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Foni Drone

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Abstract - Voice control technology has revolutionized the way we interact with devices, and drone technology is no exception,through this system by the voice commands with any physical machine allows the human beings to acquiring new devices. This technology is useful in future to do certain task without physical human interaction. Technology to help them in daily life, control things via voice like a home assistant in a comfortable manner. This system will be useful to rescue, surveillance and many other areas which generally use drones as their operations.

***Key Words*:** ESP-32, gyroscope

1. INTRODUCTION

Drones are widely used in mostly all sectors.Many types of drones with different technologies used in distinct areas that are generally controlled by remote with human using it, but here biggest catch is only a trained person or a pilot can fly a drone with ease. Otherwise accident may happen, to solve this problem our drone with voice control technology enhances experience of flying drone because it enables anybody to use this system with their voice.

2. METHODOLOGY

In this stage, we have done following tasks:

- Literature review: We collected Papers published on this topic and basis of that learned about this area and projects here.
- Highlighted Problems mentioned in papers.
- Designed our project accordingly and to solution, we have followed the tech of voice based communication.
- Based on all the gathered data, we have designed our Foni Drone as solution.

Components:

1. Flight Controller

We have created customized flight controller with ESP32 that is microcontroller of low-cost with high performance and MPU6050 is gyroscope plus accelerometer sensor will work as single unit. That helps drone in better navigation as flight controller and give proper signal to motors through ESC.

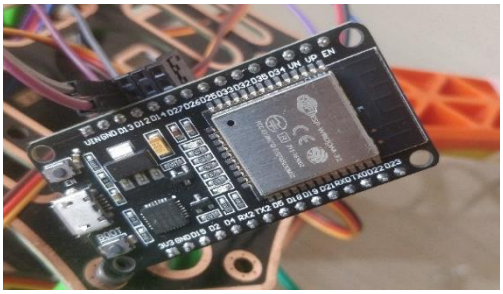

Fig-1: ESP32 Microcontroller

Fig-2:MPU6050

2. Battery

We have used 3 cell 1000mAh Lipo(Lithium Polymer) Battery with voltage of 11.1v that will be optimum for drone flight.

3. Brushless motor with ESC

Brushless motors have significantly higher efficiency and performance, and a lower susceptibility to mechanical wear than their brushed counterparts. There will Each ESC (Electronic Speed Controller) for the brushless motor is a three-phase motor

Fig-3: Brushless motor

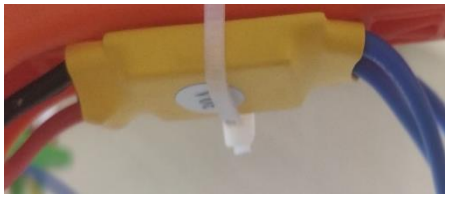

Fig-4: Electronic Speed

3. Proposed System

The Foni drone can be divided into four main components:

Speech Recognition: It is responsible for recognizing voice commands spoken by the user. The speech recognition software can be implemented using a variety of technologies Speech-to-Text.

Flight Control: It is responsible for interpreting the user's commands and translating them into drone movements. The flight control software is implemented using ESP library.

Networking: This component allows the drone to connect to the user device, enabling wireless control or data transmission. The networking protocols is implemented using Wi-Fi.The working of a foni drone with the help of voice inputs.the drone is connected to the user's device. The user provides audio input via a microphone. The processor recognizes audio input. It checks the processor whether detected voice commands are predefined or not. If the entered inputs are already set, the air traffic controller will do its work based on the given input. If the command is received correctly, the controller allows the drone to move.

The user speaks a voice command into the microphone.The speech recognition software processes the voice command and sends it to the flight control software.The flight control software interprets the command and sends corresponding instructions to the drone's flight controller.The drone performs the requested action, such as taking off, landing, or changing direction.drone sends feedback information, such as flight altitude, battery level, or camera view, back to the software.

4. Result

The use of a microphone and a speech recognition software, you can give commands to your drone by simply speaking. For instance, you can say "take off" to make the drone leave the ground, "land" to make it descend, "go left" or "go right" to change its direction, and so on. The MPU6050 sensor will detect changes in the drone's position and orientation, which can help keep the drone stable in flight and also sensor can detect changes in acceleration, rotation, and tilt, and send this data to the ESP32, which can adjust the speed and direction of the motors to keep the drone level and steady.

5. CONCLUSION

Foni Drone system will provide a convenient and intuitive way for users to control their drones without the need for a traditional remote control.

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