TECH OFFER

Worksite Safety Integrated Solution

KEY INFORMATION

TECHNOLOGY CATEGORY:
Infocomm - Internet of Things & Wearable Technology

TECHNOLOGY READINESS LEVEL (TRL): TRL6
COUNTRY: SINGAPORE
ID NUMBER: TO174336

OVERVIEW

In industries such as construction, manufacturing & warehousing, workplace injuries and fatalities often occur as a result of Slips, Trips and Falls (STFs) or use of machinery by unqualified workers. This technology offer is a small form factor wearable sensor capable of continuously tracking the worker's motion and location within a given zone. STFs generate signature movements in contrast to other activities, e.g., jumping off a vehicle, thus, these can be differentiated. A safety alert is triggered in real time to monitor personnel in conditions where there is inactivity following a fall movement. Early warning signals are also triggered if employees occupy hazardous stations with a risk of falling from a significant height. Each sensor is associated with a given worker and his/her skill profile. This allows for digital attendance tracking and lets supervisors track if workers are operating in prohibited areas or working with equipment that they are untrained for. Gateways installed at the worksite allow for location tracking for individual workers via the sensors. This allows for multiple applications, e.g. worker numbers and time spent near/in accident hotspots can be captured and continuously monitored. In the case of COVID-19 mitigation, safe distancing measures can also be enforced. This technology offer can be integrated into Integrated Construction Management Systems.

TECHNOLOGY FEATURES & SPECIFICATIONS

- Small wearable device, Bluetooth Low Energy (BLE) 5.0 enabled
- 2 years' battery life
- Accelerometer and gyroscopic sensors within the device capture each micro-event, e.g., linear and rotational free fall, angle of impact, impulse energy of impact and orientation.
- Different movement profiles can be created for different categories of workers to capture idiosyncratic movements for particular types of work, as well as reduce the chances of false positives.
- Location tracking
- Data is transmitted at high speed to the cloud via proprietary Internet of Things (IoT) protocol
- Mobile tracking app available in iOS and Android
- Streaming analytics are available via the accompanying tracking platform.

POTENTIAL APPLICATIONS

This technology offer is primarily targeted for workers in industries with higher incidences of workplace accidents or have pressing safe distancing/worker location tracking requirements. It is not necessarily restricted to construction or manufacturing.

The same technology can potentially be applied to any population of heightened risk of STFs, e.g. unsupervised elderly.

MARKET TRENDS & OPPORTUNITIES

Workplace health and safety is a domain that received greater attention in recent years. Anecdotal evidence suggests that not many companies have adopted STF detection or worksite injury reduction technologies in general, which means that there is an untapped pool of potential customers.

BENEFITS

This technology is easy to implement, as not a lot of hardware needs to installed (e.g. no video cameras). The small form factor of the device makes it easy for workers to wear them during their everyday work, with assurance that in the case of accidents, help will be available more quickly. Safety officers can also detect locations with higher incidences of near misses and take remedial actions to improve work site safety. Also, along with the core use case of STF, the technology also provides benefits like digital attendance, zone compliance and station productivity monitoring.