AN "ALL-SEEING EYE" FOR UAVS IS BEING DEVELOPED IN RUSSIA

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United Instrument Manufacturing Corporation (part of Rostec State Corporation), the key developer of UAVs , is developing advanced payloads for **Russian**-produced **UAV**s, which increase efficiency of aerial reconnaissance and earth surface monitoring. As against the common optics, new technologies allow gathering information not visible to the human eye. Thanks to this equipment the UAV is able to distinguish between real and false targets, detect camouflaged objects and even define materials of which enemy fortifications made, the corporation's press-service reports.

«The technology for processing hyper spectral data developed by our company is the "**all-seeing eye**", which allows our UAVs to see beyond the common electromagnetic spectrum, the corporation's Deputy CEO Sergey Skokov said. –The technology is based on unique characteristics of spectral radiation associated with every object or material. Using these characteristics our equipment is able to identify a target, regardless of an enemy's efforts to hide something or jam our devices. It is very precise equipment, which sees not just a picture made of pixels, but pixels with a unique spectrum. Such equipment is able to distinguish between artificial and natural objects, camouflage net and the real grass, a fake object and a real one, etc.».

The developed hardware and software system includes: aircraft and ground equipment, which automatically detects weapons and military vehicles, including the camouflaged ones and objects having low signature. The systems automatically identify the detected targets using a database

comprising hyper spectral characteristics of different objects and materials. Using optical-electronic systems the equipment generates complete digital information about a terrain and it is also able to record environmental conditions – soil pollution, traces of chemicals, fuel spillage, etc. The technology may be successfully used for civil purposes. For example, in the area of forestry management it may help estimate the condition of forests, their composition, record consequences of fires and pest outbreaks. In the area of agriculture the analysis of hyper spectral data allows obtaining information about soil condition, lack of some elements in the soil, areas of growing crops, diseases and other stress factors – work in this area is being carried out at one of experimental farms located in Leningrad Region, the corporation explained.

«These technologies will be implemented in the near future to replace traditional photo- and video-modules installed on UAVs, - Sergey Skokov said. – Work in the area of hyper spectrum is being carried out in parallel with other monitoring technologies, which allow seeing more than traditional optics. In particular, the corporation's specialists developed a system for processing target environment information, which analyzes large arrays of information obtained via optical-electronic, digital television and radar surveillance equipment installed on UAVs, including hyper spectrum. Such combination of technologies ensures the best results, including a 3D-image of the terrain with all the required characteristics of all the objects».

Different UAVs may be fitted with the hardware and software system designed for processing hyper spectral data. In particular, this module may be installed on a medium short-range Korsar UAV, which is being developed by the corporation.

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