Creation of the Multifunctional UAV

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This project's aim is to create a multifunctional drone and study its physical characteristics. Currently, there are many civil UAV which may be used only as toys or flying cameras. So my idea was to develop a multifunctional UAV capable of changing its usage at any time. Within the project, I developed a quadcopter equipped with a module GPS to carry out autonomous missions, and a video camera to fly in a manual mode. A ground station receives the necessary sensor data and transmits commands. After I had assembled and tested the drone, I moved on to the development of payload modules. These modules were designed to help the drone monitor air pollution around various enterprises, deliver medicines or parcels to hardly accessible areas, perform 3D mapping, keep different objects in security or warn people in case of an emergency situation. The results of the research showed that the drone surpasses its factory counterparts in basic physical characteristics (velocity (v=115 km/h), hovering time (t=1620 seconds), max payload mass(m=1,2 kg), max altitude (h=4200 m), radio range(R=1400m)). The developed drone can replace expensive human labor and increase the speed and quality of the tasks performed. I also plan to enhance capabilities of my drone using Intel Galileo Gen 2 as a flight controller. I suppose it will enable to conduct an in-air data analysis, among other advantages.

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