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RFID in Harsh Environments

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Extronics
Enhanced Worker Safety in Process Industry Environments:

Hybrid Location Technology is the complete solution!
CUSTOMER REQUESTS

• Track all my people and assets to sub 1 metre accuracy in 3D
• Battery life should last at least 5 years, better 10!
• The solution should be low cost with little or no infrastructure to deploy it
• It should work in heavy metallic and very harsh environments
• 99.999% up time for the complete RTLS system
PROCESS INDUSTRY WORKER RISKS
OPERATIONAL CHALLENGES

- Confined Space Entry
- Worker Safety
- Contractor Accountability
- Workflow Efficiency
- Asset Management
- Lone Worker Protection
ENVIRONMENTAL CHALLENGES

- Sites cover large areas
- Indoor and outdoor spaces
- Highly metallic structures
- Hazardous/ non-hazardous areas
- Number of workers on site can vary day to day
# GEOLOCATION TECHNOLOGIES

<table>
<thead>
<tr>
<th>Technology</th>
<th>Typical Accuracy</th>
<th>Typical Range</th>
<th>What's it Suitable For?</th>
<th>Battery Lifetime</th>
<th>Things to Consider</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPS</td>
<td>&lt;5m</td>
<td></td>
<td>Person, Home, Vehicle</td>
<td>Minimal infrastructure, good accuracy.</td>
<td>Battery consumption is high. Indoor location not reliable.</td>
</tr>
<tr>
<td>Wi-Fi</td>
<td>5 to 25m</td>
<td>&lt;150m</td>
<td>Person, Home, Vehicle</td>
<td>Use existing Wi-Fi infrastructure.</td>
<td>Dense infrastructure may be required for 5m accuracy.</td>
</tr>
<tr>
<td>802.15.4 RSSI</td>
<td>5 to 25m</td>
<td>75m</td>
<td>Person, Home, Vehicle</td>
<td>Battery life.</td>
<td>Dense infrastructure required.</td>
</tr>
<tr>
<td>UWB</td>
<td>&lt;1m</td>
<td>&lt;150m</td>
<td>Person, Home, Vehicle</td>
<td>Great accuracy and battery life.</td>
<td>Dense infrastructure required.</td>
</tr>
<tr>
<td>BLE - RSSI</td>
<td>10m</td>
<td>&lt;75m</td>
<td>Person, Home, Vehicle</td>
<td>Battery life, beacons battery powered.</td>
<td>Maintaining beacons.</td>
</tr>
<tr>
<td>BLE - AOA</td>
<td>&lt;1m</td>
<td></td>
<td>Person, Home, Vehicle</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passive RFID</td>
<td>&lt;3m</td>
<td>&lt;3m</td>
<td>Person, Home, Vehicle</td>
<td>Low cost, no battery.</td>
<td>Choke point location only, read reliability not suitable for personnel safety.</td>
</tr>
</tbody>
</table>
THE NEED FOR HYBRID LOCATION TECHNOLOGY

- To deliver wider coverage with reduced infrastructure
- To add greater accuracy in certain areas
- To provide additional functionality
- To reduce total cost of ownership
UTILISING HYBRID TECHNOLOGIES

GPS: large scale outdoor location
- Tracking vehicles and machinery around site
- Locating remote workers over wide area, such as a pipeline

WiFi: automatic mustering, and site-wide evacuation
- Emergency call/man down
- Know when workers are mustered and safe
- Identify missing personnel and find them quickly

BLE or LF Exciters: choke points, zone delineation and floor level separation
- Limited entry to untrained personnel in hazardous areas
- Ensure visitors don’t stray into danger
- Reduce search time
- Muster point

UWB or BLE AOA: high accuracy use cases
- Specific placement of parts in manufacture to avoid critical failure
- Detect workers moving around heavy machinery
iTAG X30 WORKER SAFETY TAG

Leverage hybrid location technology across your entire industrial site with the all new iTAG X30

Improving worker safety and reducing the need for dense Wi-Fi infrastructure

- Wi-Fi, GPS, LF and Bluetooth low energy technology
- ATEX and IECEx zone 0 and 20 certified
- Accurately locate workers in hazardous areas, anytime, anywhere
- Optional integrated access control or photo ID card
GETTING BACK TO WORK SAFELY

Proximity Alerting
Generate alerts when proximity distances are infringed

Contact Tracing
If an individual is confirmed with COVID-19, identify others who were in contact with the diagnosed individual
FIND OUT MORE

- White paper
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- Visit our website

www.extronics.com
THANK YOU