Institute of Mechanics – BAS **Joint Seminar**

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A report "**Integrated mechatronic systems and some their applications**" was presented by **Assoc. prof. Valentin Penev, PhD**, who is head of department "Integrated Systems" at the Institute of robotics – BAS. He talked about recent achievements in the area of design and manufacture of custom solutions for simulation and training in the area of unmanned aerial vehicles (UAV) and systems. Special attention was devoted to a description of services in the area of application architecture, application design, software development, software maintenance, as well as consulting, concept and execution of projects in the area of UAV. The speaker showed some screenshots and short films about Flight Control Systems for rigid wing UAV; Software and hardware for rotor wing and quadrocopter UAV; Ground Control Systems and a Tactical trainer for UAV.

During the discussion, prof. E. Zachariev asked how they determine the direction of gravity in relation to the momentary orientation of the apparatus because its movements generate inertial forces in the sensors. He also was interested to know if speaker sees some possibilities for partnership. Assoc. prof. V. Penev answered that they are opened for collaboration.

Assoc. prof. Delchev asked how are counted sharp movements of the platform, which violate stability of the photo-camera. The speaker answered that usually is used a suitable soft pad, but vibrations could be also filtered by the software.

Assoc. prof. S. Ranchev questioned does he see any application of these stabilisation methods for use in stabilising the movement of disabled persons. The answer was that the approach they use is different than the one used for stabilising the movement of walking robots.

Assoc. prof. K Delchev questioned about ways and methods for tuning the control software.

One Penev's colleague said that there are many topics in this area, where could be made collaboration with interested persons.

Assoc. prof. Roumen Krastev,
Secretary of the seminar