УДК 656.7

UNMANNED AERIAL VEHICLES

Liutkova V.A., student
Scientific supervisor - Ladutska N.F., senior lecturer
English language department №1
Belarusian National University of Technology
Minsk, Republic of Belarus

Unmanned aerial vehicles are a mechanism that implements specific goals without the presence of personnel on board. The UAV has an engine and rises into the air due to the action of aerodynamic forces. Regulation occurs in a speed coordinate system. This system involves expansion along three axes: x (in the direction of movement), y (perpendicular to the Ox axis), z (directed along the wing).

UAVs are superior to manned aircraft in lower maintenance costs. Quadcopters, multicopters, fixed-wing aircraft and helicopter-type unmanned aerial vehicles are among the most common uncrewed devices. Autopilot, control center where the drone operator is located, sensors that provide maximum navigation accuracy and prevent collisions, a communication system without which remote control would be impossible, a power source, a navigation system, a propulsion system – all this is an integral part of this device.

Drones are used in various spheres of life: military, civil, scientific, etc. The main methods of their use are photo and video shooting, which allows you to create high-quality photos and videos even at high altitudes. Data collection, searching for people, mining, cargo transportation are actively used in the fields of energy, construction, architecture, geodesy and logistics. This innovation is often used as single-use or multiple-use targets. Drones are a great aid for emergency services because they provide a wide view of the area [1]. But there are also disadvantages to using this technology: people become unemployed whose work was based on driving; possible device hacking, surveillance, loss of private information, puts people at risk if the drone is operated by a person without experience.

There are many subtypes of drones that are special in their own way. For example, multi-rotors with multiple spinning propellers are gaining fame for their stability in the air; fixed wing drones, they have fixed

wings, and their distinguishing feature is the ability to cover long distances; designed for take-off and landing, single-flow, single-rotor drones are stable and smooth when moving through the air. Also, such a device differs in weight and size: microdrones are considered the lightest and most compact, their weight is up to five hundred grams, and their diagonal is up to one hundred millimeters; mini-drones are also small, weigh reaches up to five hundred grams, and with a diagonal reaches up to two hundred and fifty millimeters; heavy drones are extremely large, their weight starts from three kilograms, and diagonally starts from five hundred and fifty millimeters [2].

The improvement of innovative technologies does not stand still. Every year new devices appear that become smarter and more efficient in their work. Let's take a look at some of them: AI drones. This technology can detect other drones during flight and allows data to be analyzed and recorded on the ground; portable interceptor drone – the UAV allows you to destroy other drones, land on an inclined surface, and much more [3].

There are certain standards for the use of drones in each country. The purposes of introducing such rules are diverse. They are used to protect airspace, private property, public safety.

Protection of personal data is a key problem when using an unmanned aerial vehicle. Since this device is equipped with cameras, it can take pictures and record videos, which helps in collecting various information: they can collect personal data, disclose trade secrets, find out the geographical location of something. Another problem is secure data transfer, as hackers can easily hack the device and use it for personal purposes.

References

1. Randal W. Beard. Small unmanned Aircraft: theory and practice / W. Beard Randal, Timophy W. McLain. – Princeton University Press, 2012. – 320 p.

2. Bartsch R. Drones in society. Exploring the strange new world of unmanned aircraft / R. Bartsch, K. Gray, J. Coyne. – Routledge, 2017. – 160 p.

3. Perritt H. Henry. Domesticating drones. The technology, law, and economics of unmanned aircraft / Henry H Perritt, Jr., Eliot O Sprague. – Routledge, 2017. – 416 p.