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SYSTEM FOR UNMANNED AIRCRAFT USING AERO-LEAF WIND TECHNOLOGY

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Abstract: The aim of the project is to create a special drone that can travel independently in any space and make a server using air wind energy. The ability to travel over land, water, and the air is the primary attribute. There appear to be many different drone varieties available these days. The ability of a drone to manoeuvre over any terrain, however, has never been seen before. The major goal is to make rescue operations during environmental disasters more precise and successful. Utilizing biodata and meteorological data, this drone also communicates with its surroundings. Environmental education makes it feasible to use the natural world and obtain genetic data from it. Drones can now run-on wind energy thanks to a recent invention in the UAV industry. The sail drone, which looks like the top of a wind turbine, produces electricity using small motors. Scientists now employ them to collect and send marine data, despite the fact that their capabilities are expanding. Wind turbines could be replaced in a sustainable fashion by drones that convert wind energy into useful power. The UAVs now in production fly in circular patterns and are equipped with a kite. The effectiveness of the wind catching is increased in this way.

Keywords: UAV, Aero leaf, Sail drone , Meteorological data

INTRODUCTION

The lightning speed of development of technology, the demand for people worldwide is at a rapid pace. According to statistics, more than 150 million e-commerce orders are placed in India. This results in pressure on the heads of the motorway distribution arms. So, the key to pressure handling is the flight control arm – the UAV. This paper will explore the smart way of handling UAV across the e-commerce industry. Key to the paper are measures to increase the efficiency of UAVs by mixing potential technology concepts such as artificial intelligence and using Aero leafs. The ultimate effort in paper development is to implement this intuitive method of product distribution to the $30 billion market. This deployment will give pride in future technology, will be comfortable with human use and will create a pollution free society. Although drone technology is rapidly evolving and more and more practical use cases are emerging, there is currently a major problem with their use: their battery life is around 10-20 minutes. As such, they require a very high battery replacement frequency.

AERO LEAF

Due to its direct drive mechanism, which runs without belts or gears, the Aero leaf rotates quietly. The Aero leaf is specifically made to benefit from wind gusts and breezes of any size. Silent and protracted. All wind intensities are converted into green electricity by the nature-inspired Aero leaf technology. A source of energy generation free of carbon is wind energy. An independent source of electrical energy production is an aero-leaf. In order to create the most energy possible without incurring significant costs, the notion of using a leaf-shaped turbine appropriately is discussed in this paper. The right use will help to lessen the strain on other types of energy generation techniques as a solution to the increased demand for electricity and its dependence on hydropower and natural gas.

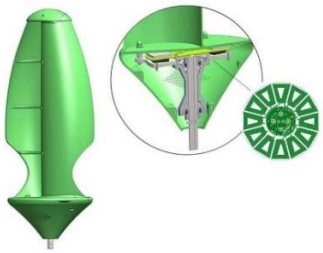

Fig. 1 Aero leaf

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Structure & Components:

The main components of the leaf technology are

- Blades
- Shaft
- Generator

A. Blades: The first part of the leaf is made up of blades, sometimes referred to as rotor blades, which are made of aluminium, fibre glass, or carbon fibre. By collecting the wind and turning its kinetic energy into hub rotation, rotor blades harvest energy from the wind.

B. Shaft: The part of the turbine that the blades turn on is called the shaft. The generator, which is housed inside the main housing, is then connected to it. Solid works software was used to design the blades and shaft.

C. Generator: The generator is in charge of transforming mechanical energy from rotating into electrical energy. The prototype was created using a 12-volt step generator called the Low RPM permanent magnet DC generator from Wind Stream Power. The generator's internal resistance is 21. 24-volt electrical components Only 1.5 amps can be used constantly by the current generator, and 3 amps can be used for a maximum of 1.5 minutes.

A robust drone built to the same aerospace standards that include safety in our system and are just as reliable as the ground transportation methods currently being used to serve our clients.

The aircraft can recognise and avoid airborne and ground-based risks like other aircraft, people, and animals in backyards thanks to the brain, which has a sense-and-avoid mechanism. Our drone can handle new and unexpected situations while still independently making safe decisions thanks to this technology.

1.The laws: We are creating an automated drone-management system to help us plan our fly paths, ensure that there are safe distances between our aircraft and other nearby aircraft, and make sure that we are in compliance with all aviation rules.

A propeller is a device that, when turned, pushes you forward through a fluid (a liquid or gas). It has a central hub that is rotated by an engine or motor, and typically has two, three, or four twisted blades (occasionally more) sticking out at angles from it. Despite the fact that it functions similarly to a screw, it has a different appearance. The angles and twists play a crucial role.

2.Sensor: The internet of things relies heavily on sensors (IoT). They make it feasible to develop an ecosystem for gathering information about a particular environment and analysing it so that it can be monitored, managed, and controlled more effectively.

3.Camera: The Mavic Air 2 supports Quick Shots, Hyper lapse, and Focus Track. Beautiful automatic flight sequences called Quick Shots may be created with just one swipe. With the help of the special function known as hyper lapse, you can show both time and motion in a single frame. Focus Track is a group of innovative tracking tools that make creating cinematic shots easier.

Focus Track’s three intelligent tracking modes are Active Track 3.0, Point of Interest (POI) 3.0, and Spotlight 2.0. Our most sophisticated tracking system to date, Active Track 3.0, incorporates both object identification and obstacle avoidance. Moving things like automobiles, boats, and other vehicles can also be watched by POI 3.0. Your topic is kept in the centre of the screen via Spotlight 2.0.

4.Electrical Speed Controllers: The ESCs get a throttle signal from the flight controller. This pulse width modulated (PWM) signal has been used for many years to tell the ESC how quickly to spin the motor. On the other hand, modern flight controllers and ESCs communicate using a digital protocol called D-Shot that is considerably faster. The ESC will accept the signal from the flight controller and convert it into motor RPM. Due to the rapid communication between the flight controller and the ESC and the link between the ESC and the motor, this change in motor RPM can occur very quickly. An FPV Drone Electronic Speed Controller requires firmware to control the hardware because it uses onboard microprocessors.

Application: Delivery of medical services Drones are more advantageous in the medical services market than autos since they can travel effectively via remote places and are equipped to deliver or reach crowded areas. For delivering or moving clinical goods like antibody, blood, and medicine tests, drones will be the ideal alternative. Drones are utilised to convey individual defensive gear, test equipment, and others in the US during this COVID 19 pandemic. By 2020, Zipline, the most controllable delivery drone, will be crucial in moving over 65,000 medical supplies.

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Food Delivery: As a result of comments made by Amazon CEO Jeff Bezos, food delivery drones are currently the subject that is receiving the most attention. Amazon is working to create drones (the Amazon blimp) that can deliver items and food as part of its drone delivery service. Because of the quick shipping, it is handy.

It is challenging to find and get in touch with a delivery address due to crowded and congested locations in urban areas. However, it will be achievable with the assistance of the delivery drones administration. Drones will frequently deliver food in the next years.

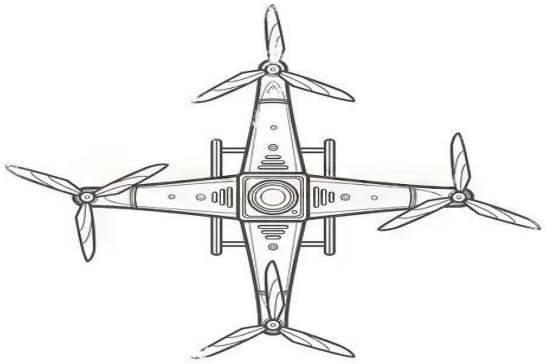

Fig. 2. Drone

Military Drone: Although civilian drones have been advertised and made available to the public, the military still finds civilian drones to be an effective tool. As pilotless vehicles become a preferred instrument for combat, the global military drone sector is predicted to develop at an exponential rate.

CONCLUSION

This concept enhances the functionality of drones' aero leaf technology. The use of aero leaves to boost drone power will result in excellent outcomes. These experimental drones can be used for delivery, surveillance, port mapping, and other purposes. For a number of reasons, not the least of which is the fact that it is a source of clean energy, we had planned to incorporate aero leaf technology into the drone concept. When compared to other energy producers, it is a productive energy producer that will operate under all working conditions. The technology will deliver outstanding results with this setup.

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