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Commentary

Unnamed Aerial Vehicles in Geological Survey

Peter Doyle*

Department of Basic Science, London South Bank University, London, United Kingdom

DESCRIPTION

A geological survey is an investigation process of the earth for a given piece of ground for creating a geological map or model. The study of our planet Earth is done in different processes in those one of the most modern methods is Drone survey. Drones are widely using in commercial and personal use in recent years. Drones are playing a wide range of importance in geological survey. Drones are also called as unnamed aircraft systems and a new eye in the sky. Varieties of instruments and tools are used to make measurements and record observations. For example, to study the earth at global scale satellites and seismometers are used. And to study the earth at crystal and atomic scale microscopes and spectrometers are used. Now a day these drones are widely used for aerial photography and remote sensing. So, that's why geoscientists added drones to their toolboxes.

Remote sensing is a technique that involves acquiring information about an area or an object from a long distance or a safe place without being in direct contact. Generally geologists do these surveys for evaluating and mitigating geologic hazards like volcanic eruptions and floods, and for monitoring changes in surface processes such as landslides, stream erosion and soil erosion in wide range and for managing water resources, constructing geological maps.

By using drones aerial photography is increased for capturing historical locations, landscapes and at the places where are dangerous to go and stay to survey like volcanos, forests with poisoned creatures. Aerial survey helps to geologists to compare the measurements and changes happened in that place at a long span of time. For monitoring after results, severities of unexpected geological events like tsunamis and earthquakes. Frequent surveys will help in detecting mass wasting geological processes like mudflows, landslides, rock falls, ect. While in the emergency time of geological and weather related hazards like earthquakes, tsunami and cyclones drones are used to search and rescue missions. Where the toxic gases released like methane, sulfur dioxide from volcano vent the drones are used to investigate

Drones are flying at low altitude and capture surface and topographic information about more or less than 5 square miles area based on using image processing software. By using these software maps are generated with good accuracies and higher resolutions. Flying at low altitudes will improve the quality and resolution of the maps, but this may increase the flying time. By using drones sometimes it helps to discover unknown landforms, to record geomorphic changes to earth's surface and lifecycle of drilling and mining operations.

Drones are classified mainly into two types they are rotary wing type and fixed wing type. The rotary wing drones again divided into two types they are quad copters and hexa copters. Quad copter is work with four propellers and hexa copters are work with six copters. The rotary type drones are vertically take-off and landing. In recent times drones are designed with highly advanced features like dual vision sensors, obstacle avoidance equipment, and ultrasonic rangefinders, infrared cameras these features will help in prevent crashes from operator error and weather conditions.

Our world have a vast nature and variations of landforms like deserts, oceans, glaciers, river channels, coastal areas, hills and mountains, etc. Geologists are always do researches to save these landforms and human beings. To track the rapid changes in glaciers, increase in droughts will cause to severe climate change through the whole world. To save the world from climate change need proper precautions and to proper monitoring is Important. Drones are used to monitoring creatures on earth which are in red book data. And save animals and birds from forest bush fires these drones are useful.

Drone mountings like thermal sensors, magnetic sensors, toxicity sensors, radiation sensors, grid sensors and distance measuring sensors will help to take precise values in the survey. Temperature at the top of the volcano vent and the toxicity of gases released from vent or in the underground mine and magnetic capacity of particular area and the distance between two or more geographical points will be easy to measure with these mountings. And to measure the curies of radiation present on the particular area is measured and in minerals exploration. All the sensors are more important in remote sensing survey. By

Correspondence to: Peter Doyle, Department of Basic Science, London South Bank University, London, United Kingdom, E-mail: dpeter@lsbu.ac.uk

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using the sensors data some software will improve the 3D visual maps of geological and geophysical models. The 3D model contains RGB mesh, interpolated color surface of the total magnetic field and structural planes with approximate measurements. Unnamed aerial vehicles are rapidly developed in last decade and continues developments are ongoing, these improvements may help to prevent climate change and to save human beings and creatures on earth.