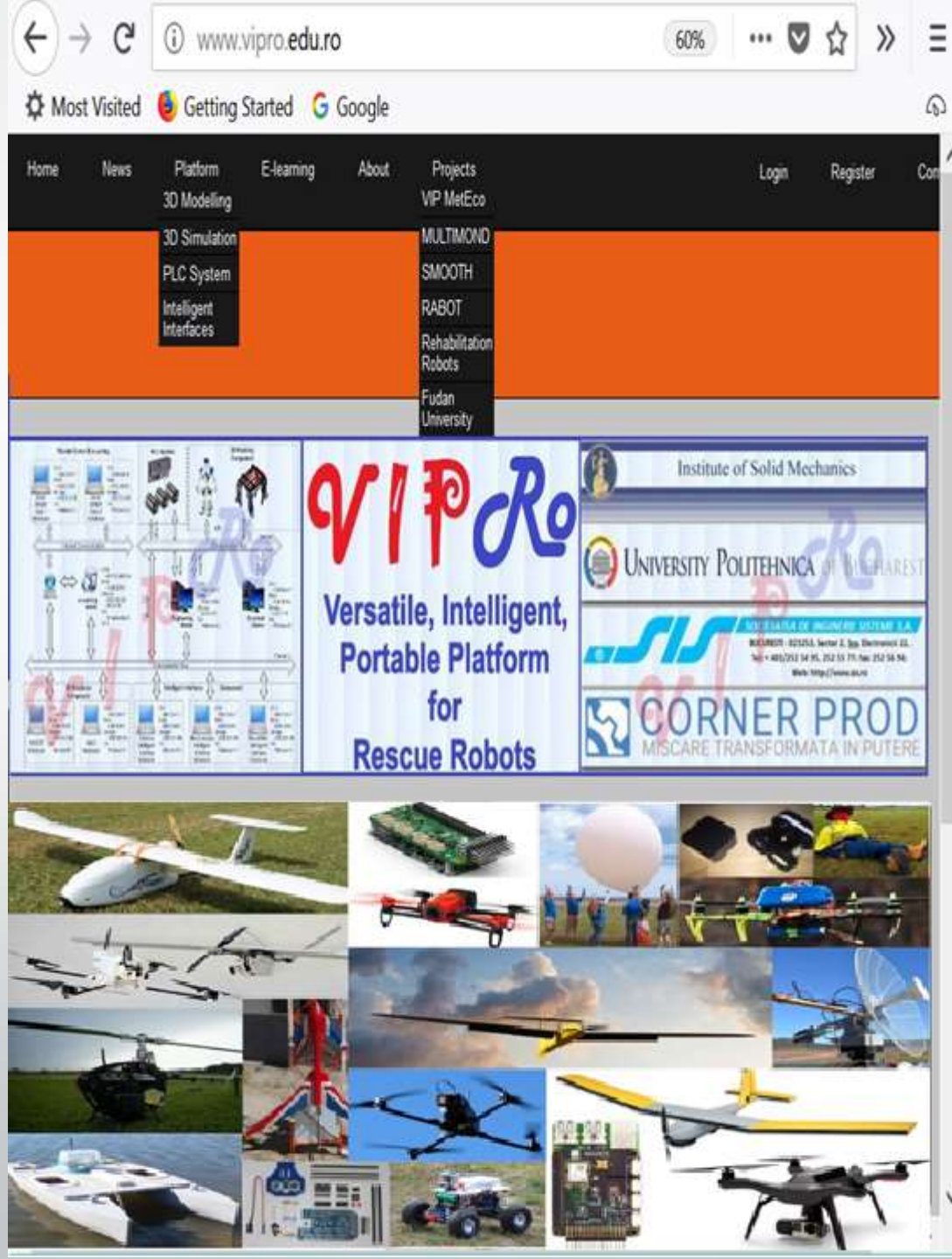
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MULTIMOND2

*3DVERO VIPRO Platform
for Research on the key
technology of Multi
Monitoring Danubius 2*

COORDINATOR & PARTNERS:
IMSAR. PUB, AFA
PROJECT COMPLEX COORDINATOR
INFLPR

VIRTUAL PROJECTION ARCHITECTURE



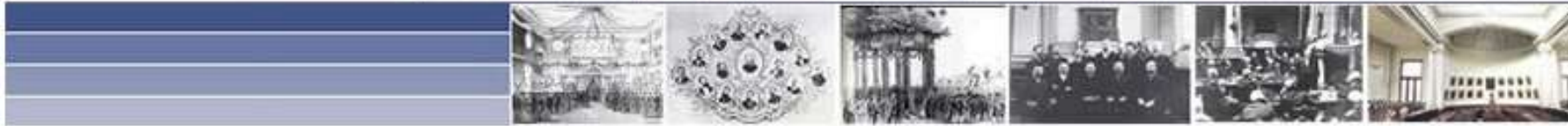
China – Romania, long term bilateral cooperation



1. Both countries established diplomatic relations on October 5, 1949, and exchanged ambassador for the first time in March 1950.
2. Scientific cooperation agreements between Chinese Academy of Sciences and the Romania National Science and Technology Committee, Romanian Academy(中国科学院和罗马尼亚社会主义共和国全国科学技术委员会、科学院科学合作协议), signed 1975.

THE ROMANIAN ACADEMY

Symbol of National Spirituality, Forum of Recognition, Space of Fundamental Research



INTRODUCTION

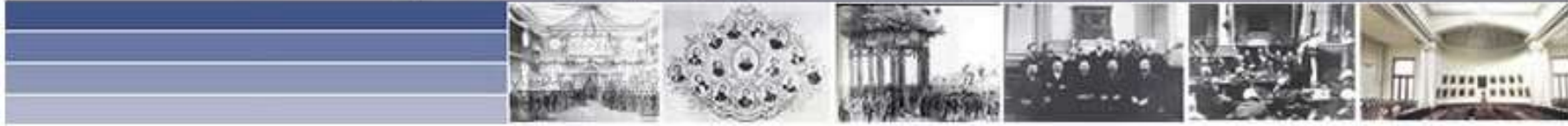


The Romanian Academy, Romania's highest cultural forum, has several main objectives:

- cultivation of the national language and literature,
- study of the national history,
- research into major scientific domains,
- promotion of democratic and ethical principles of free communication of ideas in Romanian sciences, arts and letters

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INTRODUCTION



- The structures of the Romanian Academy cover the entire country and include all scientific, artistic and literary sectors.
- Members of the Academy enjoy recognition for excellence, continue to sustain an activity designed to recognize the outstanding performances of scientists, artists and literati and have made eminent contributions to Romanian intellectual life and cultural progress.
- The Awards of the Romanian Academy, granted annually for outstanding books, exceptional achievements or lifelong activity.



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INTELLIGENT CONTROL
BY THE
ROBOT VECTORS
IN
SPECIAL MISSION



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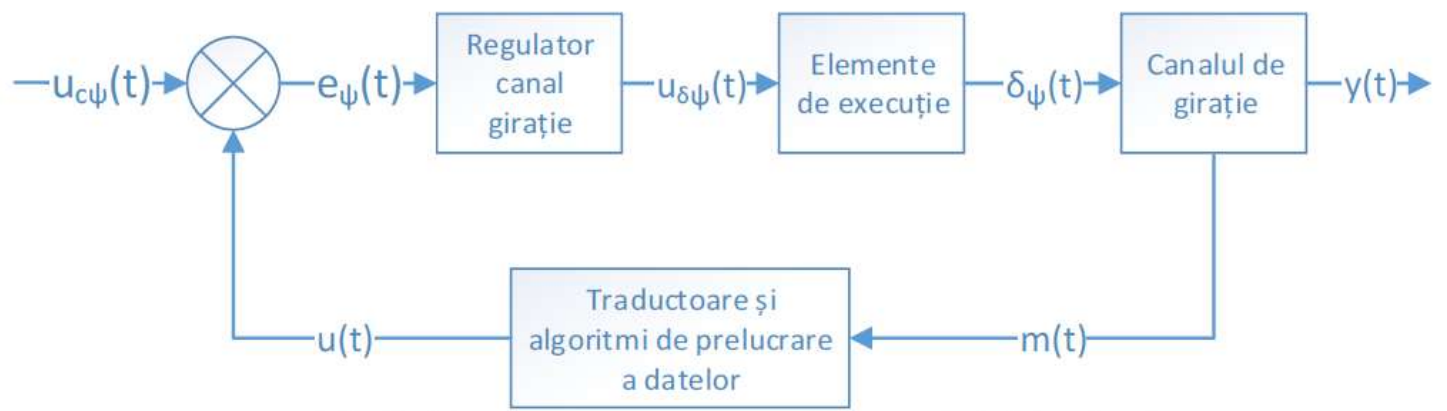


Fig 5 - Reprezentarea structurală a canalului de girație

$$u_c(t) = [\psi_c]; e(t) = [E_\psi]; u_\delta(t) = \begin{bmatrix} PWM_{M_1} \\ PWM_{M_2} \\ PWM_{M_3} \\ PWM_{M_4} \end{bmatrix}; \delta(t) = [m_z];$$

$$m(t) = [H_x \ H_y \ H_z \ \omega_z]^T;$$

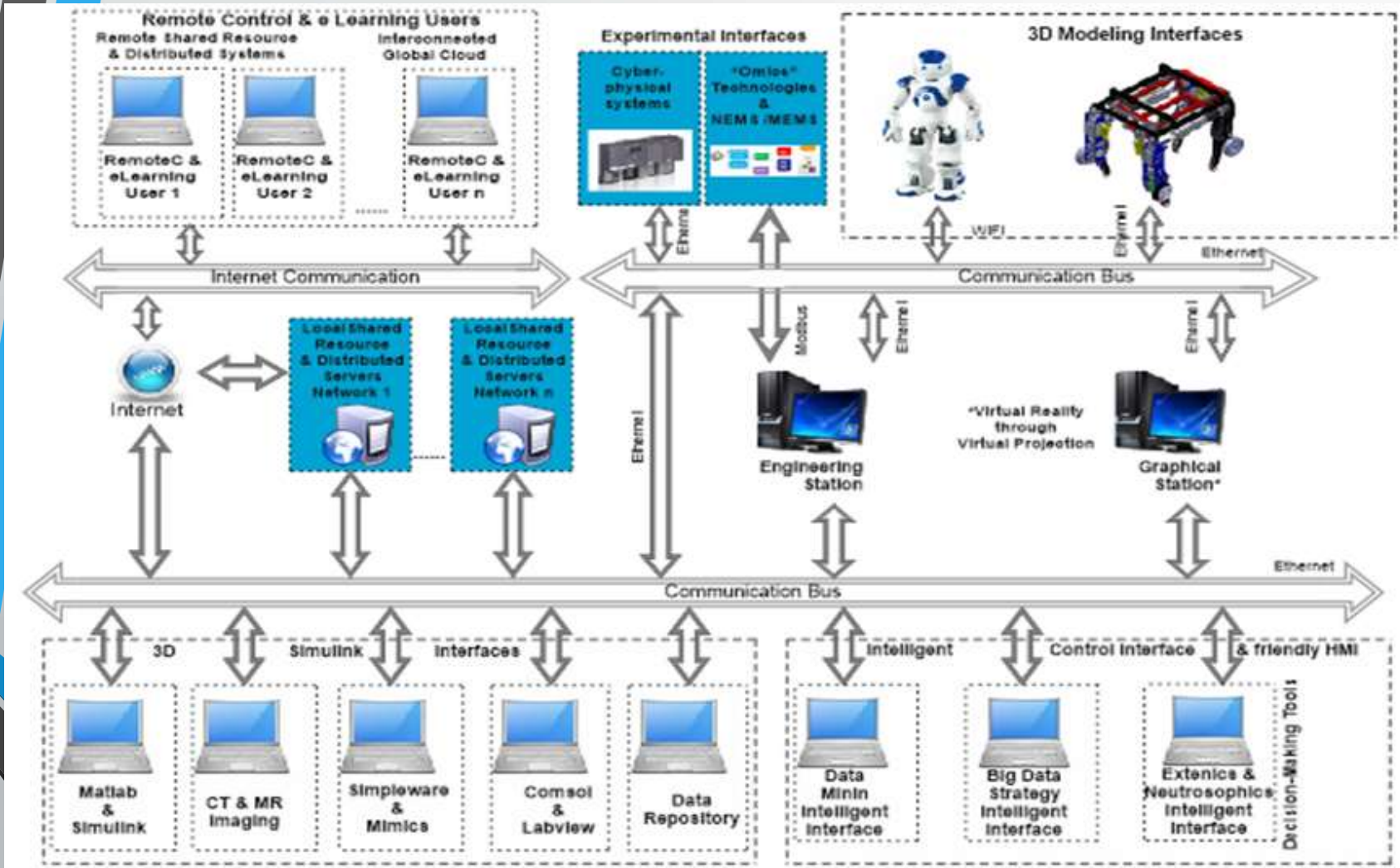
$$u(t) = [\psi];$$

Structural representation of the gyration channel

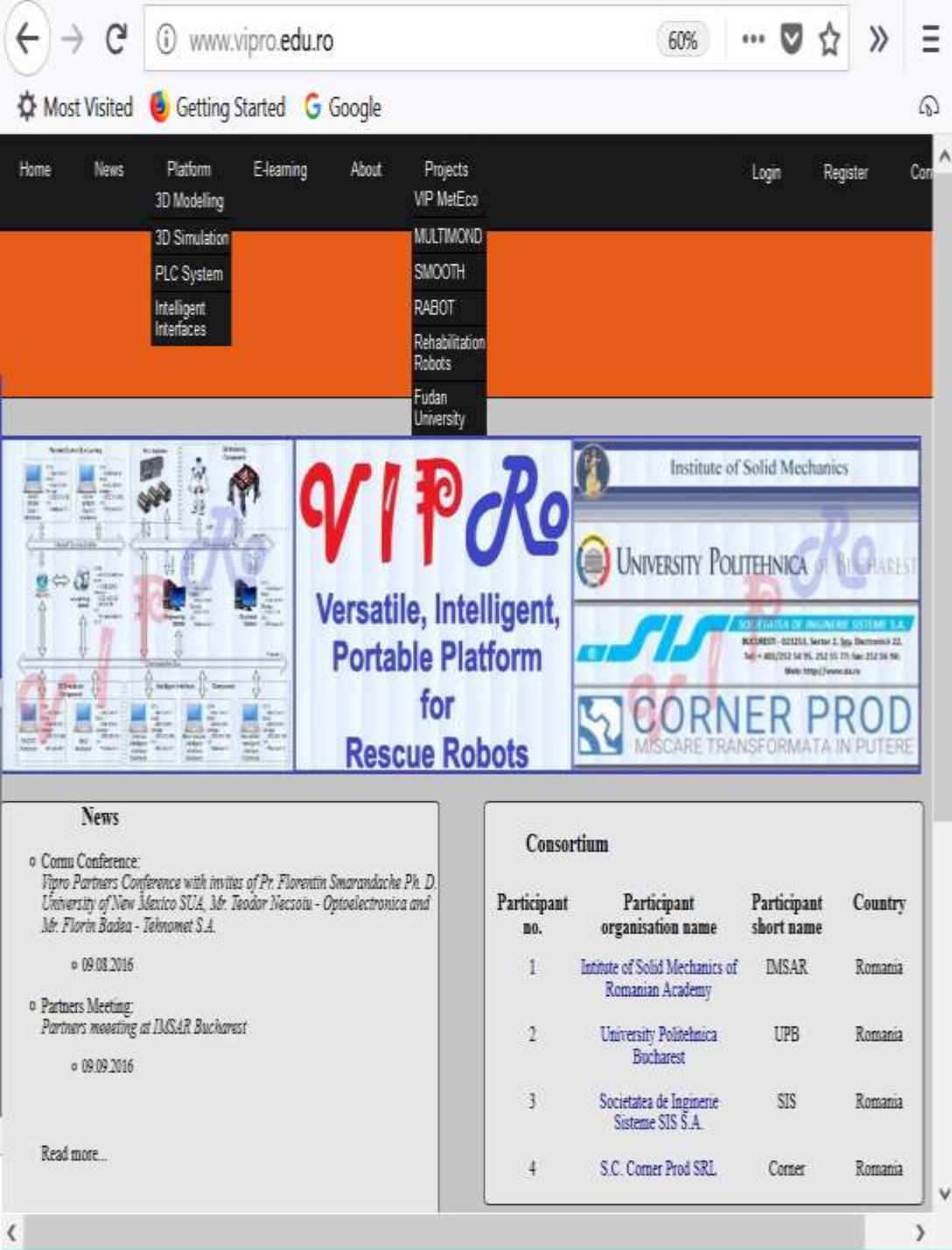


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Multi
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Danubius 2*



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VIRTUAL PROJECTION ARCHITECTURE

INTERNET
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**METHOD AND DEVICE FOR THE
 DEVELOPMENT IN VIRTUAL REALITY OF INTERFACES
 FOR MECHATRONIC SYSTEMS' CONTROL**

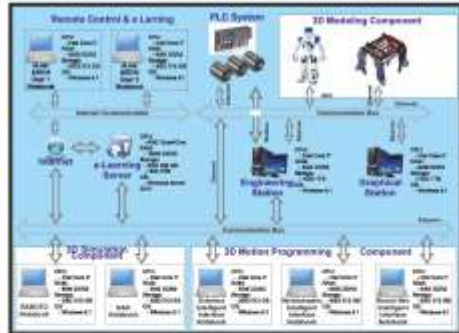
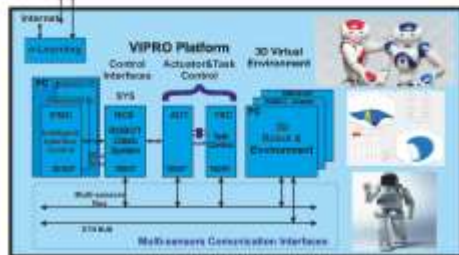
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PATENT: OSIM A2016/00174

The system is designed for motion and navigation on rough terrain and uncertain environments. The problem solved by the invention is to adjust the robot movement on rough and unstructured terrain, allowing rescue activities in crisis situations or natural disasters areas in which human life is in danger.

The invention refers to a complex method and device for the development in a virtual environment of versatile, intelligent and portable control interfaces, validated in real time on a classical own mechatronic control system and/or a physical mechatronic system, with the aim of improving performance for motion, navigation and robot orientation on the control axes, with applications in control systems for nano - micro - macro -manipulators, mechatronic systems and humanoid robots.

The method enables the design, testing and experimentation of new intelligent control interfaces on a classical mechatronic control system (SCMC) in the presence of the physical mechatronic system (SMF), with own control system and mechanics structure, or in the absence thereof, without the need to modify its hardware structure, and, from optimal decisions and information fusion between the intelligent control interfaces, resulting in a high degree of versatility and portability to a global communications network. The portability of the intelligent control interface to a global communication network raises the economic impact and develops control performance for mechatronic systems through the worldwide participation of researchers and specialists from institutes, universities and research centres. The portability characteristics of the device developed with the invention allows the user, from anywhere in the world, to test and improve the motion performance of the mechatronic system, and furthermore implement the intelligent control and decision interfaces on their own control system.



ADVANTAGES

Together with the ability to function in a global communication network, the device is competitive with other well-known virtual platforms, such as CAD, CAM, CAE, LabView, Matlab, Simulink, Webots, USARSIM, Unity 3D, V-REP, and commercially feasible, allowing the designed device to enter the IT market as a new component among existing IT platforms.

Class C



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CONCLUSIONS

*Virtual Projection Method
 Applied to
 VecRob VIPRO Platform
 for Research on the key
 technology of
 Multi Monitoring Danubius 2*

VIRTUAL PROJECTION ARCHITECTURE



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Thank you
for your attention!

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