TOP TEN

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Category: **Airborne** Country: **Italy**

Research Area 2: **Sustainable Mobility of People & Goods** Idea Number: **66**

Unmanned Aerial Service (UAS) Delivery Vehicle "FastDrop"

There has been a serious interest in the autonomous aerial delivery of supplies and commodities in recent times. Several commercial and governmental organisations have been developing and testing vehicles of various sizes and capabilities in order to meet various supply chain needs, such as point-to-point delivery of shipments. The COVID-19 pandemic and the subsequent lockdowns intensified the need for rapid autonomous delivery of essential goods (food, medicine, etc.) to individuals and organisations in densely-populated urban high-rise buildings. Among the many impacts to daily life, the pandemic forced a re-evaluation of the existing logistical methods by which essential supplies are distributed within large communities or between different communities, especially when a lockdown is being enforced.
Vertical lift technology can assist societies worldwide through the safe distribution of medical supplies and other commodities by means of human-independent 'contactless' delivery in areas without a runway. The other functions of a completely autonomous aerial delivery vehicle include disaster relief and various commercial purposes. This project describes the design of an Unmanned Aerial System (UAS), named the FastDrop. The mission of this Vertical Take-off and Landing (VTOL) aircraft is to transport a 50 kg payload to end-user customer sites of maximum 50 km radius away, over a specified mission profile, subject to various constraints. The design utilises only technologies having sufficiently high Technological Readiness Level (TRL), in addition to current commercial availability in the Aerospace and Defense marketplace, in order to support an initial entry into service by the year 2025.