

# Personnel Tracking & Construction Worker Safety

## Mesh Systems Reference Architecture



**Sensors / Connections**  
Our solution helps construction companies and general contractors keep work sites secure by adding beacon tags to worker badges/IDs.

**Edge Intelligence**  
A mesh of easy to deploy, cellular enabled readers detects the tags and sends data to the cloud for real time worker location calculation.

**Cloud Services**  
Microsoft's Azure cloud provides a scalable, resilient, secure platform for your site and worker data and for our solution components.





**Cloud Intelligence**  
Custom logic modules in the cloud determine each worker's zone and location and integrate the data into project management systems.





**Mgmt. Experience**  
Your team uses Power BI in the browser to quickly see worker locations and figure out how to increase training and mitigate risk.






-  CONSTRUCTION WORKER AND PERSONNEL
-  KEY ZONES ON SITE
-  MULTIPLE SITE ENTRY / EXIT POINTS

-  BEACON INTEGRATED INTO BADGE OR CARDKEY
-  BLE BEACON TAG ON EACH ASSET COST BETWEEN \$5-15 PER TAG
-  3-5 YEAR BATTERY LIFE DEPENDING ON TAG SIZE

-  UP TO 20 BLE READERS PER GATEWAY
-  UPLOAD OVER CELLULAR CONNECTION
-  BLE GATEWAY ON MESH ADD GATEWAY, READER AND TAG INFO TO DATA THEN UPLOAD
-  BLE READERS IN A MESH MOUNT ON A POST, NO SPECIAL ANY WIRING, JUST 110VAC
-  20-50M RANGE, MORE W/ BT5 (OPT)
-  20M SPREAD, 1200 SQ MTR COVERAGE

-  AZURE IOT CENTRAL WITH: DEVICE MGMT/COMMS, STREAM PROCESSING AND STORAGE
-  CONTINUOUS DATA EXPORT TO BLOB STORAGE FOR COLD STORE
-  AZURE SQL DATABASE FROM AZURE DATA FACTORY WITH DATA CLEANUP / FILTER LOGIC
-  REST API SITTING POWERED BY AZURE API MANAGEMENT

-  GATEWAY PROVISIONED BEFORE SHIPPING, READY OUT OF THE BOX
-  CALCULATE CLOSEST READER BASED ON SIGNAL STRENGTH, DETERMINE WORKER LOCATION
-  PUSH WORKER LIST AND BADGE ASSIGNMENT FROM PROJECT MGMT SYTSEM
-  PULL WORKER PRESENCE ON JOB SITE AND CURRENT ZONE INTO PROJECT MGMT SYSTEM

-  POWER BI BUILT-IN AND CUSTOM DASHBOARDS AND REPORTS
-  RECENT WORKER ENTRY/EXITS
-  WORKERS CURRENTLY ON-SITE
-  WORKERS CURRNETLY OFF-SITE
-  WORKERS LISTED BY ZONE

-  SITE PROJECT MANAGER
-  SAFETY OPS MANAGER
-  SITE FOREMAN
-  SITE MANAGER
-  OPERATIONS MANAGER