

At Shimmer, we have industry leading capabilities and extensive knowledge based on years of experience working on wearable sensing solutions. This allows us to realise predictable outcomes in terms of the development and scope of project proposals. We provide initial concept renderings at proposal stage while being able to identify critical gaps or customer driven decisions from the beginning. To do this, we utilize a large network of academic contacts and thought leaders within our Research customer base, for a deeper strategic insight.

Proposal and Requirements Overview

Shimmer was approached by a global Sports Analytics provider to develop and build a multi-parameter sports performance monitoring solution. The system acquired player position speed, heading, heart rate, dynamic stress load along with the number and magnitude of acceleration, deceleration and rotation rate changes during training routines or game-play. The complete system is capable of simultaneously logging, streaming and analysing almost a quarter of a million numbers every minute from a team of 11 football players.



Initial Development and Proof of Concept



To facilitate proof of concept during the initial phase, Shimmer provided a proxy system running on 2 of Shimmer's wireless sensor devices to show data capture and streaming capability prior to significant development expenses. During development, Shimmer's capabilities provided a number of advantages and benefits to the customer including:

- **Virtual (on-screen) prototyping** and integration of mechanical and electrical design for optimization of the entire electronics assembly
- **Low-cost, quickturn development builds**, even in low unit quantities due to a strategic relationship with a state-of-the-art electronics manufacturing team resulting in significant savings
- **Interactive feedback from production line** with regard to price and design for manufacturability
- **As-needed resources for specialized review:** RF/Antenna design, regulatory and compliance detail
- **Design in components from proven suppliers** for batteries, sensing technology, and PCB to avoid risk
- **Leveraged Shimmer's extensive experience** working with the microcontroller, sensors, radio chip and other peripherals to quickly develop proof of concept code

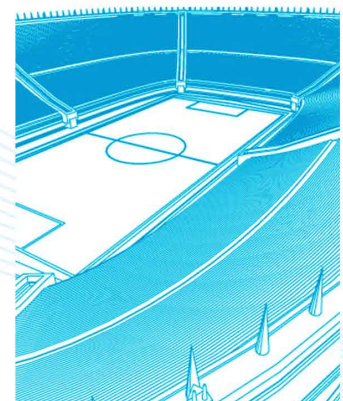
More Effective Market Ready Solution for Improved ROI

Some unique examples from this recently completed project include a 24-unit charger/dock which was validated with just 2 units built - saving customer materials, fabrication, and automated assembly charges. Our experienced engineers were also able to evaluate and rejected OEM heart rate chest strap receivers based on robustness of signals and supply chain risk. Quality issues with an off-shore supplier prompted in-house receiver design effort to avoid product compromises going forward.

Building and Testing - Packet Success Rate of 99% or Better

Assembly isn't an afterthought at Shimmer. We analyze and implement yield improvements from each stage of pilot production in a series of continuous design improvements. For example, Shimmer provided customized PCB artwork and design rules for low volume production of parts that are more typically used in a high volume application, which saved on cost and materials required for hundreds of prototypes. Test and analytic scripts were developed to benchmark performance and test functionality of each built unit. Quality issues with an off-shore supplier prompted in-house receiver design effort to avoid product compromises going forward.

Upon initial build completion, Shimmer generated worst-case test scenarios and validation from hardware through end-user application. This process led to class-leading streaming performances with a robust long-range 2.4GHz communication system on the product with a packet success rate of 99% or better despite a 100Hz bandwidth on 11 sensing channels per unit (121 sensing channels per system!).



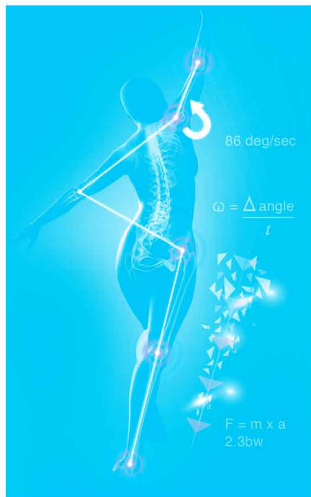
Sense the Opportunity...

Wireless sensing allows data to be captured like never before. Today sports teams, sports organisations, athletes, and analytics providers are implementing wireless sensing solutions to deliver better data, greater information, improved accuracy, and to upgrade existing systems and solutions, making sport more analytics focussed and more accessible for fans.

As the industry moves towards data and analytics driven models, the adoption of wearable and connected devices is driving the next wave of sports analytics, player performance monitoring and management. Shimmer has been at the heart of wearable wireless sensing since its inception, pioneering technology and new applications, to realise product development and real world deployments.



Shimmer Enterprise Services - Sensing Solved.



Shimmer offers consultancy, customisation and contract services. Through our robust technology and proven expertise in developing wearable wireless sensing applications, companies can realise an industry leading solution, fast track to market, reduced development cost and higher ROI.

- **Cuts development cost and time by up to 80%**
- **Mature, robust, reliable, market-ready technology**
- **Enables accurate, scientifically reliable data to provide greater depth of information and insight**
- **Proven world-class engineering and application development expertise to tailor a solution to your end user requirements**
- **Extensive industry leading experience and expertise from wireless sensing development to real world deployments**
- **Easily integrates with existing systems and products**

Working in partnership with Shimmer, the world's leading Universities, brightest start-ups to Fortune 500 companies are meeting the challenges of size, wearability, reliable communications and low power consumption.

Contact Us

Shimmer is based in Dublin, Ireland, at our worldwide manufacturing and sales headquarters. The company continues to pioneer wearable wireless sensing development at our Boston R&D office, with our world class team of hardware and software engineers. If you're interested in working with us or wish to further discuss your application idea please get in touch at any of the below channels.

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