



6th International Conference on Nanotechnologies and Biomedical Engineering
Proceedings of ICNBME-2023, September 20–23, 2023, Chisinau, Moldova - Volume 1:
Nanotechnologies and Nano-biomaterials for Applications in Medicine

Design of the Hardware Subsystem of a Proposed Autonomous Drone

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https://doi.org/10.1007/978-3-031-42775-6_51

Abstract

The present paper aims to describe what are the steps to design and connect a minimum hardware subsystem to obtain a low-cost drone that might be useful in times of pandemics or hard-to-access areas, for the transport of medication or other necessary things. It also presents the limitations and possible future directions of improvement. The paper starts with a simple block diagram of an autonomous drone and describes the hardware elements that are used to assemble it and a solution for attaching/detaching of package. To carry out the action of detaching the package, a system composed of 2 components was created connected by a pin actuated by a servo motor. When coordinates are like the delivery destination's, the servo motor is activated and releases the box from the support. The described device is a low-price (approx. 240 euros) UAV that has the advantage of being used in hard-to-access areas or in the case of pandemics. The trend to use 3D printers, scanners, and DIY projects will lead to the development of UAVs that are already part of our daily life and the current pace of development will increase civil applications, but not only. The interest in this field should increase as even nowadays there still are areas hard to access due to pandemics, earthquakes, etc.

Keywords: drones, hardware subsystems, slight controllers, brushless DC electric motors

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