



MEDICINE FROM THE SKY

HOW FLYTNOW POWERS
MEDICAL DELIVERY
USING DRONES



Drone delivery is not a new concept; it has existed for over a decade, especially in health care. A company called Zipline has been doing medical deliveries in Africa, long before Amazon came into the picture with its Prime Air service.

Another startup called Matternet ran its [first trial of medical drone delivery in Haiti](#) back in 2012, during one of the worst earthquakes known to man. In fact, the use of drones in healthcare has received the lion's share of attention, due to the fact that it is a commercial as well as a public health opportunity..

Why do drones have a promising future in medical delivery?

Using drones might not yet be practical from an overall logistics point of view since traditional vehicles remain more effective than drones. But when considering the delivery of time-critical medical payloads like blood samples, organs, emergency aids, vaccines, biological drugs, etc. unmanned aerial vehicles (UAVs) can play a pivotal role in saving lives.

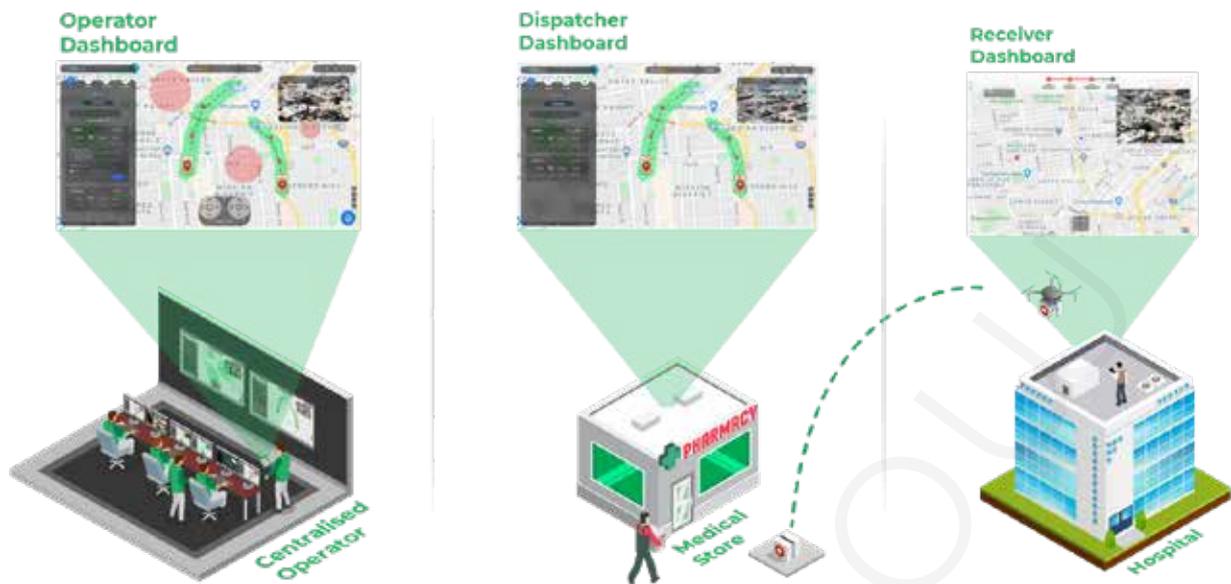
Drones can bridge the gap between the medical facilities available to the urban and rural populations by providing critical and timely medical care to people in remote areas.

[Global Market Insights](#) has estimated that the medical drone market will hit US \$399 million by 2025 and that this growth will be driven by advancements in drone hardware and software.

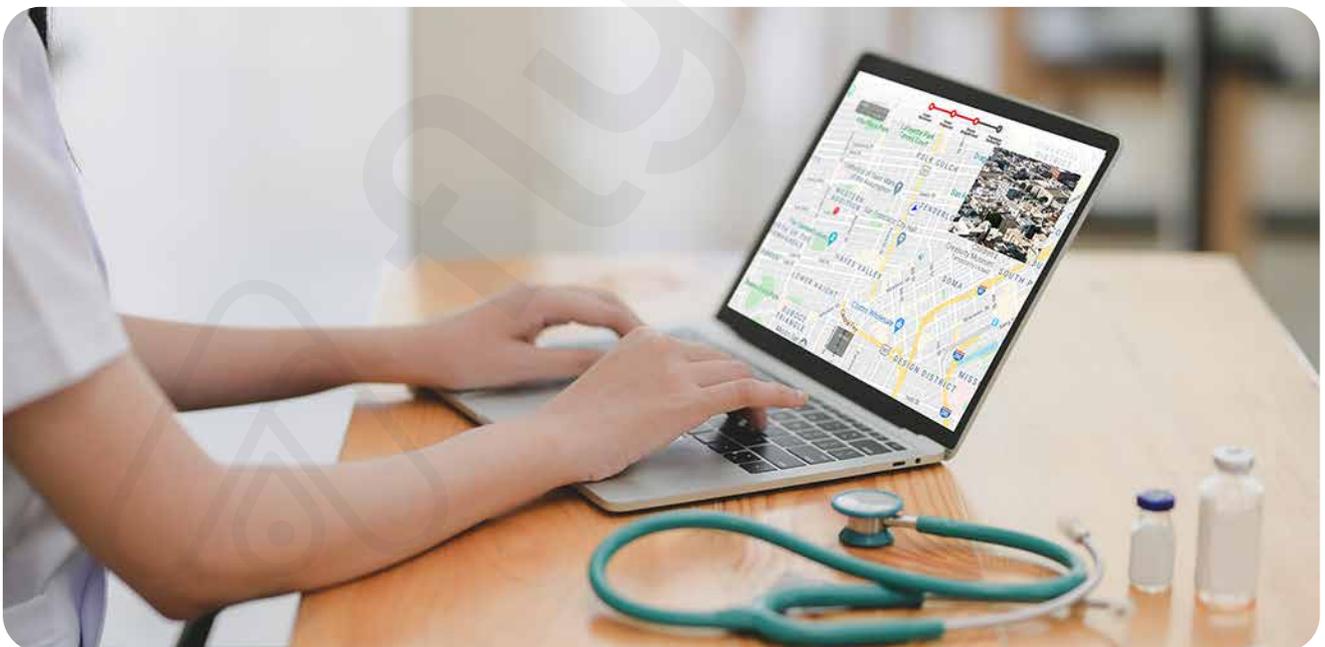
A decade-long effort by various drone companies to create the technology to support drone deliveries – and the recent use of drones in the fight against COVID-19 – has instilled enough confidence among the medical fraternity to accept drones as a viable means to deliver critical medical services.

The story of drone medical deliveries in India is worth a mention. India is one of the fastest-growing economies in the world, but with a myriad of problems – one being a huge lack of doctors in rural areas, making innumerable villages inadequately equipped to provide proper medical care. This problem is now being tackled across the central, state, and local governments. For example, in association with World Economic Forum's Centre for Fourth Industrial Revolution (C4IR) Network, the government of the Indian state Telangana has stated a pilot medical drone delivery project called **Medicine from the Sky** which will eventually be formalized into a comprehensive plan to provide last-mile critical medical services to the rural population of the state.

How will a medical drone delivery system work?



A drone delivery system must be powered by reliable, scalable hardware and intelligent automation software. The following diagram illustrates a high-level overview of such a system.



The components of a drone delivery system can be divided into the following aspects:

- Drone Hardware
- Fleet Management Solution
- Onboard Software
- Drone-in-a-Box Hardware
- UTM Integration
- Advanced Fail-safes

FlytNow for Delivery to launch 'Medicine from the Sky' projects

Projects like 'Medicine from the Sky' require a robust fleet management solution to plan, manage, log, and share flights of drone fleets. FlytNow for Delivery is one such cloud-based fleet management solution that is easy to set up, cloud-connected, and operate. It offers the necessary automation capabilities and third-party integrations to manage large scale projects like 'Medicine from the Sky'.



Below is a list of capabilities which make FlytNow suitable for drone delivery projects:

- Since FlytNow for Delivery is a web application, it is easy to deploy and can be done in a couple of days.
- It supports off-the-shelf DJI drones as well as custom drones based on PX4 and Ardupilot.
- FlytNow provides dashboards to control all aspects of your delivery operation e.g. a dashboard for dispatch operators to launch and manage delivery missions, and a dashboard for recipients to track incoming deliveries.
- FlytNow Enterprise version is fully customizable to suit complex business needs and use-cases.
- FlytNow has built-in features for team management since multiple users, drones, and stakeholders are typically involved in drone delivery operations.
- Users can create unlimited missions, where each mission tells a drone where to go and how to go there.
- Remote stakeholders can watch live video feeds, streamed from multiple drones, to get real-time insights into drone missions, before – during – and after deliveries.
- Apart from live-video streaming, users can also share video streaming with your

stakeholders, and control access based on roles, without such stakeholder being on the FlytNow platform.

- The solution is highly modular and can be seamlessly integrated with third-party hardware and software.
- FlytNow's mission planning module supports advanced geofencing using polygons.
- Users of FlytNow can remotely control various payloads, camera, and gimbal of drones, via SBCs (Single Board Computers).

How FlytNow Offers An Integrated Drone Delivery Solution?

FlytNow as a cloud-connected solution brings all the aspects of a drone delivery system seamlessly together. It is akin to the heart of a system and unifies the following components:

Drone Hardware

This refers to the actual drone that is used for making the deliveries. The specific type of drone to be used will depend on the nature of the operation.

- For long flights, fixed-wing drones are used since this type of drone can fly long distances due to better battery life. For example, Zipline uses its custom-built fixed-wing drone for their deliveries.
- Multi-rotor drones are more suitable for short-distance flights and for carrying heavier payloads.

Please refer to our [The Definitive Guide to Setup Drone Delivery System](#) to learn more about drones suitable for such operations.

Drone delivery missions are often dependent on BVLOS or EVLOS capabilities, which are provided by the fleet management system. Thus, each drone has to constantly stay connected with FlytNow over a cellular (4G/LTE/5G) network, when out on a mission.

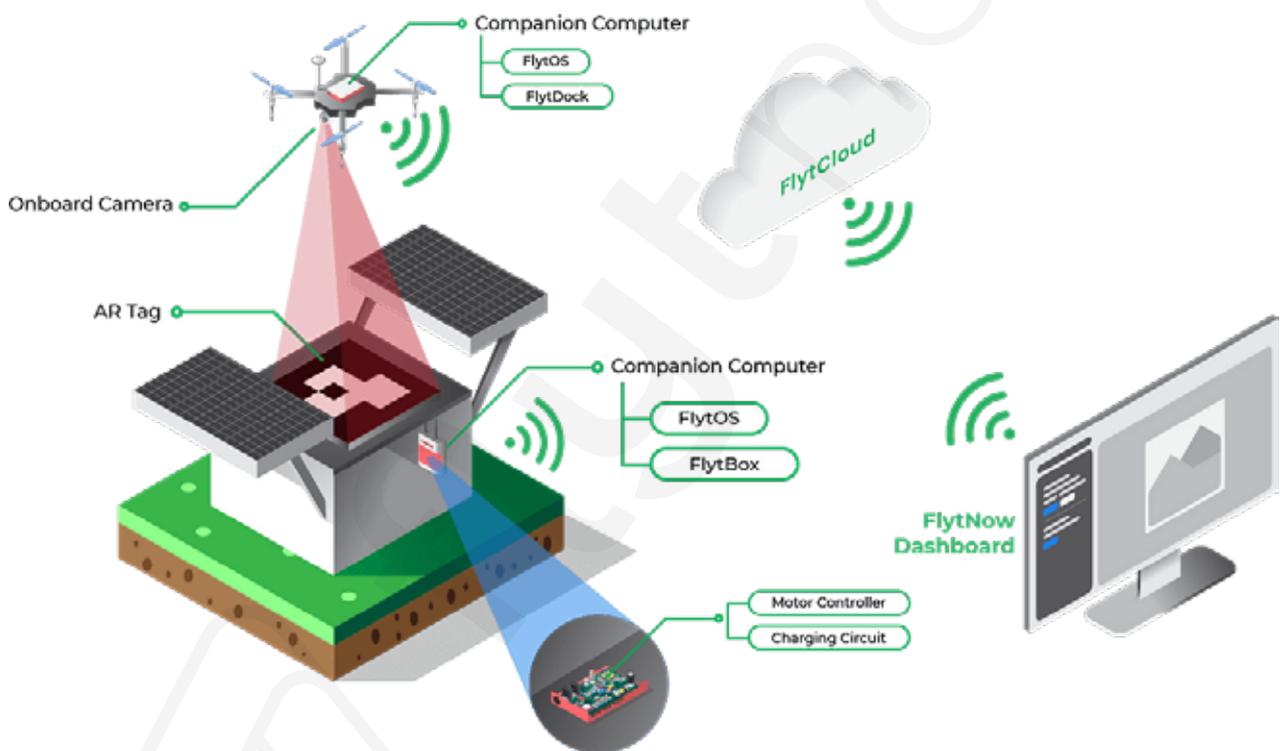
Drone Operating System

All drones need a flight controller to help them fly and maneuver. To make drones work within an automated cloud-connected fleet management system requires a companion computer (SBC) with an operating system eg. the FlytNow SBC Integration Software Kit which is in the form of an operating system that connects a drone to FlytNow, and provides additional capabilities like:

- Hover and precision landing.
- Object detection and collision avoidance.
- Gimbal control.
- Control of mechanical attachments like a clamp to release a package

Drone-in-a-Box (DiaB) Hardware

These are on-ground hardware like docking stations, charging pads, launch systems, etc. These systems help in automating the launch of a drone and later put it in charging mode after returning from a delivery mission. Such components can be integrated into FlytNow to enable an end-to-end automation solution. For example, FlytNow supports third-party ground hardware from Airscort, Skysense, WiBotic, etc.



UTM Integration

In order to scale BVLOS or EVLOS drone missions, it's important to comply with airspace norms set by various regulatory authorities. There are numerous Unmanned Aircraft System Traffic Management (UTM) service providers that provide dynamic airspace intelligence, most of whom provide APIs that are leveraged by FlytNow for operational integration. With airspace intelligence, drones can fly routes that aren't likely to cause conflicts with manned aircraft flights.

Advanced Fail-safes

Drones are expensive, and when one fails it's not just a monetary loss but, more importantly, it also poses a threat to the lives of the people down below. This is why these must be comprehensive safety features built into the drone fleet management system. FlytNow for Delivery offers advanced fail-safe features such as:

- **Return to Home:** This feature is a single function, designed to call a drone back to the base station, useful during bad weather conditions or when there's an adverse flying advisory.
- **Emergency Landing Point (ELP):** This feature allows the setting of emergency landing points along a delivery route. This is useful in an event of mechanical failure where the drone has to land nearby.

Summary

In this blog post, we discussed the rapidly growing importance of drones in medical delivery. We broke down a typical drone delivery system into its key components and discussed how FlytNow can serve as a complete solution for drone delivery operations.

To get started, sign up for our 28 days free trial: <https://flytnow.com/pricing/>

Or contact us at <https://flytnow.com/contact/>

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