Project Medifly

Successful demonstration of drone transport solution for medical samples

Government-funded research project, Medifly, conducted test flights over Hamburg

Hamburg, 05.02.2020 – Today in Hamburg, the joint research project Medifly, funded by the German Federal Ministry for Transportation and Digital Infrastructure (BMVI), successfully demonstrated the use of unmanned aerial vehicles (UAV) for acute transportation of medical samples. A total of ten drone flights were conducted between the German Armed Forces Hospital in Wandsbek-Gartenstadt and Saint Mary's Hospital in Hohenfelde, roughly five kilometers (linear distance) apart from each other. The insight gained from today's flights will lay the foundation for extended test operations over several months.

The research goal of Medifly is to find out in how far unmanned aerial vehicles can be used to perform acute transports of medical samples in a safe and reliable manner. Tissue samples – so called 'frozen sections' – are regularly extracted during medical surgery. To make sure that the surgeon has removed all abnormal tissue, the samples have to be examined by a pathologist during the surgery. Usually, multiple samples are therefore removed, individually packed, and sent to a pathology lab for diagnosis.

However, most hospitals no longer operate their own pathology labs and hence have their tissue samples transported by an ambulance to the nearest available hospital with a pathology lab. During this time, the surgery is on hold and cannot be resumed until the pathologic results are received, often resulting in long periods of anesthesia. Replacing the ambulance by a drone could significantly shorten the transportation process and hence the periods of anesthesia, as the pathology lab can be reached by air, independent of the traffic on the ground. In addition, drones could even connect remote hospitals that sometimes are so far away from any pathology lab that they have to send their tissue samples after surgery. Depending on the diagnosis, this carries the risk of a second surgery.

As the drone flights not only conducted in a densely populated urban area, but also in the air traffic control zone of Hamburg's international airport, a large number of safety measures had to be implemented. First, evidence had to be provided that automated flights in this complex environment and above highly frequented traffic routes can be performed safely and reliably at any time. Thus, all parties involved had to invest several months of discussions and thorough planning to obtain the required flight approvals from the responsible authorities. The project partners thank Hamburg's civil aviation authority and the air traffic control office (DFS) at Hamburg airport in particular for the very constructive exchange during the planning phase.

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Several renowned institutions have joined forces for the Medifly project: ZAL Center of Applied Aeronautical Research, FlyNex, GLVI Gesellschaft für Luftverkehrsinformatik and Lufthansa Technik AG. Hamburg's Authority for Economics, Transport and Innovation, as well as both hospitals involved, have joined Medifly as associate partners. Based on the insight gained from today's successful test flights, the partners intend to start an extended test flight campaign soon. This is expected to last several months in order to assess additional factors for an economically viable utilization of the UAV technology.

"Due to their manifold fields of application, unmanned aerial vehicles have significantly gained importance – on a commercial level as well as in private. Unmanned air systems technology thus provides numerous interesting growth potentials for the German economy," said Michael Westhagemann, Hamburg's Senator for Economics, Transport and Innovation. "In this project, the specific benefit for both users and the community is clearly visible. Automated aerial vehicles will contribute significantly to the improvement of health care."

„Medifly is not a classic aviation topic", said Christian Caballero, Chief Operating Officer at FlyNex GmbH. „The mass of influencing factors for a successful flight planning results from the ground infrastructure. With our solutions, we can also set the course for automated flights out of sight for this project and show how medical drones can support health care.""Medifly is no classic aviation topic," said Christian Caballero, Chief Operating Officer at FlyNex GmbH. "The sheer number of influence factors for successful flight planning strongly depend on the ground structure. Regarding this aspect, our solutions help to lay the groundwork for automated flights beyond the visual line of sight in order to show how medical drones can significantly support public healthcare."

In 2018, Hamburg was one of the first cities to join the Urban Air Mobility (UAM) Initiative of the European Innovation Partnership for Smart Cities (EIP-SCC) funded by the European Commission. Hamburg is therefore an official model region for the exploration of civil use cases and application fields for drones and other urban air transport technologies.

For further information about project Medifly, please visit the website https://medifly.hamburg/.

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About FlyNex

Located in Leipzig, Hamburg, and San Francisco, FlyNex is the leading solutions provider for commercial drone applications. With its software solution, FlyNex covers the entire spectrum of commercial use cases for unmanned air systems. Based on its experience from industrial and commercial drone projects, FlyNex helps to develop standards and guidelines for future-proof drone operations, for example collaborating with the German Institute for Standardization (DIN) and the German Aerospace Center (DLR).

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