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a techUK company



Tech Industry Gold Competition 2022/2023

We are delighted to be working with BT as our partner as we explore the fast moving and ever improving area of drone and UAV technology and its potential application and usage to automate, autonomise and enhance University or Campus life.

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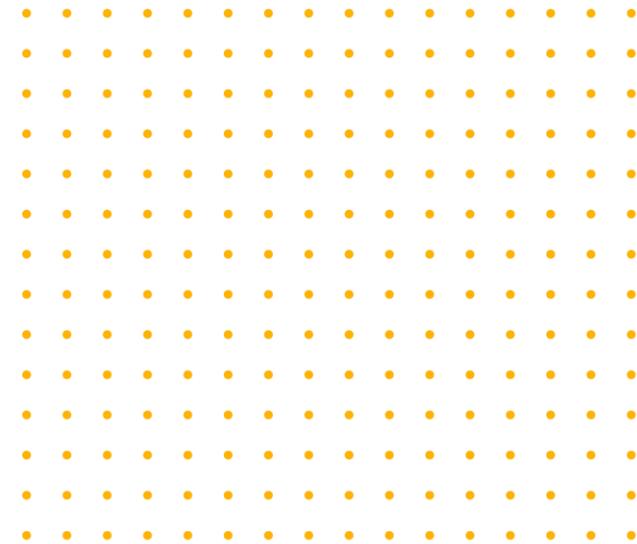




The way a pilotless aircraft is controlled determines its categorization

1. **Unmanned Aerial Vehicle (UAV):** a pilotless aircraft that is either manually controlled with a joystick or a mouse or autonomously flown by following a preprogrammed mission.
2. **Remotely Piloted Vehicle (RPV):** a pilotless aircraft that is steered or controlled from a remotely located position. In many cases, the terms UAV and RPV are interchangeably used to describe any pilotless aircraft.
3. **Drone:** one of the oldest terms used to describe a pilotless aircraft. A drone is defined as a pilotless aircraft controlled by radio signal, and can be fully autonomous.

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What is an autonomous drone?

Autonomous drones are unmanned aerial vehicles (UAVs) that operate using Artificial Intelligence (AI)-powered navigation and operational software, and do not require a human pilot. From taking off and landing to carrying out aerial site inspections and surveying, these aircrafts complete tasks and make decisions on their own.

Are all autonomous drones the same?

Not all drones with autonomous capabilities are the same. It is one thing to automate a flight. Yet much greater value is realized from automating *the entire flight and data cycle* – preparation for flight, autonomous flight, data gathering, data upload and analysis, generation of insights, and preparation for the next flight.

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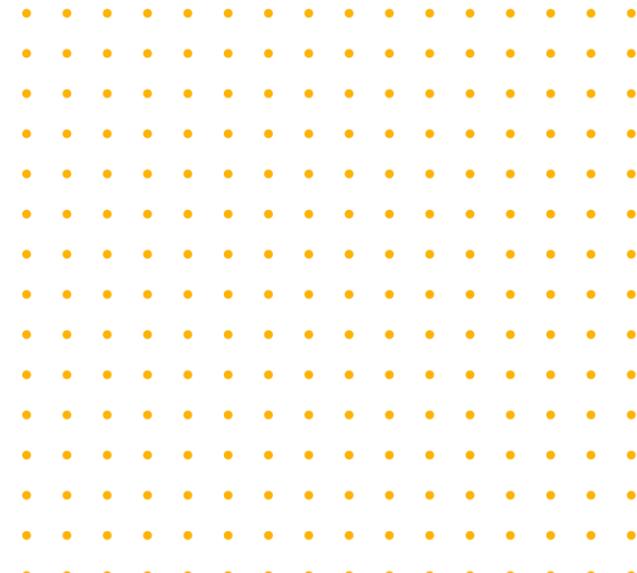


What is an on-site autonomous industrial drone (drone-in-a-box)?

An on-site autonomous industrial drone system (drone-in-a-box) is an all-in-one autonomous drone solution with two main components:

- **The platform** – An autonomous drone and base station (“the box”) that has been specially adapted to the unique needs to large-scale industrial sites
- **AI-powered** software that manages the drone and analyzes visual data gathered

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Autonomous Micro UAVs

These are able to navigate in complex, three-dimensional environments with or without GPS with applications to search and rescue, first response and security. The robots are quadrotors with onboard sensors and processors customized for state estimation, control and planning. They rely on a range of sensors that can include an IMU, cameras, a laser range scanner, an altimeter and a GPS sensor. These can range in size and for example a micro drone with a mass of 20 grams is capable of navigating at 6 m/s in indoor environments. That's about 53 Body lengths/second.

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We hope this brief presentation gave you some ideas and we now look forward to seeing what you produce to present to us on the 1st March 2023!

