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PERSPECTIVES OF USE AND FEATURES OF DESIGN OF MICRO-CLASS UNMANNED AERIAL VEHICLE

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ABSTRACT

This paper deals with analysis of main specifics of engineering, manufacturing and practical usage of remote-controlled unmanned aerial vehicle (UAV) micro-class. The special field of UAV application is monitoring of environment and industrial facility. Author's research is based on UAV construction. There are also evaluated technologies of UAVs manufacturing with appliance of CAM, performed theoretical study and computer generated simulation of the aerodynamic characteristics of UAV different parts.

[*Keywords:* unmanned aerial systems, unmanned aerial vehicle, construction, computer-aided design, aerial monitoring, aircraft design.]

GENERAL

Construction of remote-controlled unmanned aerial vehicle (UAV) has to take into account several specific requirements, including condition of "flexible" manufacturing technology, reliable and safe exploitation, ecological safety etc. First of the above mentioned factors implies the possibility of easy-to-reequip mass production UAVs, with differences in construction, weight, composition and executable functions.

In this case construction necessarily has to be executed from different modules, which represent interchangeable details and nodes. Following exploitation rules is necessary in order to insure UAV take-off and landing when there is no take-off runway or restricted visibility, and possibility to control UAV manually as well as in automatic mode applying modern navigation system and connection tools etc. Ecological safety requirement, for example, is necessity to be nature-friendly and produce minimal level of noise etc.

FIGURE 1. UAV PROTOTYPE

Authors continue the research on UAV developed in Institute of Transport Vehicles Technology of Riga Technical University, which fulfils all of the above mentioned requirements.