



KYMIRA

Type of organization

Medical devices manufacturer/vendor

Headquarters (country)

UK

Maturity Level

In development

Organization description

KYMIRA, founded 2013, is a smart garment company operating in the Sports and Health markets through their revenue-generating clothing brands, KYMIRA Sport and KYMIRA Medical. Commercial successes have facilitated growth in R&D activities and, in 2016, they began developing new medical biomonitoring smart garment technologies.

Solution/service description

"KYMIRA has developed a multi-sensor smart clothing solution, integrating multi-electrode electrocardiogram (ECG) recording, haemodynamic monitoring, non-cardiac physiological monitoring (e.g. activity), and artificial intelligence (AI) biodata interpretation. The resulting long-term medical smart garment will assist in diagnosing early-forming, transient cardiovascular phenomena accurately and automatically.

Pre-production smart garment prototypes from KYMIRA, demonstrated to medical practitioners and sports professionals has been met with tremendously positive feedback, with each potential user expressing the multitude of ways in which this approach could radically change their industry.

Features/product description

Gold-standard' cardiac recorders (e.g., Holters and Implantables) are widely used in clinical practice with +2million recorders prescribed annually across the EU. However, these are expensive, time consuming to fit/maintain, and are in short supply (+1 month waiting times).

Furthermore, recordings require interpretation, which can be inaccurate even when analysed by expert clinicians, causing further delays in diagnosis/treatment, and in turn causing further delays in prevention.

Moreover, the patient experience is negative for both ambulatory and implantable recorders: patients find them unsightly/inconvenient with implantable recorders requiring a chest incision, risking bleeding, infection and scarring. The proposed solution will be positioned as a more cost-effective and higher diagnostic yield (targeting >90%).

Addressing these challenges, KYMIRA have been developing a proprietary medical smart garment monitoring platform since 2018 offering the necessary step-change in non-invasive continuous data-collection, without interrupting patients' activities, and further allowing for re-usability and eventual product recycling at end-of-life. The garment is currently able to undergo 20 washes through a standard washing machine, with the aim to extend this to 50 washes per garment.

"The solution is unobtrusive and comfortable to wear, providing a platform for integration in many different garment types across numerous applications. It consists of a mass-manufacturable, easily customisable network of flexible electronic strip circuits which can be distributed around a smart garment during manufacture. Cost reduction to accelerate market uptake is a key project aim.

The project builds on prior credible research and development work by KYMIRA in conjunction with UK-based partner hospitals and Trusts such as Imperial College Healthcare and Guys' and St Thomas's NHS Trusts. Prototypes have undergone pilot testing within the expected clinical environment with patients providing further positive feedback on the technology, generally stating that smart garments offer a more compelling monitoring solution over current available options.

The global pandemic makes such a solution even more desired than before. As hospitals are strained for capacity, innovations that could help reduce clinician time and improve the quality of life of patients are highly appreciated and expected.

Data collected from KYMIRA's smart garment is stored on in cloud-based system and displayed on a device dashboard, enabling patient monitoring. Through the proposed solution, clinicians will be exposed to CVD precursors and able to provide diagnosis and treatment in a timely manner, shifting the healthcare focus to prevention rather than reaction.

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Contact

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