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Electronic Stability Program 32 Spy

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Abstract: *The Electronic Stability Program 32 Spy (ESP32 Drone) is a low-cost, wireless-enabled unmanned aerial vehicle (UAV) designed using the ESP32 microcontroller. The system focuses on achieving real-time flight stabilization through sensor fusion and PID-based control algorithms. By integrating IMU sensors, GPS modules, and wireless communication technologies such as Wi-Fi and Bluetooth, the drone ensures stable flight, remote monitoring, and telemetry transmission.*
The project aims to provide an affordable alternative to traditional flight controllers while maintaining reliable performance. The implementation includes real-time sensor processing, motor speed control through ESCs, and wireless communication for monitoring and control. This system is suitable for educational, research, and IoT-based drone applications..

Keywords*:* ESP32 microcontroller, Electronic Stability Program (ESP), Unmanned Aerial Vehicle (UAV), drone stabilization, PID controller, sensor fusion, wireless communication, IoT-based drone systems, and flight control architecture

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