Anonymized Person Tracer

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Abstract:

Tracking a person's movement enables IoT and other smart devices to provide sentient experiences. This can be made possible with Bluetooth Low Energy (BLE) technology in conjunction with other network systems such as Wireless Fidelity (Wi-Fi) and Near Field Communication (NFC). Locating an individual can be achieved by measuring the Received Signal Strength Indication (RSSI) values from an array of fixed radio beacons to that person's smartphone. However, certain factors are present which might cause issues such as inconsistent signal strength across devices and radio interference in noisy environments. Modern smartphones support the aforementioned technologies and thus allow us to implement this system at a low cost. In a large crowd, we can make use of other compatible devices to improve accuracy for locating in the dynamic mesh network. This system can augment the Global Positioning System (GPS) and other satellite-based positioning systems, especially in indoor areas and places with poor satellite connectivity. Such a system could also provide personalised feedback to its users; however, care must be taken to not track without consent as it could breach privacy. In order to achieve this, we require the use of assigning an encrypted universal unique identifier (UUID) to the person to track.