Smart Tracker

Figure 1: Smart Tracker

Asset or Personal tracking can provide valuable, high-level insight into their location in physical spaces, such as bus terminals, warehouses, convention halls, parks, etc. Knowing the location of people and assets can reap benefits from understanding people's behaviour in locating assets in the warehouse.

To tackle these problems, a Smart Tracker is proposed to keep track of the location of the assets or people within a known area (**Indoor Asset Tracking** or **Outdoor Asset Tracking**) to provide a means to track them quickly using existing communication protocols. A use case for people tracking can be to understand shoppers' behaviour (crowding) to identify the most (or least) popular shops within a mall. Another purpose of asset tracking can be to precisely locate an asset within an enclosed area by its x and y coordinate and its z-axis (height). A use case would be in tracking assets on tall shelves in warehouses.

If you accept, your job is to select the appropriate communication protocol. You must justify your selections with the specific needs of this use case. You will also need to demo a prototype implementation at the end of the semester and submit a project report using the provided template.

Indoor Asset Tracking

- BLE and WiFi
  - maybe hybrid
- Looking at various indoor triangulation algorithms
- Deploy appropriate security

Outdoor Asset Tracking

- LoRa and WiFi
  - Maybe hybrid
- Looking at various indoor triangulation algorithms
- Deploy appropriate security

References:

Kouyoumdjieva, Sylvia T., and Gunnar Karlsson. "Experimental evaluation of precision of a proximity-based indoor positioning system." 2019 15th Annual Conference on Wireless On-demand Network Systems and Services (WONS). IEEE, 2019.

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