

# A virtual and augmented reality system system affording enhanced motion capture, user movement, and immersive feedback

## Summary

Profile type	Company's country	POD reference
<b>Technology offer</b>	<b>United Kingdom</b>	<b>TOGB20230831016</b>
Profile status	Type of partnership	Targeted countries
<b>PUBLISHED</b>	<b>Commercial agreement with technical assistance</b>	<b>• World</b>
Contact Person	Term of validity	Last update
<a href="#">Rita ELSTE - TOMSONE</a>	<b>31 Aug 2023</b> <b>30 Aug 2024</b>	<b>4 Sep 2023</b>

## General Information

### Short summary

A UK company is seeking to licence via commercial agreement in the EU and UK, a system deploying a constellation of drones to map a moving subject, with advantage of live-capturing areas of imagery that would normally be subject to occlusion. Industry sectors to benefit from this improved technique would include Gaming, Medical and Defence.

### Full description

Whilst virtual reality systems are increasing in availability and sophistication, a considerable gap exists between the level of immersion afforded with that idealised as sufficiently immersive virtual reality (for example, affording a sense of embodied virtual presence). Specifically, existing systems entail limitations of, and trade-offs, between:

- 1-The user's locomotive/kinematic freedom
- 2-The accuracy and completeness of motion capture
- 3-The virtual-physical embeddedness of the user

To address these issues, the UK company's system deploys a hybrid approach to motion capture: comprising of location sensors as worn by the user, and as mounted upon small aerial vehicles (and headset), whereby:

The aerial sensor array may move relative to the user so that it does not impose restrictions upon the user's locomotive/kinematic freedom to obtain sufficient levels of tracking accuracy, angles of view and resolution upon visible bodily surfaces.

Further, and insofar bodily surfaces are nonetheless occluded to aerial/headset-mounted sensors (e.g., by further bodily surfaces), positional determinations are also afforded by worn sensors. This permits complete coverage of motion capture even when the user's movements entail numerous, and changing, planes of occlusion. Subsequently, hybrid positional determinations permit enhanced locational deployment of virtual feedback, and accordingly, simulative routines and immersion. The latter are further enhanced using dedicated tactile and kinaesthetic feedback mechanisms, serving to increase the degrees of freedom whereby physical feedback may be deployed upon the user, and whereby, the user may be further embedded within, and interact with, the virtual setting.

This system may compliment any application wherein greater completeness and accuracy of motion capture is needed and the user's kinematic degrees of freedom shouldn't be compromised, and physical feedback is provided.

Advanced simulation in trainings, remote surveillance and remote control of vehicles in the industrial facilities, gaming industry, physical therapy, any type of virtual, augmented and mixed reality applications are the potential areas that this system can be used.

Technology is at a conceptual stage and the UK company is looking to license the technology or have a commercial agreement with technical assistance. They are ready to provide further support to bring this technology to life with the partner and also are open for making a joint commercialization plan together, including selling the technology to a corporate giant after it is proven.

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#### Advantages and innovations

- Unrestricted user-locomotion/movement – without compromising motion tracking.
- Occlusion free and accurate motion capture – without compromising user-movement.
- Dedicated tactile and kinaesthetic feedback mechanism – permitting enhanced simulative repertoires/routines and degrees interactive freedom.
- Enhanced fidelity and concordance of virtual feedback – enhanced immersive quality and embodied realism.
- Benefits across applications/sectors – existing and unforeseen.

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#### Technical specification or expertise sought

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#### Stage of development

**Concept stage**

#### Sustainable Development goals

• **Goal 9: Industry, Innovation and Infrastructure**

## IPR Status

**IPR applied but not yet granted**

## Partner Sought

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## Expected role of the partner

Developers and manufacturers of human-computer interfaces with expertise in virtual, augmented, and mixed realities, aeronautical companies, sensor developers, smart materials/textiles manufacturers, occupational and training companies dealing with advanced simulations, industrial companies specialising in remote control of vehicles/robotics and remote surveillance, gaming companies, physical rehabilitation providers can be ideal partners.

The UK company is expecting to find a partner with capability to develop the technology. The UK company would be open to commercial agreement either work together for a joint commercialization goal or or licensing.

## Type of partnership

**Commercial agreement with technical assistance**

## Type and size of the partner

- **Big company**
- **SME 11-49**
- **SME 50 - 249**
- **SME <=10**

## Dissemination

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## Technology keywords

**• 01001002 - Digital Systems, Digital Representation**

## Market keywords

**• 09003007 - Other services (not elsewhere classified)**

## Targeted countries

**• World**

## Sector groups involved