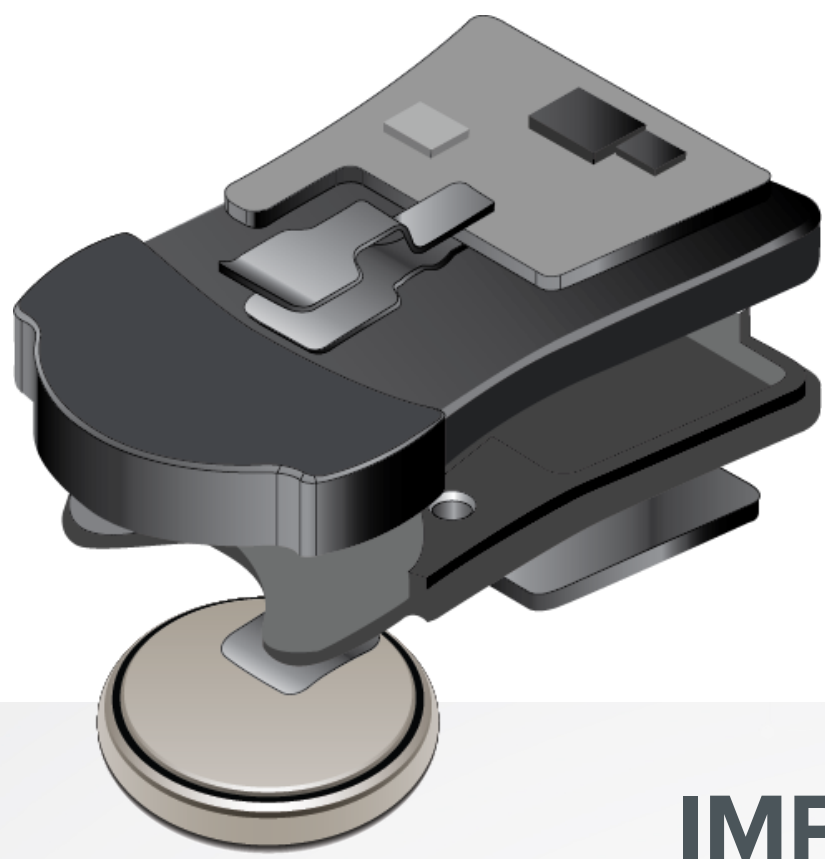# IMPACTSENSE

NEXT GEN WEARABLE TECH FOR WORKPLACE SAFETY & WELLNESS

MEGA IN·TECH

RISK ASSESSMENT AND REHABILITATION

Impact Sense is the next generation of wearable tech for the workplace, which will provide accurate risk assessment and rehabilitation data and analytical key metrics allowing companies to proactively maximize employee engagement, productivity, and reduce risk.

The idea behind Impact Sense is to integrate safety and technology to monitor employee activity levels, predict slips, trips and falls and track various other safety risks. And with this valuable data, employers can proactively, not reactively, identify risks to ensure employees are safe and healthier, while solving major pain points for companies themselves, such as healthcare and insurance costs.

IMPACTSENSE DESIGN

Outer Case

The case is being designed to provide an unobtrusive experience in any application. The sensor casing will consist of an impact modified ABS plastic, providing durability and protection for the device. The form factor has been field tested within an insole, and this application was found to be comfortable, with little to no impact on the functionality of the PPE.

Connectivity

While being worn by the user, the ImpactSense will have no connection requirements, but instead stores the data internally until a connection can be made. This provides the user with the flexibility to perform a variety of activities throughout a shift, without the need for reliable connectivity. Once a shift has been completed, and while the device is charging, data will then be transmitted via Bluetooth in combination with WIFI/Cellular communication to the Cloud system.
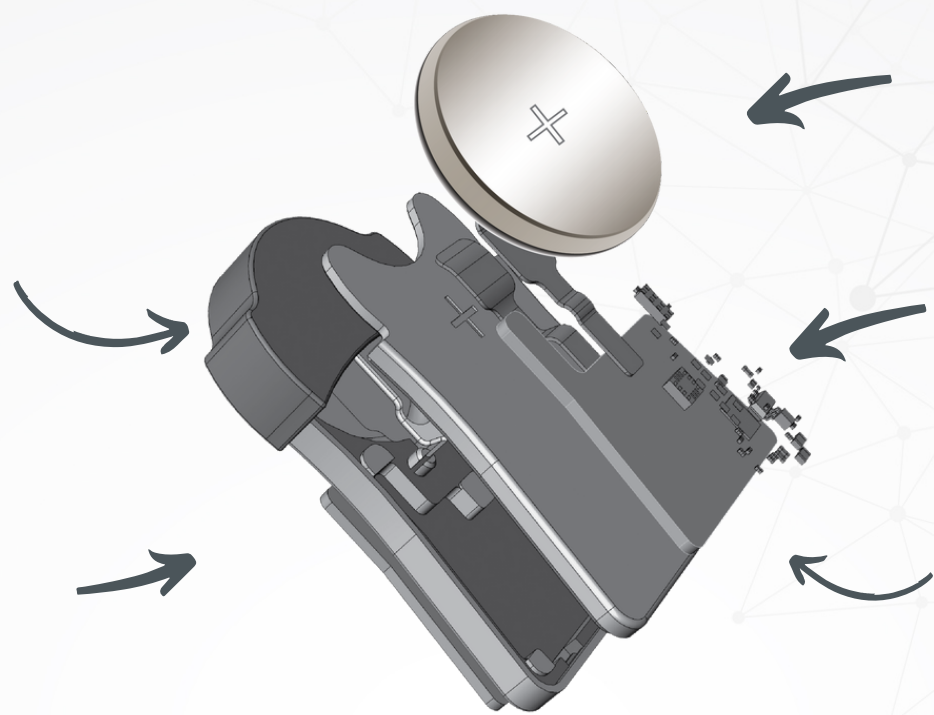
Battery

A coin cell battery is used to power the ImpactSense for consistent and continuous service. As a power source, it will allow the device to have the longevity to function throughout the user's shift.
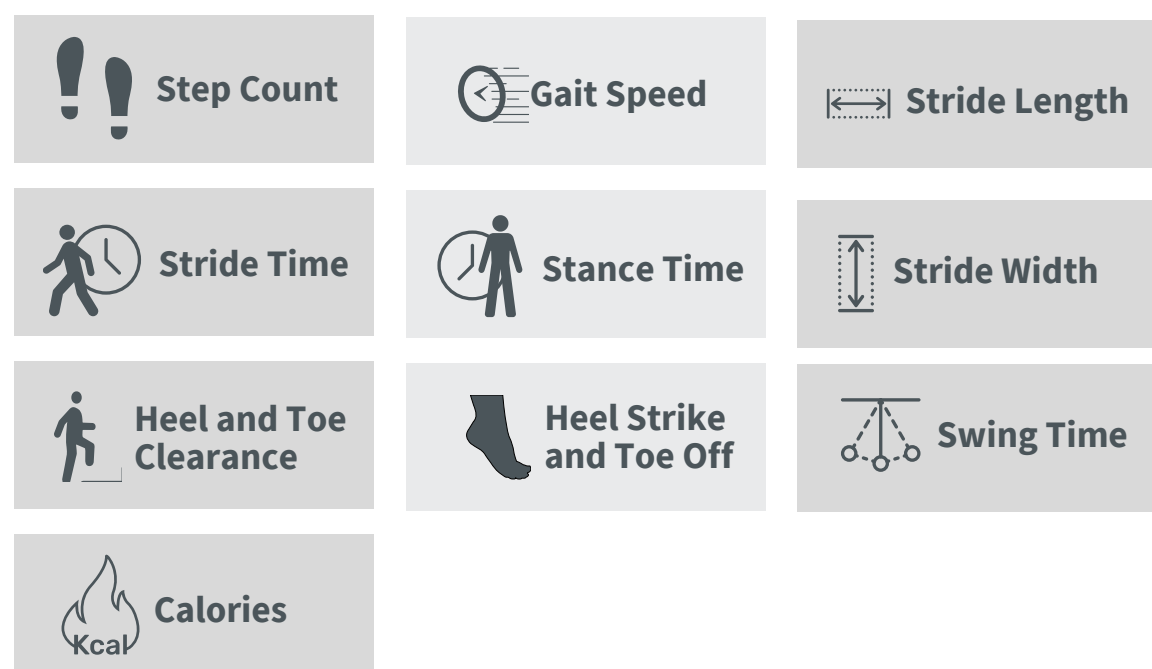
Memory

The memory storage within the ImpactSense will be large enough to store the collected data for a single shift. This will allow the user to wear the device throughout the shift, without having to upload the collected data till the end of day.

Sensors

The device consists of a MEMS 9-Axis Inertial Measurement Unit (IMU) motion sensor. The IMU will contain 3 sensing components- a gyroscope, accelerometer, and magnetometer. This sensor will be capable of measuring accelerations, angular rotations and gravitational fields that are consistent with human motion and the environment.

10 Basic Metrics

Essential for companies to design and integrate technology to understand key movement information of their workforce.

Step Count	Gait Speed	Stride Length
Stride Time	Stance Time	Stride Width
Heel and Toe Clearance	Heel Strike and Toe Off	Swing Time
Calories		

8 Advanced Metrics

8 key advanced metrics which will help companies to proactively predict the risk of potential injuries.

Activity Classification	Activity Time
Foot Roll (Pronation-Supination)	Symmetry (Left vs Right)
Sit/Static Standing Activity Ratio	Posture Analysis
Fall Prediction	Overall Risk Score