PRS NANO UAV SYSTEM

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Abstract – *The aim of this project is to minimize the cause of death of military man and innocent people by gathering their secret information's . Its looks like a dragon fly. It is fixed with ESP 32 WIFI camera to monitor the activities of the enemies. This drone design does not create any doubt to the enemies we are watching. It flies using a BLDC motor. The BLDC motor help the drone to lift from the ground and allow it to fly in the sky by creating a rotation from its propeller which is fixed with the top of the drone. The two propellers(Top and Bottom)are used to control altitude and direction. All the electronics components present in flight board are controlled by the STM32 bit microcontroller which is connected with RF receiver. RF transmitter will act as a remote controller and control the operation of drone. Here mobile phone will act as a display for the camera which we used. This drone will play a major role in military to make a surveillance and save life. In future it will work on its own by implementing Artificial Intelligence and does not need manual control for this UAV system.*

*Key Words***: Propeller, flight, surveillance, dynamics, stability, experiments.**

1. INTRODUCTION

Every year the military man lost their lives during terrorist attack, this is because the people are not able to know what enemies are planning. To overcome this robots can be able to play a major role in collecting information about the activities of the terrorist and also save lives of the innocent people.

The dream of flying is one of the oldest known to humankind. In this respect, we have always looked at the animal world with fascination – a world that shows how it is done in all sorts of ways. This is how it made to use UAV because flying is possible only by innovative technology which would play the major role in future.

1.1. The Working of the project

For those who do not know, we use two propellers one is used to control the direction (Top ,Bottom ,Left ,Right) and another is used to control the altitude of the drone.

UAV have two input force and basically the thrust that produced by the propeller that connect to the rotor. The motion of UAV can control through fix the thrust that produced. These thrust can control by speed of each rotor.

1.1.Takeoff and Landing Mechanism

Takeoff is movement of UAV that lift up from ground to hover position and landing position is versa of takeoff position. Takeoff(Landing) motion is control by increasing and decreasing the speed of two rotors simultaneously which means changing the vertical motion.

2. Literature Survey

2.1. Existing System

The Existing system uses a "**Disaster management using electronics speed control UAV System**" which utilizes upto 32 channel. The motor in this system weighs about 1kg. The system is of normal construction and could be easily identified.

2.2. Proposed system

The aim of this work is design and implementation of a spy UAV system. This work is expected to help to understand the basic need for UAV in military for future generation. Fixed with ESP 32 WIFI camera which would helps to see both during day and night and give clear photography view to see what enemies are planning to do. It can be view from anywhere or any location from its respective IP address. It act as a spy and captures the images and send to the base station without the knowledge of the enemy.
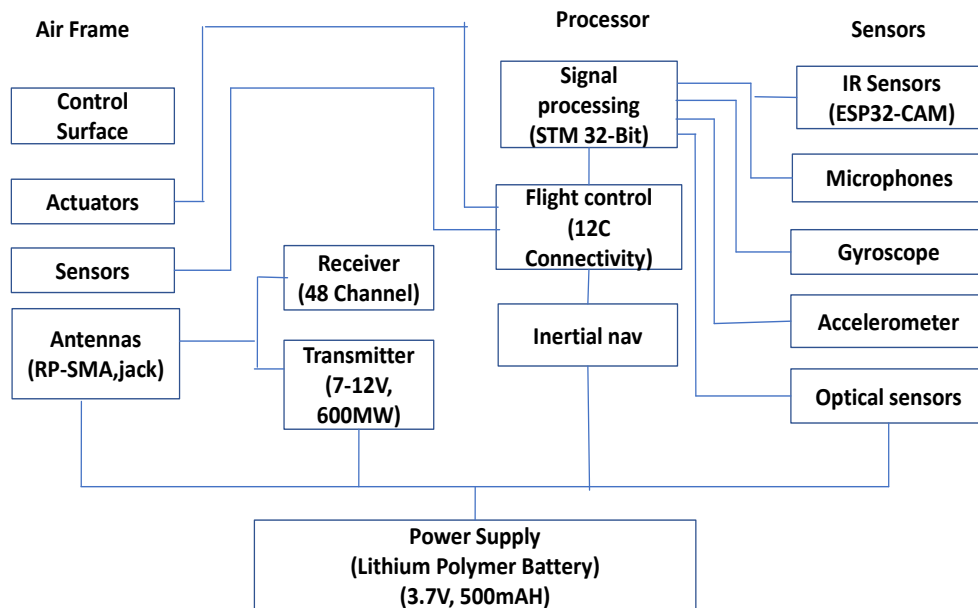
2.3. Proposed block diagram

Table -1: HARDWARE USED

S.NO	COMPONENTS	QUANTITY
1.	Brushless DC motor	1
2.	Power supply battery	1
3.	Microcontroller STM-32	1
4.	RF Transmitter	1
5.	RF Receiver	1
6.	ESP 32 WIFI camera	1

1) The BLDC motor is highly efficient in producing the large amount of torque over a vast speed range. To increase the torque and reach the necessary frequency of rotation (propeller). In BLDC motor the mechanical commutator is replaced by electronic commutator which reduces the weight.

2) The power supply of the motor is given by Li-Po battery. Such cells contains high capacity-to-mass coefficient. Also they have the ability to output a high current value which is required for brushless DC motors.

3) To steer the UAV system, we need two propellers that position the drone. One propeller for attitude control (Pitch). Second for turns (Roll). These are powerful and high controllabilty.

4) To create a connection between the remote control and the drone, we need a receiver and a transmitter. Both of these functions can be performed using RF transmitter and receiver.

5) ESP32-CAM is a WIFI+ Bluetooth dual-mode development board that uses PCB on-board antennas and cores based on ESP32 chips. It can able to see both day and night vision to capture clear images. It can work independently as a minimum system.

3. WIRING SYSTEM

The signal which is transmitted from RF transmitter is passed to RF receiver, then the signal which was received is send to STM-32 bit microcontroller, this control the overall operation of the drone, because STM-32 bit microcontroller act as brain for the drone, the images captured from the camera can be monitored using mobile phone.

4. ADVANTAGES AND DISADVANTAGES

4.1. Advantages

[a] It is widely used for Military Defense system.
[b] The major scope of the system is light in weight.
[c] We can control the UAV system through remote.

[d] Compact in size.

[d] We use a wireless camera which have high efficiency to capture the images and the information is send to the near display unit.

[e] Capable of capturing photographs and live video at good quality and high resolution.

4.2. Disadvantages

[a] It cannot fly stably at high wind.

[b] It requires maintenance at regular intervals.

[c] Need an active and continuous connection.

[d]Use of WIFI module in UAV system can be easily hackable to the defense system.

5. CONCLUSION

The implementation of this project is to help the military man to gather the information that what their enemies are planning to attack. This UAV system can act as a spy and provide the required information to stop the attack and can reduce the cause of death of innocent soldiers and civilians .This system is also used to surveillance the disaster areas to help the people who are under risk. It can fly stably in the sky and they cannot able to identify the drone.

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