

A Survey of Drones Using IOT Technology

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Abstract: *A Drone is a new invention or era in last recent years which is very effective; Drones are commonly known as Unmanned Aircraft System (UAV) or Flying Robots. Previously Unmanned Aircraft System (UAV) was used by militaries all around the world for different kind of technologies like Intelligence, Surveillance and Reconnaissance Operations. The use of Drones has been using continuously in different and wide areas, like Cargo, Parcel Delivery, Internet provision in remote areas, Emergency Aid, Industrial Asset monitoring pipelines, surveillance in crowded areas, providing food in flooded area and many more. Drones are a microcosm of the Internet of Things(IOT), also it has been realized that Drones have potential to increase the business by using the Technology for their Organizations.*

Keywords: Sensors, IOT, Drones, Unmanned Aircraft System(UAV), Electric motors

I. INTRODUCTION

Internet of Things (IoT) may be defined as the interrelated system of computing devices, digital and mechanical machines, objects are provided with unique identifiers (UID's) ability to transfer the data with involving human interactions.

Things on the Internet of Things include people with heart monitor implants, livestock with biochip transponders, and cars with built-in sensors that warn the driver when tire pressure is low. Increasingly, Organizations in a variety of Industries are using IOT to operate more efficiently, better understand customer to deliver enhance customer service, improve decision making and increase the value of business. The Internet of things now a days has been used in many devices like Smartphone's, Laptop's, Palmtop's, Tablets that utilize embedded technology to communicate and Interact.

The Internet of Things (IoT) is termed as network of physical objects or "things" embedded within network connectivity, electronics, software or sensors, which enables the objects to collect as well as exchange data simultaneously. The Internet of Things allows devices to be sensed and to be controlled remotely across all over the world.

The IoT's veritable value lays in the data during interconnected items sharing. With Internet of Things, the cost of connectivity is decreasing. As a result, we can access anything all over the world if the devices is connect with the internet ,machines can also communicate with each other with the interference of any human beings.

The Internet of Things (IoT) encompasses many aspects of life from interconnected cities and homes to connected cars and roads, which eventually connects roads to devices that track an individual's behavior. The data is collected for push services. According to statistics, one trillion Internet- connected devices by 2025 and define mobile phones as the eyes and ears of the applications connecting all of those connected things.

By means of these internet of things billions objects are capable for communication around the world within a public and private internet protocol network. In the year of 2010, the devices connected to the Internet was around 12.5 billion. For the development, the government of Europe, Asia and America has considered the Internet of Things as a major area of innovation and growth. Public safety, Smart cities, Smart cars, Smart Industries and Environmental Protection has been given the highest priority for future protection.

Thus, drones are very big revolution in the field of IOT, drones are very useful for humans as well as for machines for the communication purpose, there are some area where human presence is impossible to next, but we can use Drones

in those area, major military operations are going with the help of Drones, but now a day's Drones can be used for everyday's basic need to transport the things where human's can't reach.

II. DRONES/ UAV/UAS

A drone, usually refers to a craft in which there is no pilot It carries impressive range of task from military operations to package delivery operations. Drones can be as large as an aircraft system or as small as the palm in your hand.. Drones are a microcosm of the Internet of Things (IoT). Essentially, a drone is a flying robot. UAV can be remotely controlled through software installed in it with onboard sensors and GPS.

Originally Drones were developed for the military and aerospace industries, drones have found their way into the mainstream because of the enhanced levels of safety and efficiency they bring. A drone autonomy level can range from remotely piloted to advanced autonomy

Drones are now used in a variety of civilian tasks ranging from search and rescue, surveillance, traffic monitoring, weather monitoring, firefighting to civilian drones, drone-based business photography, videography, agriculture. There has been a significant increase in interest in lighter-than-air vehicles and commercial and hobbyist drones for applications such as cargo and parcel delivery, remote internet delivery, emergency response, and monitoring of industrial facilities (pipelines). increase.

III. CLASSIFICATION

There are so many classification of Drones:

Multi Rotor Drone

- It has multiple propellers for navigation and flying .
- Multi Rotor Drones can be categorized on the basis of their number of propellers.
- Multi Rotor drone has Tricopter in which there are three propellers, Quadcopter in which four propellers, Hexacopter in which six propellers and in Octocopter there will be eight propellers

Fixed Wing Drones

- These Drones have fixed wings in place of propellers, they can't remain in one place in the air.
- They fly significantly longer
- They expand your corridor mapping capabilities

Single Rotor Drones

- Single rotor drone have only one rotor and has a tails for the direction.
- These drone are used for surveys and for constructions

Main Application Areas

- **Army:** The use of drones in the military by US and British troops in the early 1940s is controversial. Today's drones are very advanced with thermal imaging cameras, laser rangefinders and more. The most famous military drone in use today is the MQ-. 9 Reaper
- **Delivery** – These drones are typically used to deliver groceries and merchandise to the front door. •
- **Security** – Many drones want to stay secure. These are very useful for this type of operation. •
- **Inspection**-Many systems such as power lines, wind turbines and pipelines can be inspected with a drone. •
- **Surveillance** – Drones allow you to record and monitor from the air, making them suitable for monitoring public events, protests, or suspicious events without hearing or seeing them. Great tool for police!
- **Science & Research** – Great for scientists to observe different processes in nature and in a particular environment from the air as they carry out their research work. For example, drones are used to record archaeological excavations in the event of a nuclear accident (pollution measurement), monitor glaciers, and observe volcanic eruptions.

Besides of these areas of application, drones are also used in engineering, construction and pre-construction works, aviation, maritime, marketing, real estate, mining, meteorology, education, and more. Today, many government agencies, private companies and other institutions have their privatedrones.

Apart from these work drones named mini drones can be used for the entertainment purpose, in fact you can buy from the internet its legal now a days with affordable prices.

These little drones can be used and control very easily by a little child of 6 years.

IV. DRONES WITH IOT

Drones bring the revolution in the field of Information technology as the flying devices connectivity in large network areas, perform smart action in the military operations. IOT enabled Smart drones automatically recognize, track objects and take decisions instantly in the field of military operations, fire fighting operations, tracking of hidden enemies with special sensing devices.

Drone technology is evolving very rapidly. Drones are the major replacement of the stationary connected devices equipped with special type of sensors:

1. Deployable to different locations
2. Capable of carrying flexible payloads
3. Re-programmable in mission

New Kind of Drone

There are so many types of Drones, but now days drones can be connected with satellite, in which some of them uses for the military operations, some of them used as flying devices controlled by the help of your mobile phones

But some drones are specially designed for commercial purposes , these drone have very low weight around 55lbs.

Commercial drones are truly ‘unmanned aircraft systems’.

Commercial drones are also connected devices. So they are ‘things in motion’

V. CONCLUSION

- A new technology invention in the new era named Drone, when smart devices connected with smart services to create compound applications
- Drones future invention, whenever they were needed. They are truly an engineering spectacle, containing the best of electronics and software technology, mechanical.
- Drones are the future of unmanned surveillance and warfare with flying aircraft system without pilots
- There just might be a day when today’s generation tells their grandchildren that aircrafts were manned by human pilots.
- Drone technology uses internet of things (ice berg) moreover, there is a large room for advancement in technology which is proficient in many fields of science and technology

VI. FUTURE SCOPE

Drones specially IOT enabled becomes very popular in the world, due to the more advancement technology the use of drones in mostly all the areas where it can be used, either it will be military, transport, agriculture, medical and in various fields.

Even Drones are using for transporting goods in remote location with better camera’s , some of the drone may capture an image or capture the videos of the particular area where it is needed.

Due to using of Drones in business purposes the employment will increase, due to the fact people will have to be trained to fly, programmed and maintain these drones.

On the other side, some drones will be able to carry powerful weapons, so they will be used in conflicts. Programming software of the drone is being developed such that the drone can take its own decision in situations where human error is probable. Some countries has constantly been utilizing their fleet of drones in the fight against terrorism.

The future of drone technology depends on sensors in many ways of its practice. They have made inroads into many fields and it is necessary that they have the ability to detect the changes in the systems they are meant for. These sensors



have helped with that and as they become more and more precise, the service provided by drones will become better on every day in and out.

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