The Next Step in PPE: Remote Management using Smart, Connected Work Boots

The Internet of Things (IoT) brought on the revolution of wearable, connected devices - yet, for industrial and remote workers these devices are still limited by form factor, battery life, and weight. Managers whose employees are frequently in hazardous and unpredictable environments need an efficient way to monitor the status and location of their employees.

Situation

There are over 10M workers in the US that operate in dangerous, dynamic, and complex environments. Operations teams must keep their employees safe and productive, but many industrial managers experience challenges. Remote workers have poor accountability, arduous check-in requirements when off-grid, and there are general inefficiencies on production floors and in warehouses that are difficult or expensive to catch. High risk worksites amplify these challenges, but embedding connected technology into PPE offers a novel, effortless solution for industrial and remote management problems.

Solution: Command and Control Platform

SolePower developed a proprietary sensor platform. When installed in standard, OSHA-approved work boots, the system measures indoor and outdoor position, step count, speed, time spent in work areas, (and fatigue, heart rate, and dehydration risk in the future). Data is delivered to a front-end visualization for managers to gain awareness of the workflow and status of their workforce anywhere in the world.

U.S. ARMY · TOYOTA · Carnegie Mellon University · SRMax

SolePower Inc.

HQ: Pittsburgh, PA

www.SolePowerTech.com

Industry

- Manufacturing
- Security
- Warehousing

Wearable Solution

- Connected Work Boots
- Dashboard

Function

- Remote Management

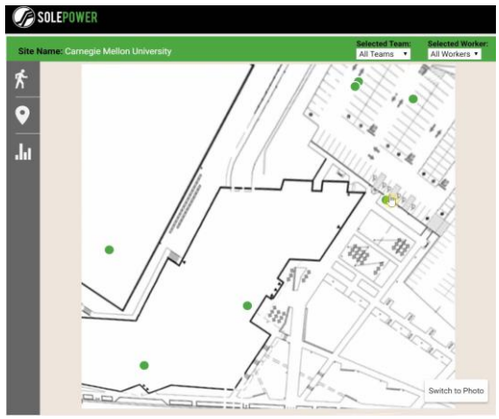
Use Case

- Measure safety & productivity metrics using current PPE

Benefits

- Workflow Transparency
- Improve Safety Awareness
- Enhance Training
- 100% Accountability
- Simplify Management

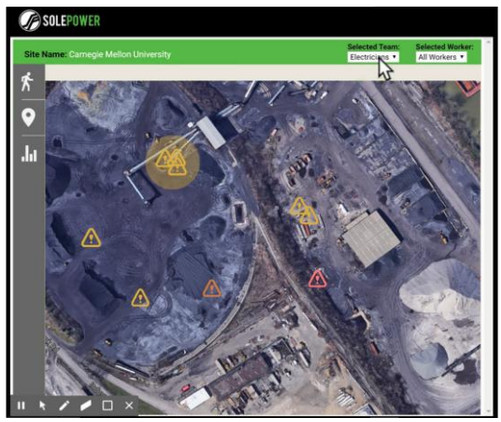
SmartBoots combine a variety of functionalities onto a single, compact, power efficient platform. Boots aren't lost, taken off, or stolen during the day. There are no extra requirements to carry or check-in equipment daily. Managers can get the benefits of a wearables by continuing to purchase familiar PPE. The location, motion, and status data can be used for:



Remote Oversight: Real-time location from anywhere in the world. Initially outdoor location and (with setup) indoor positioning. Report location in emergencies, use for lone-worker check in, or monitor from afar.

Worker Insights: Reports steps, lifts, and crew speeds per day to determine which tasks are inefficient or unsafe. Info will later be used to predict user fatigue, and identify waste in motion-heavy processes.

Accountability: Determine time spent in hazardous areas. Use visuals for training purposes, or for compliance after incidents. Generate automated reports for time on site.



Site Interaction: Workers' boots will connect to forklifts, trucks, and other vehicles to prevent struck-bys. Determine time spent near other required PPE or hazards.

Accepting requests for customized pilots
For more info: cindy@solepowertech.com

Company

SolePower was founded out of Carnegie Mellon University Engineering. The team of former NASA and manufacturing engineers successfully delivered test units to the US Army under two consecutive contracts. SolePower is partnered with SR Max, a leading safety and slip-resistant footwear supplier. The team received a Forbes Energy Award, Toyota Invention Award, and Popular Science Invention of the Year Award. SolePower's goal is to revolutionize the footwear industry, and to solve key power issues in mobile sensing across sectors.

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WHAT'S EMBEDDED?

Communication

- 100m radius Sub-GHz RF
- Cellular 4G Module
- 30m radius Wifi

Location

- 1m accuracy GPS
- 1m accuracy UWB
- 9-axis IMU

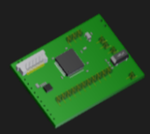
Control

- Low Power STM MCU
- 100 mW Kinetic Charger

Sensors

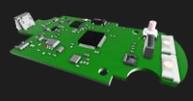
- Acceleration
- Step Count
- 50N FSR (Pressure)
- -250-410℃ Thermocouple
- Altitude
- RFID Tag
- Ports for Customization

In the Collar:



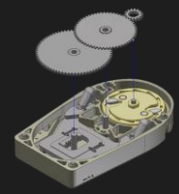
- Signals Board

In the Midsole:



- Control Board

In the Midsole:



- Power Source