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LoLiPoP-IoT — CLONMEL DIGITAL FACTORY — IDA Ireland — Chips JU

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Boston Scientific medical device factory asset tracking

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ABSTRACT: ***Boston Scientific is dedicated to transforming lives through innovative medical solutions that improve the health of patients around the world.*** **BSC Clonmel has ~€22M of WIP inventory, much of which is high value material/devices in the production process; they can become misplaced mainly through human error/intervention and experience bottlenecks and disruptions. LoLiPoP-IoT will provide seamless wireless tracking tags with automated alerts associated with unauthorised or unusual activity and a mechanism to identify real-time location information when necessary. This will reduce costs associated with mismanagement of high value pulse generators.**

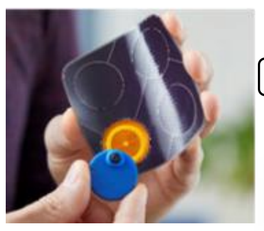
Challenges with Asset Traceability at BSC

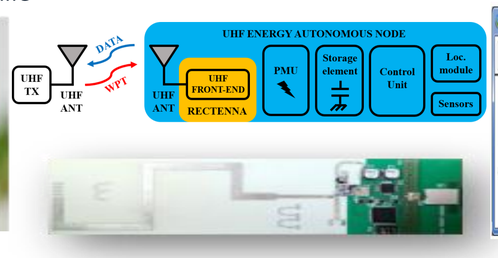
- No indicators for idle WIP
- Production material location marked incorrectly
- Significant burden receiving materials/deliveries
- Paper-based tracking for moisture-sensitive components
- Missing instruments due for calibration
- Tools and parts becoming misplaced

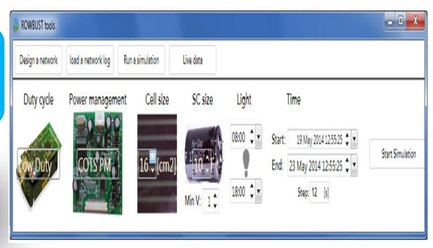
Tech platforms/Goals

Hybrid PV/ wireless power transfer powered tags with context awareness

- → **Energy harvesting** transducers (CSEM) & **micro-power management** technology (UNIPG, TYNDALL)
- → **Ultra-low power components** (UNIPG – discrete, TYNDALL – IC) & efficient algorithms
- → Innovative architectures for **wireless data collection** (UNIPG – power management, antennae)
- → **Simulation models** to optimise module selection, sizing and integration (Tyndall)
- → **Automated alerts** & **real-time location**
- **>5-year** battery life



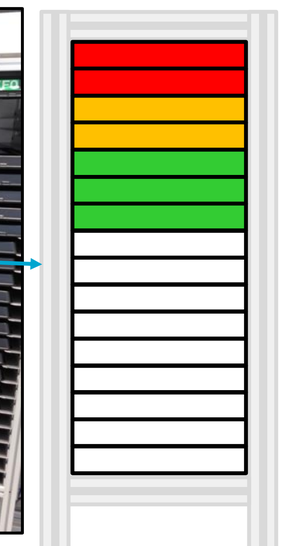


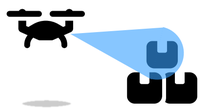


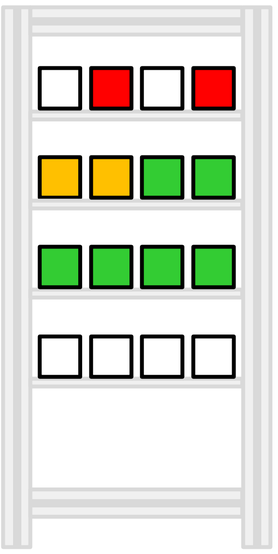
- Reduction in **WIP**
- Reduction of **inventory**
- Reduction of production **cycle time**
- Reduction in **component scrap**
- Reduction in **battery replacement costs**
- Reduction in **lost/misplaced materials**
- Reduction in **time taken to find materials**

- → **Drive down DIOH**
- → **Prevent NPD program delays**
- → **Improve material management and avoid scrap**

Technology Details







Summary Statement

Reducing **costs related to location of assets** (supply, maintenance, transport) is worth €100ks per annum to BSC Clonmel; savings in direct and indirect costs, less time finding inventory, less frequent maintenance (changing batteries), optimization of industrial production and layouts of machinery. **Optimising flow, management and throughput of assets** will yield >10% savings in production, cycle time and inventory costs; from raw materials to finished good and equipment, identifying bottlenecks, by means of predictive maintenance and asset tracking. **Reducing energy consumption & carbon footprint & electronic waste**: LoLiPoP-IoT energy autonomous sensor nodes for IoT and Industry 4.0 based on multi-source harvester systems prolongs application lifetime by >50% and uses new harvester materials, recyclable substrates, saving 100s of k€.

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