

Long-Life Geolocation Solution for Orthopaedic Surgical Loaner Kits

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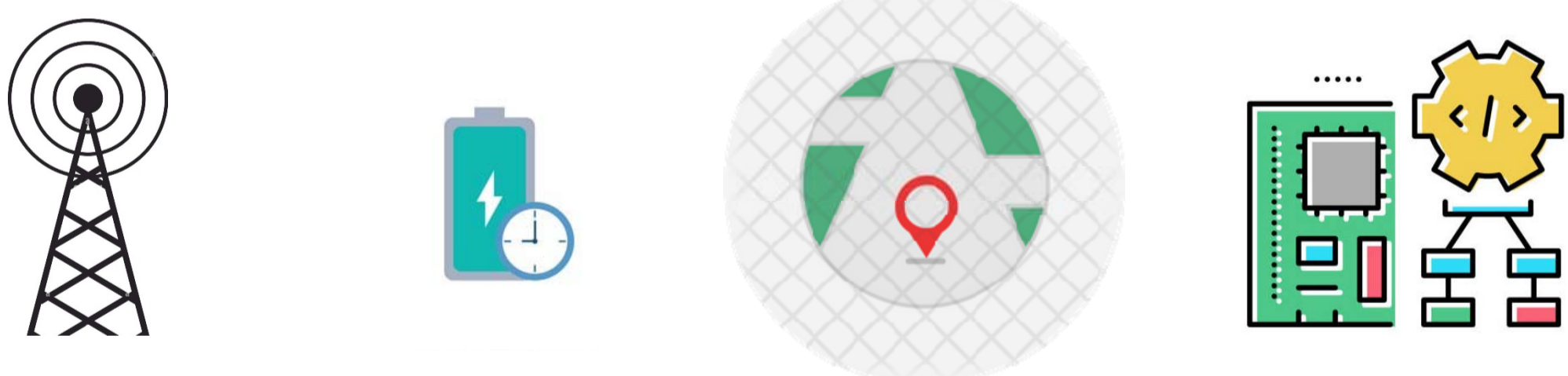
ABSTRACT: The Supply Chain for orthopaedic procedures requires the regular distribution and replenishment of surgical loaner kits, the tools used by surgeons to fit orthopaedic prostheses. The variety of Health Care Providers (HCPs) and the broad spread of their locations makes tracking surgical loaner kit inventory challenging. A geolocation tracking solution is being developed in LoLiPoP IoT to locate kits with a supporting long life power solution, utilising PV and TEG energy harvesting technologies, in order to track inventory globally for extended periods of time outside of DePuy Synthes distribution centers. This will reduce lost inventory and time spent in locating assets.

Challenges with Asset Traceability at DPS

- Broad global spread of HCP locations, with many in remote locations infrequently serviced by sales teams
- Current asset tracking technologies require scanning tags and are fraught with human error, particularly in non-DPS facilities
- Kits must be steam sterilized before use in surgery, which is a requirement barrier for many technologies
- Battery dependent asset tracking technologies result in lost inventory and regular battery replacement/charging

Tech platform/Goals

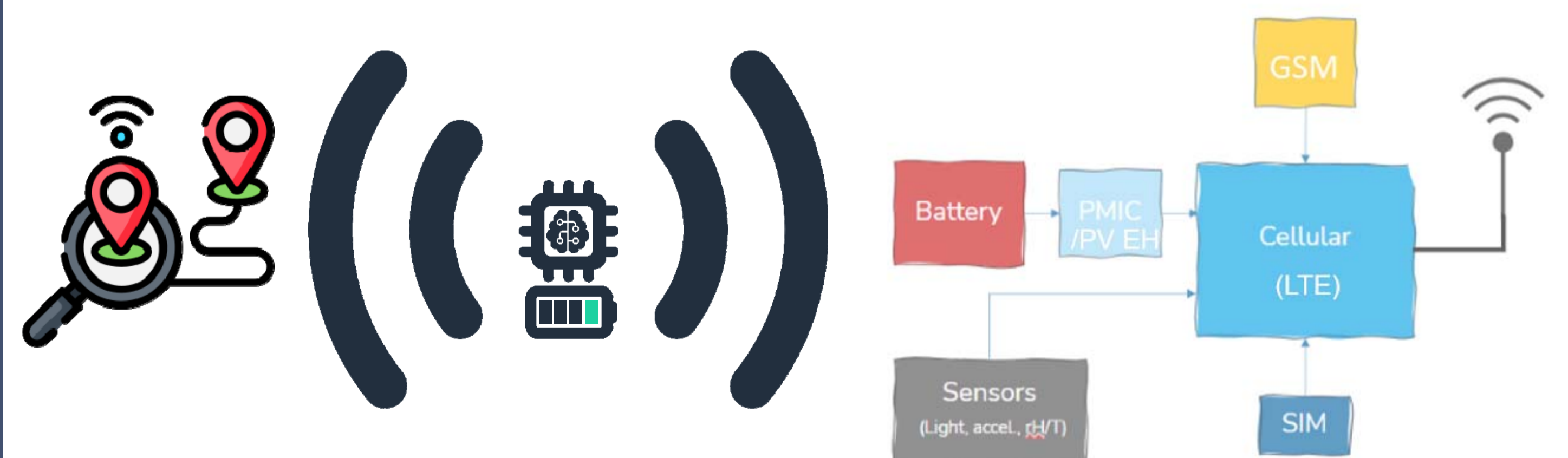
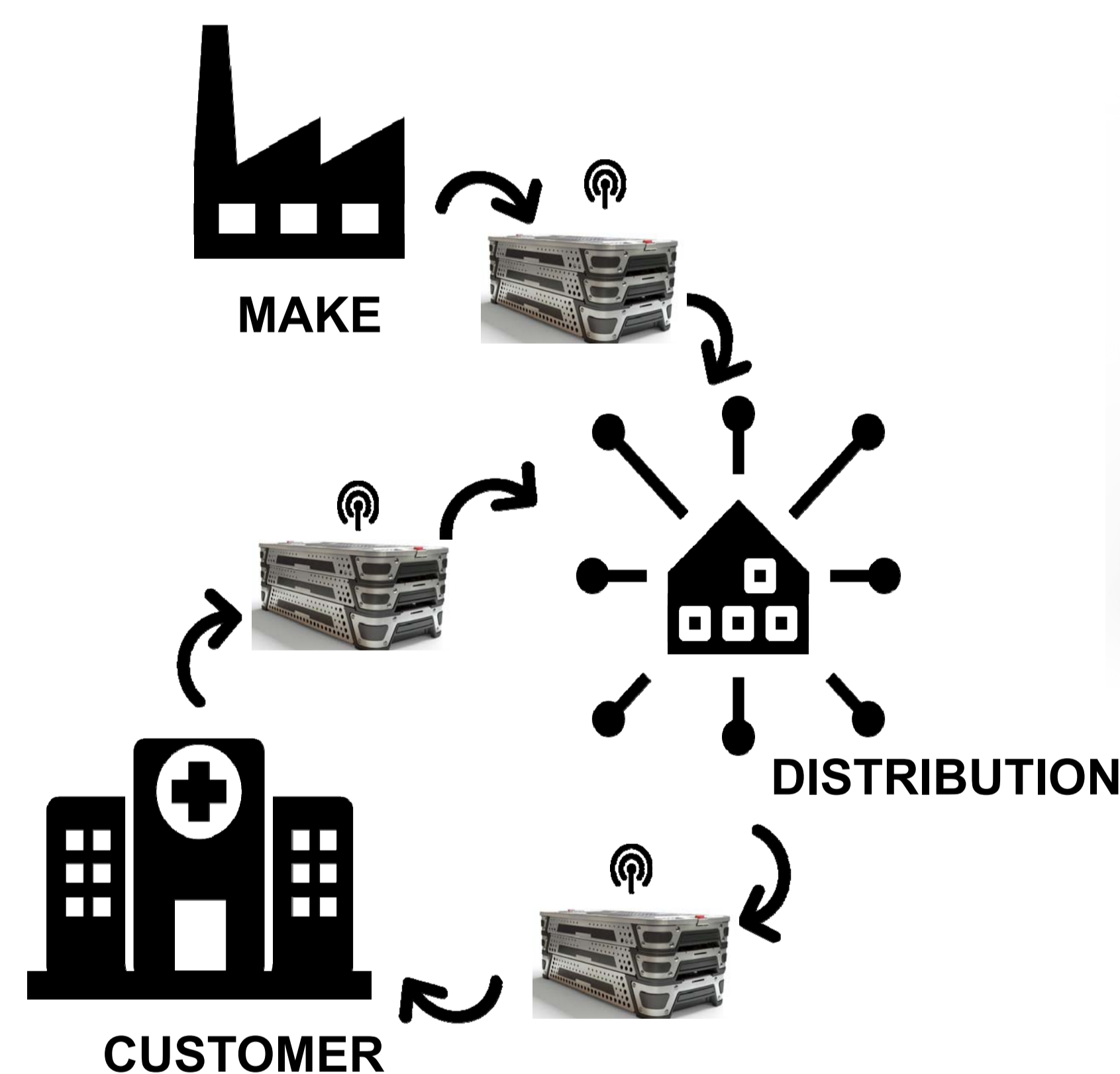
- No infrastructure required for the deployment of the asset tracking solution.
- 2-year minimum battery life (PMIC (TNI) and PV EH (CSEM))
- Asset tracking technology must be steam sterilisable up to 300 cycles (120 C and 200 kPa)
- Locate asset to approx 100m
- Power optimisation strategy using movement detection sensors and algorithms to trigger location change communication.



Desired outcomes/Benefits

- Reduction in lost inventory
- Reduction in time spent locating assets (~\$800k)
- Improved inventory management analytics
- Improved customer experience

Technology Details



Summary

As part of LoLiPoP IoT DePuy Synthes intends to develop, in collaboration with our consortium partners, a **long life geolocation solution** to track the location of our surgical loaner kits across our global supply chain. The **solution will require no infrastructure** and the HCP and DC sites to enable mass scalability and greatest visibility. The solution will also be **steam sterilisable and have a battery life of at least 2 years**. The result will be a **cost saving of at least \$800k** per annum in lost inventory and time spent by sales teams locating assets, while **optimising inventory management and improving customer experience**.

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