



## Using Bluetooth Technology to Prevent Struck-By Injuries on the Jobsite

### **Improving Work Zone Safety Utilizing a New Mobile Proximity Sensing Technology**

*Yong K. Cho, JeeWoong Park, and Xiaoyu Yang, CPWR Report, August 2017; Automation in Construction, August 2017.*

#### **Overview**

Struck-by injuries are one of construction's "fatal four" leading causes of death on the job; collisions between heavy equipment and workers on a busy jobsite are all too frequent. To reduce this risk, researchers designed and tested a proximity sensing and alert system using Bluetooth Low Energy (BLE) technology. The system monitors the location and direction of moving equipment and alerts both equipment operators and workers on the ground to collision hazards.

#### **Key Findings**

- Experiments in controlled environments proved the system could reliably alert operators and workers when a wheel loader came within ten meters of a worker on foot.
- The alert system performed reliably in jobsite field tests using other types of construction equipment.
- An adaptive signal processing algorithm ensured that the system performed consistently even when the equipment approached the worker at relatively high speeds (10 mph).
- Equipment operators and pedestrian workers who participated in the field tests considered the system practical and easy to use.

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#### **See abstract:**

<http://bit.ly/2xBtFW>

#### **Read report:**

<http://bit.ly/2gTfaq8>

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