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## Legal and Ethical Issues of Unmanned Aerial Vehicles

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### Abstract

Unmanned aerial vehicles (UAVs) are air vehicles that can fly remotely or autonomously fly over a certain flight route by themselves. "Unmanned aerial vehicles", which were first produced as military vehicles and then started to be used by civilians, nowadays can easily be bought by everyone. Unmanned aerial vehicles, which can be purchased and made accessible by all, have brought legal disputes and legal regulations together with these disputes. Abuse is obvious because there is a legal vacuum in the field of unmanned aerial vehicles. Of course, it is important for Turkey to work integratedly with the fourth industrial revolution. It is necessary to work like a lucky artificial intelligence, intelligent systems without ignoring the most precious being.

In this study, the development process of unmanned aerial vehicles will be examined in terms of the availability of unmanned civil aircraft in air vehicles, the use and flight conditions, the availability of law in the technological development of unmanned aerial vehicles, and the ethical problem of the production and use of these vehicles.

**Keywords:** Unmanned Aerial Vehicles (UAV), Law, Ethics

### 1. Introduction

Unmanned aerial vehicles (UAVs) are air vehicles that can fly by remote control or autonomously fly over a certain flight route by themselves. The Unmanned Aerial Vehicle, also called Drone, is now referred to as the Unmanned Aerial Vehicle System because it expresses only the aircraft platform and can not meet the entire system flying it [1]. Unmanned Aerial Vehicles are also

named with the word 'Drone', which means 'bee' in English, due to the chest they get from radio controlled aircrafts used as the target aircraft in the 1930s [2]. Although it is sometimes encountered with different naming schemes, it is the most accepted and used RPAS (Unmanned Aerial Vehicle System) concept in the literature.

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Unmanned Air Vehicle Systems are reserved for civilian and military use. Civil Unmanned Air Vehicle Systems, hobby purposes together with photography, cargo and so on. It has also been observed that it was also used for transportation purposes. Unmanned aerial vehicles capable of carrying various kinds of fatal and non-fatal aircraft can be called as Armed and Unarmed. The UAVs, which are often used in all armies for intelligent purposes, such as surveillance and target detection, border and smuggling, control of the environment and construction, and so on.

Unmanned aerial vehicles When we look at the historical process, the two countries that stood out are the USA and Israel. Given the operations it has conducted, Israel is the first country to use the UAV for regular discovery in combat. Especially in production, the USA is the country that draws attention. These two countries are seen as pioneers because of their long history.

The emergence of unmanned aerial vehicles lasts until the early 1900's and their mass production coincides with the post-Cold War turnaround. The probable cause is that, in addition to the technological developments, competitive weaponry can be claimed as an endeavor to seek weapons characteristic of strategic importance at the strategic level, without introducing risk to the human life of the West [2]. In the 1960s, the United States came to the forefront with the invisible Unmanned Aerial Vehicle production. In the years of 1973 (Yom Kippur) and 1982 (Syria), we see that Israel uses unmanned aerial vehicles (UAV) to perform missions such as discovery-surveillance, fake target, target deflection (Uyar, 2010). In 1998-1999, unmanned aerial vehicles (UAV) used in active roles in the Kosovo battalion were laser marked to mark the targets and the investigation of exploitation of combat aircraft by expediting the production and spreading the use of the Unmanned Aerial Vehicles [3].

Numerous casualties have been experienced in basic military missions, such as exploration, surveillance and intelligence, especially in the enemy air. During the performance of such duties, a higher level of performance need to be used for tasks such as human life and not being able to tolerate human beings, UAVs have to be used in

these duties. In this respect, the tasks specified with human aircrafts are carried out by UAV systems and the above-mentioned undesirable situations are eliminated. The UAV systems according to the relative tasks to be carried out are equipped with necessary equipment.

## **2. Use of Unmanned Aerial Vehicles (UAV)**

The first mature applications in the development history of Unmanned Aerial Vehicle (UAV) Systems are disposable applications in the form of ammunition directed at a specific target, fake aircraft applications mimicking the traces of human aircraft observed in radars, and target aircraft applications for use in air defense shooting training. Following these basic applications, UAV manufacturers have introduced UAV systems that can perform more specific applications. These include biological / chemical / radioactive threat detection, mine search, security corridor opening, and so on. the usage areas can be counted in the front panel.

## **3. International Unmanned Aerial Vehicle (UAV) Laws**

Aviation rules have emerged in the 20th century. The Chicago Convention (also known as the International Civil Aviation Convention) was signed in 1944 and established the International Civil Aviation Organization (ICAO), the United Nations specialized agency responsible for coordinating and regulating the international air travel. In Article 8 of the Convention, UAV is defined as "Pilotless aircraft". Regarding the UAV, ICAO has undertaken the necessary roles in the framework of the Chicago Convention and published the Communiqué No. 328 for enhancing situational awareness of the UAV. However, it can be argued that there is no international law now in force with the UAV.

### **3.1. Unmanned Air Vehicle (UAV) Law in the USA**

USA is the country where most military and civilian unmanned aerial vehicles are produced and used. As a sector leader, USA's view of the UAV world in terms of law will affect other nations. The FAA estimates that by 2020, there will be around 30,000 unmanned aerial vehicles in the USA

airspace [4]. USA is one of the most influential countries in the world in terms of economic, political and military power. Therefore, the legal arrangements to be made in the United States regarding the unmanned aerial vehicle world would, in a sense, be valid in other countries. I will briefly refer to the FAA before proceeding with regulations on unmanned aerial vehicles. The aviation activities in the USA are carried out by the FAA, which was established in 1958 [5]. The FAA administers the USA airspace.

The FAA granted authority to use the first unmanned aerial vehicle in the USA national airspace in 1990 [6]. At present, they must obtain an FAA authorization to fly a federal or state unmanned aerial vehicle in the US [7]. Once the FAA receives the application for an authorization certificate, the FAA makes and controls the necessary controls to ensure safe air traffic in accordance with FMRA [Dolan and Thompson, 2013: 5]. Civilian users and private companies must obtain special authorization certificates different from public use. These special certifications are currently offered for training, demonstration and flight tests. Finally, in July 2014, the FAA published a document titled "Unmanned Aircraft Operations in the National Airspace System (NAS)" on all national airspace related to unmanned aerial vehicles.

### **3.2. Unmanned Aerial Vehicle (UAV) Law in Turkey**

The basic law on aviation regulations in Turkey is the Turkish Civil Aviation Law numbered 2920 which entered into force on 14 October 1983. The purpose of this law is stated in Article 1 of the Law "to ensure that the activities of the civil aviation field, which is continuously and rapidly developing, applied by advanced technology, speed and safety factors, are organized in accordance with national interests and international relations". In order for a vehicle to be evaluated as an "aircraft" under the Turkish Civil Aviation Law

- aerodynamics,
- airborne storm / storm,
- being unmanned (without crew)
- to provide civil qualifications and

- remote or autonomous operation and controlled by the UAV pilot.

In addition to the UAV elements / features listed above, Unmanned aerial vehicle coverage has been determined in accordance with article 2 of the UAV directive. The scope of unmanned aerial vehicles as required by Article 2 of the new UAV ordinance;

- flying in the Turkish Airspace;
- Not to be covered by government unmanned aerial vehicles,
- UAVs and systems used only in enclosed spaces,
- Unmanned balloons or similar systems connected to the platform or to any platform and
- Maximum take-off weight is less than 500 gr UAV.

The scope of the new UAV mandate has been expanded to cover the scope of the UAV determined in accordance with Article 2 of the former UAV directive dated 2013.

### **3.3. New Draft Instruction of General Directorate of Civil Aviation**

The Instruction was prepared to determine the procedures and principles regarding the operations of civil drone / UAV systems to be operated or to be used in the Turkish airspace, the characteristics of the persons who will use the systems, the matters related to the flightability of drone / UAVs and the drone / UAV operations.

In the instruction draft, drone / UAVs are divided into 4 different categories according to maximum take-off weights. According to the draft guidelines, many drone / UAV models with a weight of more than 500 grams are considered as unmanned aerial vehicles for civilian use.

1. UAVO between 500 gr and 4 kg,
2. UAV1 between 4 kg and 25 kg,
3. UAV2 between 25 kg and 150 kg,
4. Weight class of 150 kilograms and more is designated UAV3.

Flight requirements and field requirements in the Instruction are determined separately according to this classification. An important innovation coming from the instruction draft of the General Directorate of Civil Aviation is the introduction of insurance for UAVs and systems as long as the operators or

owners fly on Turkish air. Drone / UAV flight details will be provided to the General Directorate of Civil Aviation. This information is included in the form of the flight permit request form. The operator of the Drone / UAV will apply to the General Directorate at least 30 days before the flight scheduled to be arranged to receive a permit to fly and the application will be published by the General Directorate in coordination with the related institutions and organizations and the flight will be completed with the NOTAM [8].

Without obtaining permission from General Directorate of Civil Aviation;

a. In the area of 15 km radius, centered on the designated challenge point of an airport without an altitude, an area of 22 km length in both directions along the runway centerline and 3,75 km wide from both sides, is presented in the enclosed sketch.

b. Heliport, heliped, air park, sea / landing departure areas published in the website of General Directorate, etc. the center is 5 NM (9 km) radius,

c. regardless of the altitude and the crowd too crowded regions (located in Turkey AIP ENR 5.1 section "Prohibited, Restricted and Hazardous Areas", pages 15/23)

d. In military-prohibited areas, prisons and security-restricted areas,

e. It is forbidden to fly with drone / UAV in any class in the areas declared with NOTAM.

As a result, the legal infrastructure for UAVs, which are increasingly used in parallel with technological developments, can not be realized at the same pace. Already follows the process of formation of laws. Although various legal arrangements have been made both in the world and in Turkey till today, it is obvious that the subject will be improved more in all dimensions. As mentioned earlier, one dimension of concern is related to aviation activities, while the other dimension is directly related to human rights. It is estimated that academic discussions on both topics will continue at full speed in the coming years.

#### **4. Law and Ethics in Unmanned Aerial Vehicles**

Technological innovations in the field of information technology, artificial intelligence and rapid developments in robotic engineering are bringing unmanned systems from a science fiction

perspective. And these unmanned vehicles have opened space in the battlefield of the 21st century. [3]. Man is not an entity that is determined or exalted by material production activity only with the achievement of the knowledge of the subject. He is able to appeal to his unconscionable egoism and cruelty in his attitude, which, as the twentieth century's bloody and conflict-filled history shows, often exalts and disqualifies the people outside of himself, while often advocating himself. This is one of the points we are moralizing the Unmanned Air Vehicle Systems. it is desirable to give the impression that the unmanned aerial vehicles are the tools uncovered by the advancement of technology together with the value and security of human life. One of the things that is said and said about the unmanned aerial vehicles positively is the safety of the pilot / crew. However, it is foreseen in the proceeding processes that it is the production of unmanned aerial vehicles on the enemy's side, In order to be able to do this, it is necessary to obtain positive results from working in various fields such as recording progress and artificial intelligence. If this foreseen progress occurs, the rate of attack against unmanned aerial vehicles, which can be camouflaged, will fall seriously. Although it is partially possible to prevent this with counter attacks, it is clear that a few countries with advanced technology will be found in a monopoly. In this case, unmanned aerial vehicles, which can camouflage, and states that establish the safety of their own pilot, will invariably invade the airfields of countries that do not have this technology. the use of unmanned aerial vehicles as a means of war will be carried to another dimension by the use of camouflaged unmanned aerial vehicles.

#### **5. Results**

Unmanned Aerial Vehicles, which emerged as the result of technological developments, are the means that must be maintained together with human beings. In this context, we should not act by considering the rules of law and ethics and remembering that man is the most precious asset. It is difficult to destroy the human being because of ignoring the things he carries for being human. Attempting to copy the characteristics of the human being gives human-specific characteristics to the

machines, but the characteristics of the human being are destroyed. On the basis of this is the point of view of the present day people's consciousness and technique. This issue, which can be taken for a long time in the historical background, is a matter of expanding the debate around the world with advancing technology.

As evaluate ethical issues in Turkey, we have not yet begun to be discussed in the scientific literature and could not find a special place in the academy. However, what makes it possible for a person to distinguish between good and evil is not ethical, independent of morality in practical life. Technique is not independent in predicting a better life. Destroying an area of flesh is nothing but maneuvering and mechanizing man from being a human being. For this reason, whenever science and technique are spoken, ethics is also spoken and discussed. No machine is not more precious than human by keeping in mind the principle of progressive technology that will lead to major changes in human life, morality is a matter of unmanned aerial vehicles in Turkey too should find a place in the academic subjects and literature should be created.

The quest for low cost tries to consolidate the power sovereignty of the countries and to put them into action in terms of ethics and legal warfare. Here, unmanned aerial vehicles are one of the most important issues to be discussed and discussed. With the realization of the expected technological progress, unmanned aerial vehicles that perceive threats will have the mechanism of self-actuation. At this point, the dimension and responsibility of the war must be discussed in terms.

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