

УДК 355.4+681.3+004

Солтис М. – ст. гр. СП-32

*Тернопільський національний технічний університет імені Івана Пулюя*

## **ДРОНИ КАМІКАДЗЕ, ЇХ МОЖЛИВОСТІ ТА ФУНКЦІОНАЛ**

Науковий керівник: к. ф. н., доцент Плавуцька І.Р.

Soltys M.

*Ternopil Ivan Puluj National Technical University*

## **SUICIDE DRONES, THEIR CAPABILITIES AND FUNCTIONALITY**

Supervisor: Ph. D., Ass. Pr. Plavutska I.

Ключові слова: дрони, квадрокоптери, технології

Keywords: drones, quadcopters, technologies

In recent years, unmanned aircraft and drones have become increasingly popular technological solutions used in various industries from military operations and scientific research to commercial and entertainment purposes. Over the past few years, the development of drone technology has significantly increased their capabilities and opened up new perspectives in their use.

Undoubtedly, one of the most powerful drivers of the rapid development of unmanned aviation is military drones. Fast and maneuverable battles during the conflicts of the last decade dictate new conditions of warfare and requirements for equipment and equipment. Kamikaze drones, or as they are also known as loitering munitions or suicide drones, became one of the solutions to this problem. The production of one drone of this type costs approximately tens of thousands of dollars, but it is capable of destroying a target worth several million dollars. This makes this type of weapon extremely effective.

Modern suicide drones are designed to attack concentrations of infantry, transport, armor vehicles and important infrastructure. Typically, loitering munition is quite lightweight, so it can be launched by an ordinary infantryman using special equipment or adapted transport for such operations. After launch, it flies to a designated point where the target should be. On-site, a drone hovers in the air and scans the area, waiting for the moment to strike the target. When it detects the object, it literally rushes towards the target, and detonation occurs upon impact.

Usually, kamikaze drones are equipped with a military version of a GPS module that allows them to quickly obtain accurate data on their location and adjust their route to the designated area. In addition, the engines of most suicide drones are powered by a battery, which allows them to stay in the air for a quiet long time while waiting for the target. This also reduces the engine noise level and makes the drone less visible.

The war in Ukraine is making adjustments to the tactics of fighting, the tactics of using unmanned aircraft, and the need for new types of weapons. FPV suicide drones have recently become especially popular and in demand.

FPV (First-Person View) drones are equipped with video cameras and image transmitters, which allows the pilot to see what is happening in front of the drone in real time. The operator controlling the aircraft model sees the image received from the video camera using display devices: monitors, televisions, video glasses, video helmets. The drone can be operated by a remote control. All of these technologies allow the pilot to control the flying machine and perform maneuvers more accurately and quickly than is possible with a conventional view from the ground. Almost any drone aircraft can be adapted for FPV, from a

glider to multi-rotor systems. For the manufacture of this type of drone, the last option is most often used, because multi-rotor systems are usually more maneuverable and easier to control.

An important feature of the FPV carrier is the presence of an on-board transmitter. Often, FPV carriers install an additional power battery that ensures the operation of the FPV onboard complex. The minimum set consists of a camera connected to a video signal transmitter installed on a conventional radio-controlled model with a signal receiver from the drone operator and several control elements. Usually, such devices are equipped with 85 mm warheads from the RPG-7. The production of one FPV complex costs several hundred dollars. This makes it extremely cost-effective and effective, as it can easily destroy enemy infantry, vehicles, and light armored vehicles such as IFVs, APCs, and MRAPs. At the moment, these drones are manufactured in Ukraine by amateur engineers and the Hero of Ukraine charitable foundation.

Suicide drones are becoming more and more common and soon will become an integral part of the arsenal of every army. Their development is at its peak due to the great interest of the military and large investments in this domain.

**Literature and sources:**

1. mil.in.ua
2. thedefensepost.com
3. YouTube channel "Militarnyi"