

## **APPLICATIONS OF AI IN GEOGRAPHIC MAPPING DRONES**

### What exactly is a drone?

A drone in technological terms, is an unmanned aircraft. Drones are more formerly known as UAV's or unmanned aerial vehicles. In recent times, unmanned aerial vehicles were most commonly used by military, where the firstly used it for anti aircraft target practice, intelligence gathering and then more controversially as weaponry.

- The future is bright for drones. Drones may soon replace helicopters and even reduce the risk and danger for pilots.
- As we know that Drone as a term refers to any unmanned, remotely flying vehicle ranging from something from as Small to 32,000 pound aircrafts , which fits exactly under the every day language.
- Recent Technologies and platforms have helped engineers to build numerous advanced kinds of drones used for various purposes.
- Over the past few years a drone has moved from a fantasy concept to reality.

### Popular Uses Of Drones

For what purpose is do most of the people use rooms for ? We might be really surprised how varied and how many the applications are ( for drones) , after reading the below mentioned uses :

Drones are used widely for :



- Sports and Drone Racing
- Aerial Photography

- Farming Agriculture
- Filming and Movies
- Military and Armed Forces
- Wildlife Monitoring , etc.

So , one such interesting field in which drones are helpful is the “**GEOGRAPHIC MAPPING DRONES**”.

## What do we infer from the term Geographic Mapping ?

Geographic information system (GIS) is designed and programmed for capturing storing manipulating analysing and presenting all types of geographical data.

The Important term to this technology is geography—which means some portion of the data is under the space.

- A GIS allows us to produce maps on various graphic displays for analysing them and presenting them.
- A GIS stores data on geographical features and its specifications.
- The features are analysed and typically divided into points, lines, as raster images or as areas.
- GIS systems store information that make it possible using special indices for identifying geographical locations.
- For example a GIS software can quickly identify the location within the radius of a given point located in any arbitrary location of the map.

## The role of drones in geographic mapping :-

- The use of drones in Geographic mapping has been greeting on a large scale over the past few years. Drones can be used for quickly sesurveying the landscape or following the stretch of coastline or that if a river. For purposes of teaching in schools , the use of drones may quickly bring in the exciting possibilities that we can't imagine. Case studies and examples can be abtract for some children, but seeing it themselves in the high quality photos taken by the drones , the students can better grasp the concept with the help of such images captured by drones.
- Drones with capabilities of analysing geographical locations, can easily be helpful in case of dynamic natural systems such as received spots, dune fields , eroding cliffs , river banks and estuaries.

- Landforms, that were previously not accessible cannot be easily accessed by drones with proper softwares from very safe locations.

Atlanta Flight Demo:



## How does AI come into picture :-

Integrated GIS with AI-powered drones can allow the machines and softwares , to perceive and understand the world in new ways .

When we combine intelligent algorithmic codes and estimative capabilities with precision of geographic information and AI Drone Technology we get sharp insights of aerial views.

- ❖ Advanced AI engineers deal with Drone softwares (Equipped with integrated mapping softwares, in order to look that drones capture proper insights with the help of quality sensors—for capturing , measuring , transmitting and storing multiple amounts of data , looking for and detecting changes and patterns in real time.
- ❖ Taking from Asset Management to disaster response , Geospatial AI powered drones have been helpful in providing the needful ( providing information gaps for more informed decision making)
- ❖ Compared to last few years , today's drone mapping software are far more accurate , faster and smarter and that's what MNC's are looking for making more profits.
- ❖ Machine learning procedures like prediction , linking , classification etc. , have been used in GIS for many years.
- ❖ But many companies faced issues due to lack of human guidance, which is often required to adjust parameters of algorithmic codes .Recent AI softwares provide high quality insights , moreover innovative companies are looking for such softwares , which help then produce more profits.
- ❖ Past few technological advancements in AI offer newer statistical patterns , and even better predictive analytics.

## **Real World Applications of Geographical -AI :-**

- With the coupling and automation of both enhanced data exploration and powerful visualization , Geospatial AI has been performing wonderfully across all industries.
- Traffic congestion can easily be avoided by the proper use of Geospatial AI drones , installed with on board smart softwares . Since traffic congestion is a hassle experience we suffer while we are on roads , useful Geographic drones coming into picture is a very effective of solving the problem.
- Ride sharing MNC's like Uber , Ola , Lyft etc..., use the AI powered drones for finding out the density of cars and the availability of drivers at the same time at different locations in order to assign drivers for customers in the shortest time possible.
- Geospatial AI powered drones are also widely used in optimised construction planning , by improving workflow on the sites . They guide by giving right decisions to oversee fields relevant to project planning and reporting.

- Reliable Disaster assistance—Geospatial Drones also respond to all kinds of disasters using the Geospatial software and saves lives. With real time quickest responders , Drones with such kind of AI mapping softwares are widely used in the market nowadays. Recently, Drone and GIS Technologies have responded to volcanic eruption in Kilauea in Hawaii. Using the on board thermal sensors, smart imaging tools, spatial analysis , the volcanic data has been collected, predicting the lava flow , thereby saving the lives of few people.

## Conclusion :-

In the end , we say that advanced drone mapping , with inbuilt appropriate AI softwares create a better environment for communicative insights for researchers , decision makers and stake holders.

With quick time deployment and low costs systems ( software and hardware) geospatial drones provide mobile mapping facilities for receiving high resolution data , pictures which are easy to access , cost effective and efficient.

Considering the realm of business, the overall applications of Geospatial drones improvise planning , would substantially resource allocation and decision making , responding to disaster and calamities.

The Scope of Geospatial AI is simply endless.....

