



**IPLOCA New Technologies Award sponsored by
BP 2019**

**IoT Enabled Enterprise Solution To
IMPROVE CONSTRUCTION SAFETY & PRODUCTIVITY**

INTRODUCTION



CCC in collaboration with WakeCap utilized Internet of Things (IoT) to create Smart Construction Helmet that connects workers at Construction site using Mesh Network to Improve Safety and Productivity.

Key Benefits:

- **Connecting Worksites**
- **Quantify Labor Productivity**
- **Automate Attendance**
- **Improve Safety**
- **Unauthorized Access Zoning Alert**
- **Effective Emergency Evacuation Plan**
- **Real-time Environment Monitoring**



What is WakeCap?

WakeCap is a solution that connects workers by simply wearing a hardhat!



WakeCap is a **safety & tracking** device integrated with construction helmets to provide real-time, cloud-based visibility into worker **attendance, location and accidents**

“

First-of-its-kind solution to **overcome** all the challenges in digitizing the construction sector

ABOUT THE PROJECT



CCC deployed WakeCap on one of its projects in the UAE. Using WakeCap's solution, CCC's management is now able to achieve total worksite visibility over 600 workers, improve communication and injury response times and reduce time spent on collecting data on worker attendance, location and project progress.

Through WakeCap's Technology the following Use cases can be achieved:

- Automate attendance
- Improve and plan manpower utilization
- Take better actions with the data collected through the system
- Evacuate worksites effectively
- Detect incidents
- Prevent Unauthorized Access



HOW IT WORKS

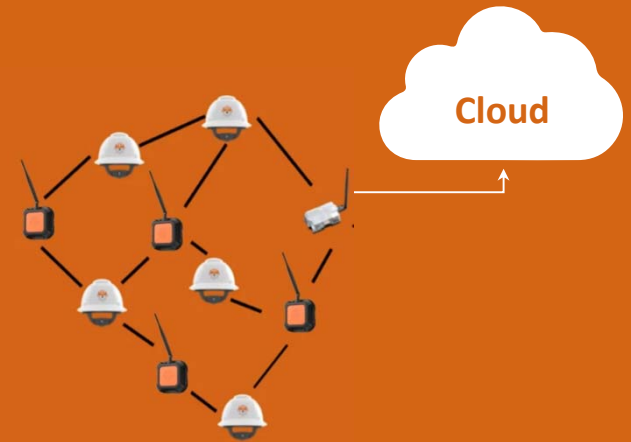


Integrated Sensors



Wireless Mesh-Network

Sensors are integrated seamlessly with a construction hardhat without compromising the structural integrity of the helmet



Nodes are placed across the jobsite to **expand connectivity** using a proprietary mesh network and to stream to the cloud via a gateway

CONCLUSION



CCC has successfully maintained its position as one of the leaders in the engineering and construction industry by innovating both externally and internally. CCC's culture of innovation drives better, faster and leaner business results achieving good sustainability impacts.

Utilization of IoT technology to enhance safety and performance was always on CCC's innovation roadmap. Investing in the new WakeCap technology demonstrated enhancement in workplace environment as labor and employees are all connected to a project control system with no extra device to carry and no need for internet as they are all connected through a mesh network described above. The numbers discussed in this document show the success of applying incremental innovation to enhance safety and productivity.