Fire fighting drone

ABSTRACT

Currently there is a lack of unmanned aerial vehicles that are being used with the purpose of extinguish a fire or help prevent one. An unmanned aerial vehicle UAV is an aircraft without a human pilot on board. Its flight can be controlled autonomously by computers in the vehicle or by remote control under the direct command of a human. In the United States and the rest of the world most of the UAVs in existence are being used for defense purposes. Fires that occur in homes and nonresidential buildings as well as fires in wild lands cause plenty of health issues including death to humans and animals in addition to great economic losses in structures equipment and vegetation.The main reason why this team decided to build an UAV and integrate a fire extinguishing ball release mechanism is because of all the advantages that UAVs provide. Starting with the fact that UAVs do not need a pilot on board they also can get access to places in which life can be in danger if entered. Another reason to use an UAV for this particular project is that it can be programmed to perform any mission desired without having human error on board. Of course it has to be taken into account that if any of the systems fail the UAV will be in great risk of crashing but those probabilities are too small in comparison to the probabilities of having a successful mission.

Business Plan: No

What problem are you trying to address?

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satisfactory supply of oxygen from the ambient air.fires are causing plenty of human and monetary losses in this country therefore this team decided to change the application of the regular UAVs being constructed for military purposes and build and design an UAV that can help a great amount of people being affected by flames and smoke that most of the times cannot be prevented or well controlled in an effective and timely manner.

What differentiates your idea from similar solutions/Idea?

The requirements of the UAV are the following pick up one fire extinguishing grenade drop it off in the area chosen by the operator and have a camera that is recording what is going on in the surroundings of the UAV. In order to do this this team decided to use a quadcopter vehicle. .A quadcopter is a UAV with four or more rotors with capabilities of lifting and carrying a specific payload. The other main factor in this project is the payload which is the fire extinguishing grenade .It has the form of a sphere weights around 1.3 kilograms and is filled with a chemical that fights fires. The grenade activates by itself when fire is present around it therefore it can also be used for fire prevention. The grenade can be located in an area prompt to fires such as the kitchen of a home or restaurant or in a forest that is known for having fires in dry seasons and once the grenade detects fire it will activate by itself.

It is also worth noticing that another one of the most relevant requirements of the multicopter is a GPS system. This will allow the operator to indicate the location of the fire and the release place and will also specify the exact location of the UAV at all times. In addition with a ground station the operator can have control of the vehicle in case it goes out of range or the mission has been rearranged. Furthermore sensors of proximity and altitude will be incorporated to provide the multicopter the ability to avoid a collision with other objects.

Socio-economic Importance of the project?

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Beneficiaries of the project?

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Scope of the project?

The purpose of this project is to build an UAV and attach to it a release mechanism for the fire extinguishing ball. This mechanism will be entirely designed and manufactured by the members of this team. The UAV is going to be built using parts already in existence and this team is going to put them together in order to construct a vehicle that is able to comply with all requirements to extinguish prevent and inspect a fire. The UAV will be capable of delivering the grenade in an area that is hard to approach by conventional methods or is more expensive to do it in other ways. Once this system is up and running a camera is going to be added to the vehicle. With this second application takes place which is inspection by live video recording and pictures. In addition the camera is also going to help in taking the vehicle to the place desired by the controller.