

# Class I fixed wing electric vertical take-off and landing Unmanned Aerial Vehicle (UAV) for maritime surveillance with modifiable airframe to accommodate different payloads

## Summary

Profile type

**Technology offer**

Company's country

**United Kingdom**

POD reference

**TOGB20240828011**

Profile status

**PUBLISHED**

Type of partnership

**Commercial agreement with technical assistance**

Targeted countries

• **World**

Contact Person

**Johannes BÖHMER**

Term of validity

**29 Aug 2024**

**29 Aug 2025**

Last update

**29 Aug 2024**

## General Information

### Short summary

The UK Company manufactures a high-speed class I type 2 fixed wing high speed electric vertical take-off and landing unmanned aerial vehicle. The airframe is 3D printed out of a glass fibre filled resin and the manufacturing process facilitates a very wide range of sensor payloads.

The UK SME seeks a commercial agreement with technical assistance with technology companies who specialise in custom sensors for mounting and adapting to the unmanned aerial vehicle.

### Full description

The British company founded in 2016 operates drones across 4 continents both in defence and environmental protection uses.

It manufactures drones using 3d printed glass fibre filled resin. The drones are therefore easily modified to suit a wide range of sensor payloads.

The internal payload capacity is up to 2.5 kg with a volume of 400 cm<sup>3</sup> enabling internally mounted sensors like

hyper spectral sensor payloads. Externally mounted sensors like sonar and environmental DNA are an option.

The unmanned aerial vehicles have a wingspan of 1.5 metres, can autonomously take off and land anywhere with a 3x3m clear landing area and fly 160 km/h with a peak range of 160km.

The company has licences to fly beyond visual line of sight in the UK for testing with sensor payloads in the UK, and can obtain beyond visual line of sight permissions anywhere in the world for the subsequent deployment.

The unmanned aerial vehicles use both radio and cell connectivity where available and can stream most data sets live to a ground station or straight to any server. In addition to the flight systems the company runs Nvidia Jetson Orin onboard the aircraft to preprocess data from the sensor before sending to a ground station and can link the data from the sensors to make the output data Geographic Information System (GIS) tied to its position and time.

The company is looking for industry partners who develop specialised sensors and who require a high-speed drone platform for sensors to capture data at sea and from altitude or submerged under water. It is seeking a commercial agreement with technical input.

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#### Advantages and innovations

The drones are smaller than comparable unmanned aerial vehicles in the industry used for maritime applications. The compact wingspan enables take off from smaller areas (only require 3m x 3m). The small size, and lower weight (even with max sensor payload), enable the drones classification Class I which in any regions have fewer restrictions on operation and/or easier processes for permits for operations.

The wings are detachable, and transport cases meet size and weight limits for checked luggage, allowing for rapid deployments without excessive costs.

The high-speed drones have a cruise speed of 160 km/h and peak speed of 200 km/h mph, enabling drones to operate in far worse wind conditions than other drones on the market.

The company's unmanned aerial vehicles can operate fully autonomously from take-off to landing, which enables end users who purchase the unmanned aerial vehicles to operate them with their own trained operatives.

A cell connection can stream data over the internet enabling the end user to receive the data in real time. This provides cost benefits and system integration benefits.

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#### Technical specification or expertise sought

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#### Stage of development

**Available for demonstration**

#### Sustainable Development goals

- **Goal 6: Clean Water and Sanitation**
- **Goal 14: Life Below Water**
- **Goal 7: Affordable and Clean Energy**

IPR Status

**Secret know-how**

IPR Notes

## Partner Sought

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Expected role of the partner

The company is looking for industry partners who require a high-speed drone platform for sensors to capture data at sea and from altitude or submerged under water.

The technology partner will provide the sensors in a form for mounting in an unmanned aerial vehicle, and the company will modify the airframe design to fit the required mounting, as well as ensuring reliable flight with the new mass distribution.

The company can manage the onboard processing and data link, and if the sensor needs proprietary preprocessing before transmission from the aircraft, can develop a joint solution to ensure the data is correctly processed utilising GIS if needed.

This will require collaborative testing with the aircraft. The company has the operational experience to obtain permits for testing, and the technology partner would validate the data output.

The company can operate the drones if needed and manage the data delivery.

Type of partnership

**Commercial agreement with technical assistance**

Type and size of the partner

- **R&D Institution**
- **SME 11-49**
- **SME <=10**
- **Other**
- **SME 50 - 249**
- **University**
- **Big company**

## Dissemination

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### Technology keywords

- **01003008 - Data Processing / Data Interchange, Middleware**
- **02011001 - Aeronautical technology / Avionics**
- **10002010 - Remote sensing technology**

### Targeted countries

- **World**

### Market keywords

- **02007014 - Other industry specific software**
- **02007016 - Artificial intelligence related software**

### Sector groups involved

- **Aerospace and Defence**
- **Maritime Industries and Services**