Centre of Applied Photonics

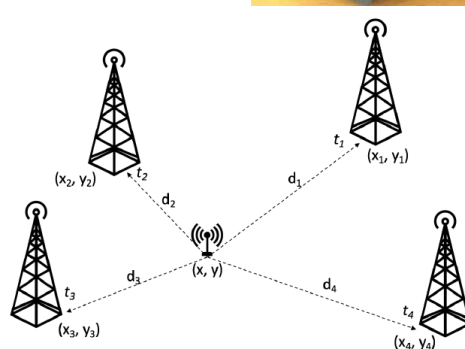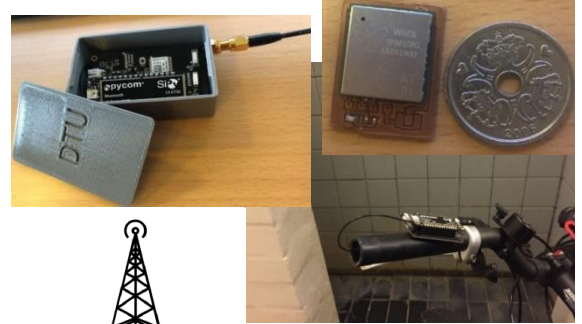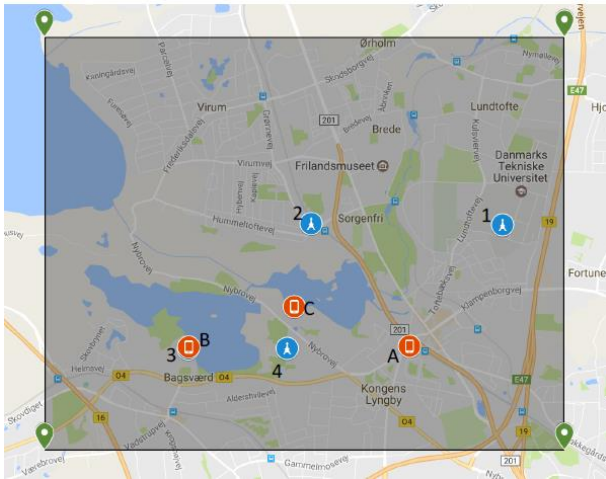Technical University of Denmark — DTU

Geo-location and asset tracking
- for Internet of Things (IoT) applications using LP-WAN technologies

Value Proposition/USP
Geolocation and asset tracking based on wireless IoT communication infrastructure. Geo-location and tracking can be realized with ultra lower-power technologies and components optimized to maximize battery life while reducing physical size. This can be done with Global Positioning Systems (GPS) or without, using a form of triangulation. Implementing tracking and geolocation using IoT communication (e.g. LoraWAN, SigFox or NB-IoT) will significantly improve battery lifetime while minimizing size, cost and device setup/administration.

Business Opportunity/Objective/Commercial Perspectives
Geolocation has many use-cases spanning from tracking people (e.g. dementia patients) to personal items (cars, bicycles, boats, etc) and livestock. The purpose can be safety, theft prevention or logistics. Asset tracking relates to registering whereabouts of commercial assets (machinery, equipment), transported items, etc. Low-power, low-cost devices can be useful for tracking vital packages during shipment, while measuring temperature, humidity or other relevant parameters.

Technology Description/Technology Summary
The relatively new IoT communication technologies referred to as LP-WAN technologies are optimized for low power, long transmission (up to 20 km) and signal robustness. Furthermore, some of the technologies can be combined with trilateration methods that avoids the use of GPS which is consuming a lot of battery power. Based on time of arrival of a package sent from an IoT tracking device, the location of the device can be computed without the use of GPS.

Development Phase/Current State
Currently we have developed a variety of tracking devices based on different technologies, both LoraWAN, SigFox and NB-IoT and for different use cases. This includes high precision tracking devices as well as very small, but less accurate, trackers. Example use cases includes anti-theft trackers and asset tracking.

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Seeking
- Funding/Investors
- Licensee
- Partner/Research Collaboration
- IPR Sale