DEVELOPMENT OF A EMERGENCY SERVICES SUPPORT DRONE

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ABSTRACT

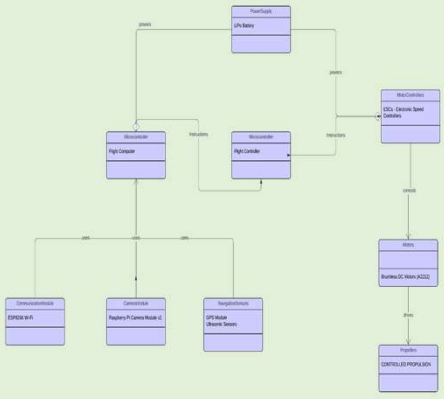
•The project focuses on developing a cost-effective surveillance drone for security and monitoring purposes.
•The drone integrates affordable components while ensuring real-time imaging, autonomous navigation, and efficient communication.
•GPS and Wi-Fi technology enable precise positioning and real-time data transmission.
•This solution enhances situational awareness, accelerates response times, and improves security operations.
•The project demonstrates the feasibility of deploying low-cost drones for surveillance, making advanced monitoring technology accessible to various sectors.

BACKGROUND

•Security and surveillance have become essential for both public and private sectors, requiring efficient and cost-effective solutions.
•Traditional surveillance methods, such as fixed cameras and manned patrols, have limitations in coverage, cost, and adaptability.
•Drones provide aerial views, real-time imaging, and mobility, making them a modern alternative for efficient monitoring.
•However, the high cost of advanced drones limits accessibility for many organizations and small businesses.
•This project aims to develop an affordable surveillance drone with essential features like GPS-based navigation, live video transmission, and autonomous functionality, ensuring a wide range of applications.

METHODS

•**Design:** Compact, lightweight frame using durable ABS plastic.
•**Navigation:** GPS for precise positioning and autonomous operation.
•**Imaging & Communication:** Moderate-resolution camera for live video, Wi-Fi for real-time transmission.
•**Power:** LiPo battery for 20-30 minutes of flight per charge.



RESULTS

•High-resolution imaging and real-time video feeds.
•Faster response times and improved resource management.
•Autonomous navigation and geo-fencing capabilities.
•Multi-use applications: security, wildlife monitoring, border security, and infrastructure inspection.

CONCLUSION

•Cost-effective surveillance solution.
•Provides real-time situational awareness.
•Autonomous operation for various applications.
•Enhances security, monitoring, and infrastructure inspection.

FUTURE PERSPECTIVES

•Improves situational awareness and real-time data gathering.
•Reduces risks in hazardous environments.
•Supports security, infrastructure inspection, and environmental monitoring.
•Aids government agencies, private security firms, and monitoring organizations.

IMPACT ON SOCIETY

•Enhances security with real-time situational awareness.
•Reduces risks by accessing hazardous or restricted areas.
•Improves monitoring efficiency with real-time data transmission.
•Supports applications in infrastructure monitoring, wildlife protection, and search & rescue.

TO KNOW MORE:

GitHub link: https://github.com/KJ-Sagar/Capstone-Project/tree/main?tab=readme-ov-file#introduction
Video link: https://github.com/KJ-Sagar/Capstone-Project/blob/main/Capstone_Project_Explaination/video

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