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RESEARCH ARTICLE

MIRROR CLEANING UNMANNED AERIAL VEHICLE

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ABSTRACT

Environmental issues This invention relate to a cleaning drone based on a multi-copter flying platform comprising a plurality of sustentation rotors, a cleaning device protruding from the main body of the drone and a plurality of pusher propellers protruding from the main body of the done in a position being opposite to the protruding cleaning device, these pusher propellers being aligned at a substantially orthogonal angle in respect to the sustentation rotors in order to provide a pushing force for the cleaning device to act upon the surface to be cleaned, the cleaning drone further comprising a communications system, allowing it to receive commands and to send back responses to a remote controller, a geographical positioning system, allowing it to execute translation operations based on a known position, and a visual recognition system, allowing it to recognize visual features on the surface to be cleaned or on its immediate surroundings, wherein the sustentation rotors and pusher propellers are driven by electric motors which are fed by at least one power source selected from the group consisting of electric batteries, a fuel cell, a generator driven by a small piston engine, a thermo-photovoltaic fuel based generator, or any other electric energy storage or conversion mean. In a preferred aspect, the cleaning device is protruding from the front side of the drone's main body and comprises at least two straight flexible blades being hold in place by an enclosure defining a cavity which progressively.

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INTRODUCTION

The primary aim of the project is to design, develop a flying drone to clean the high rise building which helps to achieve safety equipment for labour. The Mirror cleaning drone is the cleaning of architectural glass used for structural, lighting, or decorative purposes. It can be done manually, using a variety of tools for cleaning and access. Technology is also employed and increasingly, automation. Commercial work is contracted variously from in-person transactions for cash or barter, to formal tender processes. Regulations, licensing, technique, equipment and compensation vary nationally and regionally. The emergence of a robotic application will be the next hot field in this current new era. It shows by the emergence of many robotics products with autonomous concept for example autonomous vacuum robot, museum tours guide drone and etc. When dealing with hazardous job, it is better to replace human with robot that can perform a task without continuous human guidance or autonomous robot to overcome human risks. Office window cleaning is a hazardous job and it involves high cost.

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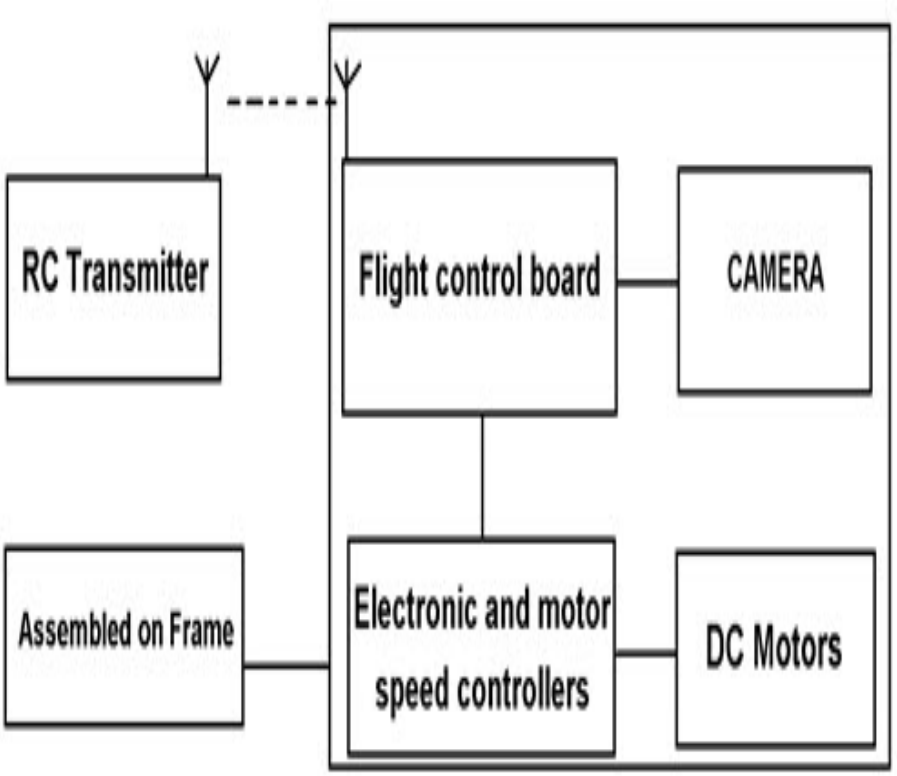
Cases reported to Health and Safety Executive had shown that there had been between two to seven window cleaners were killed each year in Great Britain and 20-30 suffer major injuries while doing cleaning jobs. By using conventional method, human involvements are needed to the do all the task. This shows the need for small, lightweight and portable window cleaning robot for office window to replace human involvement in high risk activities. This project finds its application in the domestic process for the reduction in death due the cleaning of mirror using the wincer system carried on the drone is consists of coreless motor which is used to move the drone faster than the ambulance of road ways the drone reaches the destination using the GPS system General thing in this project is avoiding death due to the last in first aid by using technical components. So the big mass projects are available in this society but our project is the thing to share some new small techniques in this projects.

EXISTING SYSTEM

Conventional methods of cleaning for office window can be described in three techniques or methods. The methods are by using workers suspended in the air, from ground cleaning and by customized window cleaning robot.

Method	Techniques	Limitations
Workers suspended in the air	• Abseiling	• Low area coverage • High time consumption • Need skilled workers
	• Gondola	• Need ski operated Lled workers to the gondola
From the ground	• Reach and technique • Work platform	Wash • Limited to certain height • High time consumption • Limited to certain height • Need extra equipment
Customized cleaning machine Window	• Scaffold • Ladder • Sky box • SIRIU Sc • etc.	• Need extra time for preparation • Limited to high of the ladder satisfy Building • Need to requirement • High cost



PROPOSED SYSTEM

To overcome the drawbacks identified in existing system, following changes have been proposed:

- Without the human a Flying drone is used to cleaning the windows
- The Drone is controlled from the ground and the water is spared through the drone
- The system has been monitored and controlled by FC.
- The monitoring of the process can be achieved by Display in the transmitter.
- They are being controlled by WIFI and further can be done through Transmitter signals.

Componenets of segregation process

The components used in the Mirror cleaning drone are as follows:

Frame: The majority of mini and micro frames are cut from carbon fiber sheet. Carbon fiber is a composite material, being made up of many layers of interwoven carbon fibers that have been rigidly cemented within a binding matrix of epoxy. The popularity of carbon fiber as a frame material is due to its low weight and high strength.

Flight Controller: A flight controller (FC) is a small circuit board of varying complexity. Its function is to direct the RPM of each motor in response to input. A command from the pilot for the multi-rotor to move forward is fed into the flight controller, which determines how to manipulate the motors accordingly.

Coreless Dc Motor: It is an electrical machine that converts electrical energy into mechanical energy. The reverse of this is the conversion of mechanical energy into electrical energy and is done by an electric generator, which has much in common with a motor.

Ultrasonic Sensor: Ultrasonic sensors are a type of acoustic sensor divided into three broad categories: transmitters, receivers and transceivers.Transmitters convert electrical signals into ultrasound, receivers convert ultrasound into electrical signals, and transceivers can both transmit and receive ultrasound.

Conclusion

The rapid increase of both smallest and tallest building in the world the cleaning process is also increased in the cities, by employing the man power it is not easy and safe to clean the mirror or windows in the buildings. The cleaning process can be made easy through sparing the water to the mirrors, We have also increased the speed of water sparing and then fixing of water tank on the drone, so the disadvantages of the existing method has been solved. The system has been controlled via SPFD and it can also monitored through smart phones. After we done this project we can able to produce it for our necessary places, wherever the ambulance usage places. Then the method is very faster, more efficiency, more advantage. The main objective of this project has been to design a circuit that detects heartbeat and consequently gives oxygen to the body. This objective was met since the system works effectively. As the heartbeat detected in the human body varied, the output displayed in the LCD is constantly in particles per million (ppm).

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