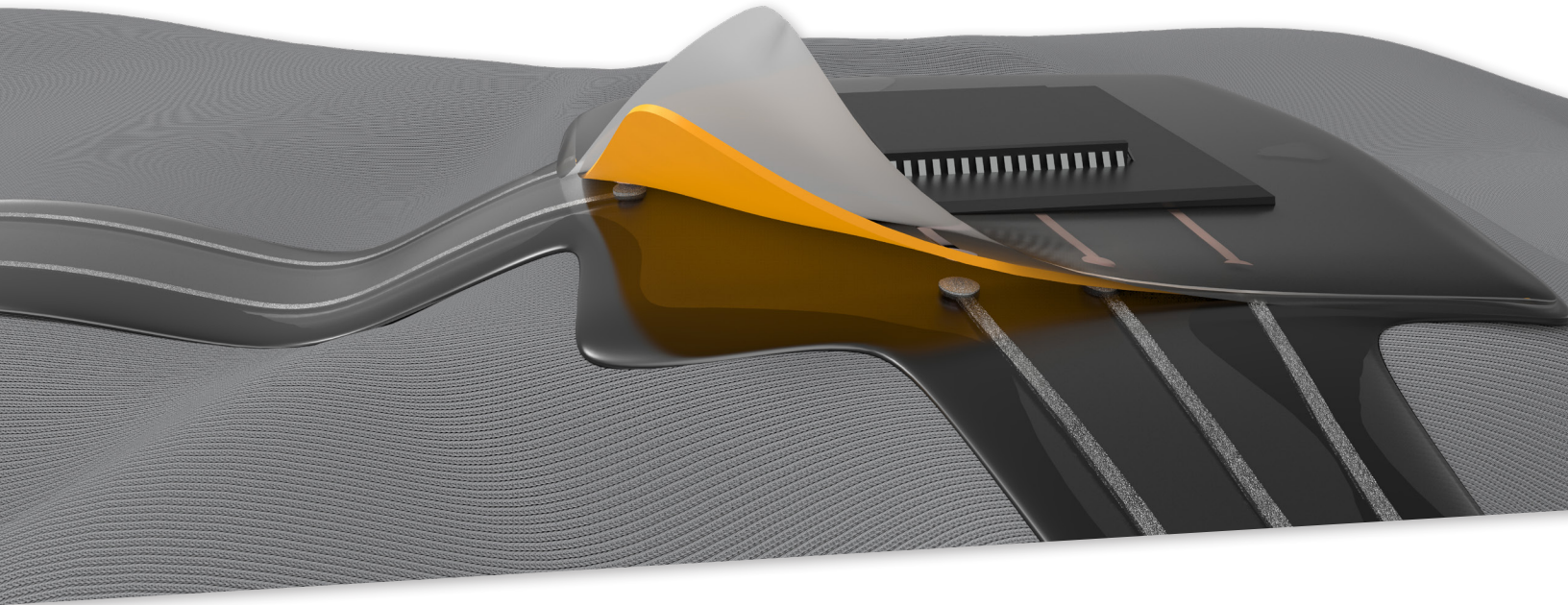


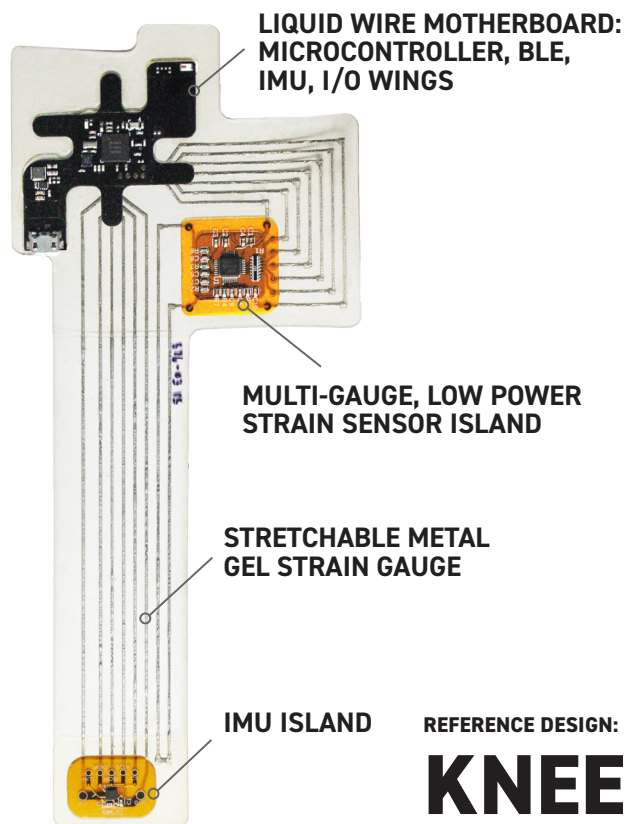
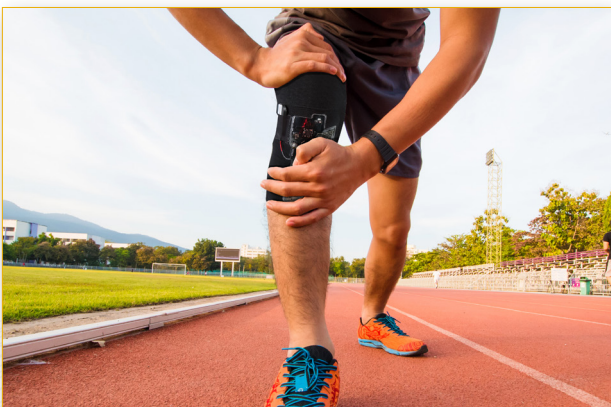
# REMOTE MUSCULOSKELETAL MONITORING WITH LIQUID WIRE'S MSK+ PLATFORM™



## DIGITIZING BODY MOVEMENT WITH NEVER BEFORE SEEN COMFORT AND PRECISION

Past solutions for digitizing body movement were limited by outdated sensor technology relying on estimations of joint movement from camera-based systems, smart watches, or accelerometers, with rigid electronics materials that were uncomfortable to wear and restrictive. **Liquid Wire's MSK+ Platform** is built with new stretchable fluid circuit technology, enabling continuous direct monitoring of body movement with sensors so thin and stretchable they're essentially unnoticeable to the wearer.

### ▶ A MODULAR MSK PLATFORM THAT CAN BE BONDED INTO THIN FORM FITTING APPAREL





## A STEP BEYOND PAST SOLUTIONS: MSK+

Liquid Wire's musculoskeletal monitoring system is completely modular. We can configure it to address any joint, and integrate any sensor currently available using standard surface mount form factor. Our circuit technology also acts as a linear strain sensor, enabling us to pick up strains and pressures small enough to distinguish contraction of individual muscles, movement of tendons, and swelling or deformation anywhere in the joint.

Platform customization is made simple with our Core Component Blocks™ architecture, which offers customers a menu of sensors and components to easily incorporate into their Liquid Wire wearable monitor, including strain sensors, IMUs, bluetooth output, and more.

Our washable, textile-integrated wearables enable wireless real-time tracking of 3D motions far beyond the capabilities of any other technology. This includes detection of natural hand movements through monitoring fine flexion of joints in individual fingers, precise to within a fraction of a degree, all hosted in the same lightweight textiles used in performance athletic apparel.



## CUSTOMIZABLE TO MONITOR ANY BODY PART WITH VIRTUALLY ANY TYPE OF SENSOR

Joints are the most dynamically mobile parts of a body, making them incredibly difficult to measure. Liquid Wire's technology is designed specifically from the ground up to twist, bend, stretch and flow along with the torsions and stresses experienced by joints. With direct instrumentation, our platform picks up far more than the range and rate of motion estimates created by smart watches or camera based tracking systems.

CAPABILITIES	LIQUID WIRE MSK+ PLATFORM	SMART WATCHES	ACCELEROMETER STRAPS	CAMERA TRACKING
Multi-vector physiological data	✓	✗	✗	✗
Muscle and tendon flexion	✓	✗	✗	✗
Range and rate of motion	✓	✗	✓	✓
Gait analysis	✓	✗	✗	✓
Limb position	✓	✗	✓	✓
Body position (standing, sitting, prone, supine)	✓	✗	✓	✓
Freedom to move anywhere without being tethered	✓	✓	✓	✗
Direct sensing of joints	✓	✗	✗	✗
Configurable and expandable to host virtually any sensor	✓	✗	✗	NA



## TECHNOLOGY

The MSK+ Platform combines Liquid Wire's cutting edge fluid phase conduction technology with modern cloud based data analytics to provide customers with a full, high fidelity transduction of physiological data into actionable digital information.

A new technology for electronics: Liquid Wire uses a proprietary fluid phase conductor called metal gel to produce an electronics architecture that reproduces the functionality of a traditional PCB, but in a stretchable membrane that can be bonded onto any textile substrate.

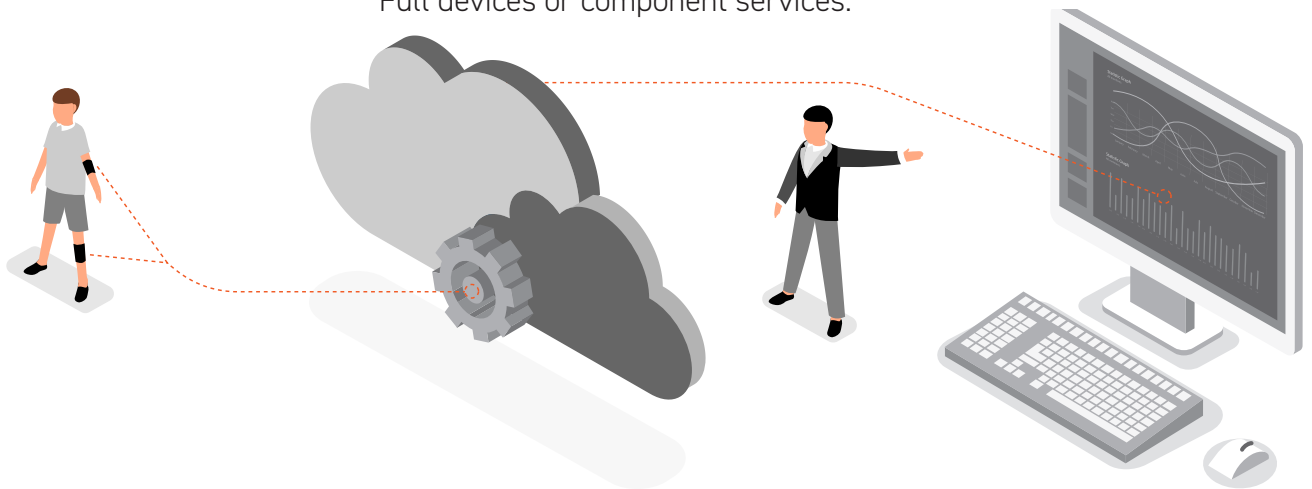
metal gel is a liquid metal eutectic precursor alloy of Gallium-Indium-Tin. We use it to build highly stretchable traces and vias for interconnecting sensor networks, processors, and transmission nodes into a single system that works seamlessly with any mobile device.



For more information visit our website and download our [whitepaper](#) on the underlying technology.

## LIQUID WIRE MSK+ SERVICE ARCHITECTURE

Full devices or component services.



**1** HARDWARE PLATFORM GATHERS MSK DATA

**2** LIQUID WIRE MSK ENGINE AGGREGATES THE DATA

**3** CUSTOMER UTILIZES THE DATA

## CLOUD TO CLOUD EXCHANGE FOR CUSTOMER PROVIDED SERVICES & ADMINISTRATION



Liquid Wire's metal gel fluid circuitry is by far the most robust and efficient stretchable electronics technology in the world. We know because we've partnered with the leading names in stretchable electronics to create standards stringent enough to actually test the limits of our technology. For millions of fatigue cycles at elongations up to 50%, Liquid Wire wearable architectures are truly in a class of their own.

## OUR PARTNERS

