Lazarus Union Brazil

Air Wing CSLI Brazil

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1. The creation of the Air Wing CSLI Brazil

In a meeting between the Brazilian National Command and the Council of Leaders of Lazarus Union Brazil, the board discussed the idea of creating and operating an Air Wing in Brazil. One member of the board (which is also a Licensed Pilot) was assigned to the survey and evaluate this new project.

Already at the beginning of the feasibility study it has already been possible to note that the project would be very costly, because, even though a conventional aircraft courtesy of a businessman (cooperation agreement), the cost of aviation fuel, maintenance and hangarage on an airfield made the project, with this type of aircraft, to be abandoned in less than a month.

Although, with an eye on new technologies and noting that it would be possible to develop several air missions with a low cost, a new project was developed and presented to Brazilian National Command. This project consisted in the use of Unmanned Aircraft (drones) by Brazil's Air Wing, which was accepted and authorized to initiate your deployment in May 2017.

Therefore, the Brazilian National Command officially approved the Air Wing CSLI Brazil and the officer who was responsible of the feasibility studies was appointed as Commander of this body.

2. The homologation of the Aircrafts

With the permission for the project to advance, the Air Wing CSLI Brazil acquired 2 unmanned aircrafts. In the meanwhile, its Commander invested himself in the study of aviation laws for access to Brazilian airspace and passed the proper training and medical tests for such a purpose.

For unmanned aircraft operations were in full compliance with aeronautical legislation, it was necessary the authorizations of ANATEL (National Agency of Telecommunications), ANAC (National Agency of Civil Aviation) and DECEA (Department of Air Space Control of the Brazilian Air Force).

2.1 ANATEL

The first step to approve an unmanned aircraft is to have the approval to use the radio frequencies along with the National Agency of Telecommunications (ANATEL). The Air Wing CSLI Brazil submitted all the document needed, fill out all the application forms and provided the product manual and certificate of the Federal Communications Commission.

All aircrafts of the Air Wing CSLI Brazil were homologated by ANATEL

2.2 ANAC

According to Brazilian laws and the National Agency of Civil Aviation (ANAC) regulations, register on unmanned Aircraft System (SISANT) is obligatory to all unmanned aircraft for recreational use (model airplane) or non-recreational (RPA), with a takeoff weight between 250 g and 25 kg, and that won't fly beyond line-of-sight visual (BVLOS) or above 400 feet (120 meters) above ground level.

One record for aircraft and each equipment must be linked to a company in Brazil, which will be responsible for the aircraft, in this case Lazarus Union Brazil.

A nine-digit combination, that will be the identification number of the equipment is issued. This ID should be posted on visible place on the aircraft.

All aircrafts of the Air Wing CSLI Brazil were registered and homologated by ANAC.

2.3 DECEA

The DECEA's (Department of Air Space Control of the Brazilian Air Force) mission is to plan, manage and control activities related to the control of airspace, the flight protection, search and rescue service and telecommunications aviation command.

So, as an RPA is considered an aircraft, the Brazilian air space access by Remotely Piloted Aircraft systems will be subject to the regulations of the DECEA and Regional bodies permits.

A Remotely Piloted Aircraft can only access the Brazilian airspace after the issuance of a special authorization, given by the Regional Body the DECEA, responsible for airspace where this flight will occur and according to the terms of this authorization. The operations of the RPAS must conform to the rules and existing systems, and, a priori, will not receive any special treatment on the part of air traffic control. For the unmanned aircrafts control and use of airspace, the DECEA created the SARPAS.

The SARPAS was developed with the objective of facilitating the request for access to Airspace to the use of Remotely Piloted Aircraft Systems (RPAS) in Brazilian airspace.

3. Training, formation and development

Aiming at excellence in air missions, its safety and relying on aviation legislation, Air Wing Brazil understood the necessity of creation of specific courses for the training and formation of its members, leaving them able to participate in the actions in accordance with the standards and regulations required by the ANAC and DECEA.

In this way, they created the two training programs:

CFPR (Remote Pilot Formation Course) Program – the remote pilot training course is destined to the Flight Safety Technicians who wish to evolve in the promotion plan of the Air Wing and demonstrate full conditions for joining the ranks of officers of CSLI.

The course is divided into two parts:

- Theoretical: Theory of flight; Meteorology; Navigation; Aeronautical Regulations and technical knowledge. All subjects will be taught with an emphasis on Unmanned Aircraft operations.
- Practical: 15 flying hours in double command; 5 hours of solo flight.

Minimum requirements to join as a student pilot:

- Be at least First Sergeant CSLI.
- Present the certificate of CTSV (Technical Course on Flight Safety).
- Present the Aeronautical medical certificate of 5th class.
- Present the certificate of the CFO (Officer's Training Course).

CTSV (Technical Course on Flight Safety) Program – this training course is destined to Ranks and Files of CSLI wishing to join the Air Wing CSLI Brazil, specifically on the Command of Unmanned Aircraft.

The course is made up of the modules:

- Air operation observer
- Basic maintenance of prevention; Basic replacement of electronic components; Assembly and disassembly of accessories for the transport of the aircraft; Inspection of the aircraft prior to takeoff (check list); Energy replenishment for "timer" in air mission.

4. The lectures and presentations

In order to assist the competent entities in dissemination of Aviation Laws, the Air wing CSLI Brazil, created a lecture with the theme “Legal Drone”. The aim of the lectures is to make people aware of the proper use of unmanned aircraft. The lectures and presentations can be seen as a preventive measure, to the point that anticipates awareness, there's not a large number of aircraft flying by our sky smiling and clear. But according to the Consumer Electronics Association (CEA), American organization that gathers 2000 companies in the area of consumer technology, estimates

that by the end of the year 2018 there will be 63% of purchases of the drones more compared to the previous year, coming to value of 700,000 sold. And even with most of these new aircraft will be unmanned for the recreation, there's some concern on the part of the authorities.

These lectures and presentations have been given in other NGOs with links to Humanitarian Assistance.

5. The cooperation agreement

We think all missions are important, however, the emphasis in the preparation of our people and of our aircraft is in what we believe to be of the utmost importance for the future of our planet: the environment.

Following this ideology, the command of Brazil's Air Wing, signed a technical cooperation agreement with the management of ARIE Santa Genebra Forest.

Relevant ecological interest area (ARIE) Santa Genebra Forest is a federal conservation unit, managed by Foundation José Pedro de Oliveira (FJPO) in conjunction with the Chico Mendes Institute for Biodiversity Conservation (ICMBio), autarchy linked to the Federal Ministry of the Environment.

The Air Wing Brazil will assist in the preservation of 251 hectares of native forest remnants of the Atlantic forest.

We will make the air patrol and surveillance with our unmanned aircrafts to detect outbreaks of fires, monitoring of areas in recovery, etc.

Environmental issues that plague the planet are increasingly intensified, by indiscriminate use of primary goods, unbridled use of the production of consumer goods. Human actions have caused numerous imbalances that need to be terminated or reduced; because the "mother earth" will not be able to keep life on the planet for a long time if the consumption continues.

In response to these challenges, unmanned aircrafts have become the newest trend in remote sensing. Besides the lower acquisition cost when compared to traditional platforms, the unmanned aircrafts bring the possibility of illicit activity monitoring in real time, which makes this tool an excellent alternative to the security zone and open new perspectives for unlawful environmental monitoring.

Not long ago, unmanned aircrafts were considered purely an instrument for military missions, but now they have proved to be real allies in the efforts of environmental conservation because it showed be much better for the ecological studies of the traditional patrol method for Earth.

As well as advantages, stands out: are able to monitor areas out of the reach of humans and has a vision broader habitat absolutely animals or conservation areas, making them more effective in sending information.

In comparison with the traditional method, proved to be more accurate, because the aerial view of equipment reduces the likelihood, for example, of the birds being lost by the terrain or obstacles that block the vision of those who patrol on the ground, opening up new possibilities when it comes to more accurately monitor Earth's ecosystems.

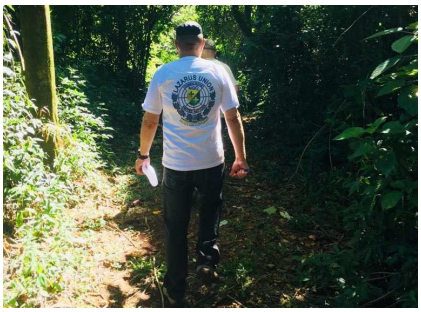
But perhaps one of the most interesting attributes the use of unmanned aircrafts in conservation is the ability to assemble a mosaic of priority areas, which allows researchers to monitor changes in land use, deforestation and planting new outbreaks or even principles of fire. The unmanned aircrafts are the eyes that were missing in the fight for the preservation of nature.

And for all these actions to become possible, the Air Wing CSLI Brazil has an airbase of Unmanned Aircraft granted by the City of Campinas. The Airbase (BAAeNTr/CSLI Brazil) counts on a circular track approved in an area of 2,000 m², kiosks with electrical infrastructure to recharge batteries and a gymnasium with cafeteria, toilets, etc.

6. The first mission

After several meetings with the Biologists of the Santa Genebra Forest and the effective training of members of the Air Wing CSLI Brazil, our first mission took place in November 10 2018.

In its first field mission, the members of the Air Wing made a recognition of Santa Genebra Forest. They Identified possible points of takeoff that can cover the full extent of the forest to draw a plan of future missions, which will be held periodically to meet the demand of 251 acres of preservation.



They also have observed the most critical points in the forest, where it had suffered ravages by typhoons and fire damages, which should have a closer monitoring to verify if the forest is regeneration with your own resilience or need of intervention the biologists.