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RAM Group, IGaN bring advanced body monitoring system

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Superior neural network analysis for continuous monitoring combines Artificial General Intelligence (AGI) and compound semicon tech to advance healthcare innovation



Singapore-based technology providers RAM Group in multiparametric, single-point bio-electro-mechanical quantum sensor technology and IGSS GAN Pte Ltd (IGaN) fabrication experts in 8” gallium nitride on silicon (GaN-on-Si) have announced the world’s first clinically-validated Quantum Device Sensor (QDS) providing non-invasive, continuous whole-body organ system monitoring.

Billed as one of the most advanced sensors of its kind for an array of healthcare applications and wearables, QDS integrates proprietary Artificial General Intelligence (AGI) engine to produce a new level of data sets with the potential to aid immediate and hyper-accurate diagnosis of diseases or disorders in the heart, lungs and other organs.

QDS’ advanced sensing platform utilises GaN-on-Si compound semiconductors alongside a set of proprietary materials to create a sensor that reportedly is over ten thousand times more sensitive in signal-to-noise ratio than anything currently in the market. Leveraging IGaN’s proprietary GaN 8” (200mm) fabrication technologies, QDS taps into existing silicon infrastructure to deliver superior performance that is at least comparable if not at a significantly reduced total cost, allowing global commercialisation at scale.

Among the first commercially-ready healthcare application is the quantum Cardiorespiratory Monitor, or qCRM™ which houses the AGI-powered QDS sensor inside a comfortable wearable device to generate comprehensive cardio-pulmonary diagnosis and analysis including cuff-less blood pressure. This is done by converting signals from QDS’ Single-Point Monitoring (SPM) chip into unified waveforms that represent comprehensive electrical and mechanical functions and processes of the heart and lungs, as well as intestinal motility, and the interrelation of neurology to the cardiopulmonary system.

The QDS bio-signal analytics goes beyond current technologies that monitor optical fields or mechanical effects like the photoplethysmography (PPG) sensor found in all wearable smartwatches measuring the indirect mechanical movement of the

cardiac-cycle alone.

With the ability to not only detect the smallest changes in energy states, it analyses multiple signals in the body and the causal connection between these bio-signals through a single sensor that can do the work of multiple diagnostic devices. QDS enables more robust machine learning through a range and depth of data previously inaccessible, creating an ecosystem to deliver patients the best odds and cost savings from unnecessary procedures, reducing emergency room visits and hospital readmissions.

RAM Group is working to advance its potential by expediting clinical trials, allowing new therapies to reach patients faster. The first QDS product is expected to be commercially available in the fourth quarter of 2020. Its compound semiconductor-based technology facilitates multi-parametric (HR, RAP, LAP, BP, BR)1 and multi-variant (heart mechanical functions, cardiac-output, circulatory dynamics, cardiac electrophysiology) analysis, and consumes significantly less power.

With the ability to measure the smallest interactions in a multitude of mediums, QDS leapfrogs quantum sensing technologies that tap into $23B multi-sector opportunity in 2020 spanning the broadest of applications ranging from health and wellness, food safety, oil and gas, defence, communications, smart cities and homes and automotive.