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Tools and Technology in Support of Integrated Applications (1)

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MULTIPURPOSE INTEGRATED QUADCOPTER (M-IQ)

Abstract

Nowadays, the Technology of science is developing rapidly. A quadcopter is not a new concept in this era of developing technologies. Quadcopters are used for video recording or image capturing in case of defence for surveillance. The "Multitasking Integrated Quadcopter " is used for observations in the agricultural fields and to carry some load from one place to another place and many other functions like Search and rescue, security, inspection, surveillance, science and research, aerial photography videography, surveying Mapping, unmanned cargo system, construction and pre-construction work, soil and field analysis, seed planting, crop spraying and spot spraying, irrigation monitoring and management, real-time crop live stock monitoring.Li-fi technology is used for receiving and transmitting data from Quad location to ground station. Emergency disaster announcement system for remote control areas, Li-fi can used in hotels and restaurant for order and serving food for people. All these functions can be used individually (one at a time). It requires minimal guidance for navigation and control system to be developed and tested. There are several methods to build the control of the quadcopters such as Zigbee, Wi-Fi, Radio, Bluetooth and GSM technologies. The assembly process of the quadcopter depends upon the requirement of the application and minimizing the complexity involved while performing the task individually. It has capabilities such as recognition and detection of obstacles and gives the notification to the transmitter. Quadcopter maintains a stable position when flying due to the gyroscope sensor. Quadcopter accepts a load disturbance up to 100g during hover condition. The approximate time of operation of the quadcopter is 15 minutes using 1500mAh Li-ion battery and operating time can be increased by using the largest battery capacity. This project of "Multitasking Integrated Quadcopter " is the efficient utilization of resources and reduces labour work. All the operations performed are based on microcontroller/Arduino Uno (Motherboard) which is master in doing operations in simplest way. This paper focuses on hardware and software levels of design aspects. The usage of the multipurpose integrated quadcopter results in the reduction of human effort and increases precession in work. The time consumed for every work is reduced which increases productivity in the work. To conclude, we understand that the multipurpose quadcopter is the future as we are able to access the places without traffic increasing the work done, with less power and fuel consumption hence helps in the fuel saving camping as well.