CONTRIBUTING STAKEHOLDERS

Japan UAV Association

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History of Unmanned Aircraft in Japan

In Japan, the history of the use of UAS started with target drones for defense use. In 1950s the first Japanese UAS of was developed for technical demonstrations. Many kinds of UAS for defense use have been developed in Japan over the years.

In the field of commercial UAS, advances relative to unmanned helicopters have been made in the agricultural field.

Since 1980s, the development of commercial UAS as a remote controlled compact aerial spraying system started, and in 1988, the first commercial unmanned helicopter was introduced to the market. At the same time, setting the safety standards for unmanned helicopters was initiated.

In 1989, “Tentative safety standard for unmanned helicopter for agricultural use” by the Ministry of Agriculture, Forestry and Fisheries (MAFF), and in 1991, “Safety standard for unmanned helicopter of agricultural use” by MAFF were established. Based on this, type certification of unmanned helicopters for agricultural applications is carried on.

So far, 10 UAS types have been certificated under the control of the Japan Agricultural Aviation Association (JAAA). Supervision such as registration and periodical inspection has taken place. At present, more than 2000 unmanned helicopters and more than 10,000 operators are registered at JAAA.

However, as of late, light weight and miniaturized electronics have made it easy to convert radio-controlled model planes to autonomous flight UAS. At the same time it is required by society to ensure safe use of UAS and to prevent any misuse.

Setting Safety Standards for UAS with Commercial Applications

JUAV was established in order to govern the safe use of UAS in non-agricultural applications, to grow the UAS market, and to promote the safe use of UAS. Since JUAV was established in 2004, we have set safety standards and published them on our website. These are self- imposed standards that have to be obeyed by the association members. These safety standards are established based on the type of UAS and the airspace where the UAS will be flown.

According to the standards of JUAV, operational airspace is categorized according to “flight in the same airspace as manned aircraft”, “flight over inhabited area” and “flight over uninhabited area”.

This “uninhabited area” is the area where admittance is restricted. In this area, we allow UAS to be force-crashed as the last means to avoid risk exposure to people, if they fly without control.

At present, for the operation in uninhabited areas, we have safety standards for rotary-wing and fixed wing aircraft, and we are considering to set standards in other areas.

We think that the safety of UAS is achieved by the cooperation of engineers, manufacturers and people who are related to maintenance, operation and sale. Therefore we set items related to “Engineering” and “Maintenance investigations” as requirement for safety.

JUAV set requirements of design, maintenance, operator certification, operation and customer supervisory based on the policy. For example, in the safety standard for unmanned rotary-wing aircraft in uninhabited area, we established a standard for various use based on the standard for agricultural use.

Problems of the Present Standard & Issues for the Future

“The safety standard of unmanned fixed-wing aircraft” is based on “rotary-wing aircraft in uninhabited area”, but taking into account the differences between the two types of aircraft.

Unmanned helicopters can hover and fly at low speed, and in comparison to fixed-wing aircraft are used in limited areas. This makes it is easy to set and maintain the “uninhabited area”. However, in recent years, fixed-wing aircraft can fly long distances with high precision by using GPS, so it is getting difficult to maintain the “uninhabited area”, and restrict admittance in the flight route during practical use.

We are considering revising the safety standard to keep up with the change in technology. To be concrete, installing a safety device such as a parachute to a fixed wing aircraft and allowing its use in areas with low population density or few buildings.
This is our challenge to be cost effective and profitable in making these aeronautical products and to ensure that their use is accepted by society.

It can be said that the mini UAS market, or the so-called micro UAS in other countries, has seen a significant growth. In Japan as well, many mini UAS are now developed with electronic motors. These UAS are developed for the purpose of taking images from the sky easily, and it is expected that they will fly over urban areas for surveying disaster.

However, the installation of safety devices is limited by the size and payload capacity of the aircraft. Consequently, it is a big issue to establish the standards to manage flight safety and ease of operation at the same time.

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