

IMPLEMENTATION OF UAV SYSTEMS ON TRANSPORT

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The modern world is rapidly evolving and improving, while modern transport technologies are developing. Every year we can see new methods and approaches to improve passenger and luggage transportation, including by air.

One of the newest methods is the introduction of unmanned aerial vehicles - aircraft designed to fly without the physical presence of the pilot on board. According to the Air Code, an unmanned aircraft is an aircraft designed to fly without a pilot on board, the flight control of which is controlled by a special control station located outside the aircraft [1].

It is known that drones were originally designed for the military goals, but in a relatively short time began to be used in various spheres of public life and sectors of the economy. At the same time, with the rapid development of the drone market, it has become clear that they pose a number of security risks. Even drones weighing less than 150 kg can damage an airplane, injure and pollute the air and sound.

Drones equipped with cameras, may threaten privacy and collect personal data of people without their consent. Along with their use in medicine, logistics and agriculture, there are more and more cases of their use for committing offenses (eg smuggling). Drones are usually divided according to criteria based on their propellers and purposes of use. They can withstand heavy loads, contain a camera, and other payloads, have stabilizers and can be equipped with GPS. Unmanned aerial vehicles can be used in various fields: transportation of goods, photography of the area, work in agriculture, control of traffic violations, search for missing people.

The COVID-19 pandemic has led to the active use of unmanned aerial vehicles (hereinafter UAVs), which are remotely controlled and do not require direct human contact. For example, China uses UAVs to monitor social distance between people, advertise on the streets, measure body temperature, and in Italy, UAVs quickly delivered test systems between medical facilities, and in other countries, drones are being tested to deliver food, medicine and disinfectants, so we can predict an active development of the drone market for express delivery in Ukraine in the near future.

Researches show that by 2050, the developed drone sector will create 150,000 jobs, in 10 years this industry could occupy 10% of the European Union aviation market [2].

The world market for unmanned aerial vehicles (hereinafter UAVs) can be divided into 4 main categories: commercial, military, consumer and emergency drones. The introduction of unmanned aerial vehicles (UAVs) in such areas as warehousing logistics, transportation, delivery of goods, agriculture have long been considered by industrial companies. The structure of the market for the use of unmanned aerial vehicles, the authors include: commercial use, public defense, consumer, for emergencies [3].

In modern conditions, there are serious obstacles to the introduction of unmanned systems in transport, as in Ukraine there is no legal regulation of the use of UAVs. As you know, the Convention on International Civil Aviation (Chicago Convention), signed in 1944, establishes separate rules for the use of UAVs, and in 2007 the International Civil Aviation Organization (ICAO) clarified the standards for the use of remotely piloted aircraft systems (RPAS). In 2011, the general principles for the operational use of UAVs were clarified, and some amendments were made to the annexes to the Chicago Convention, including the mandatory certification of UAVs for the safety and management of a licensed pilot and the supervision of a certified operator.

ICAO is currently working with some member states to develop regulatory requirements for the use of unmanned aerial vehicles. At the same time, rule-making is guided by EASA, to create a recommendation for a single set of technical and operational requirements for UAVs.

So, in modern conditions of transport development, a large number of industries use unmanned aerial vehicles. In particular, logistics. At present, this is technically possible, but the imperfection and unpreparedness of regulatory policies do not allow the development of unmanned transport systems in Ukraine. An important area of implementation of UAVs will be the presence of simple and transparent rules for their use in the transport market. Legislative regulation is needed to stimulate the growth of the transport and logistics industry. The temporary procedure for the use of airspace, initiated by the State Aviation Service, does not provide the necessary development of the UAV market.

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