Indoor Asset Tracking Technique

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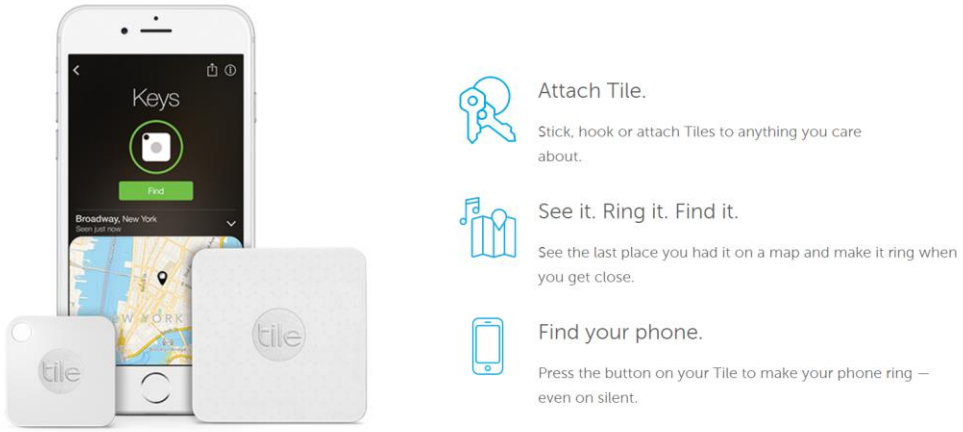
Outlines

- Introduction to Indoor Asset Tracking
- The Algorithm We Used
- Workflow of Our Project

Introduction

- **Asset tracking** refers to the method of tracking physical assets, either by scanning barcode labels attached to the assets or by using tags using GPS, BLE or RFID which broadcast their location. --Wikipedia

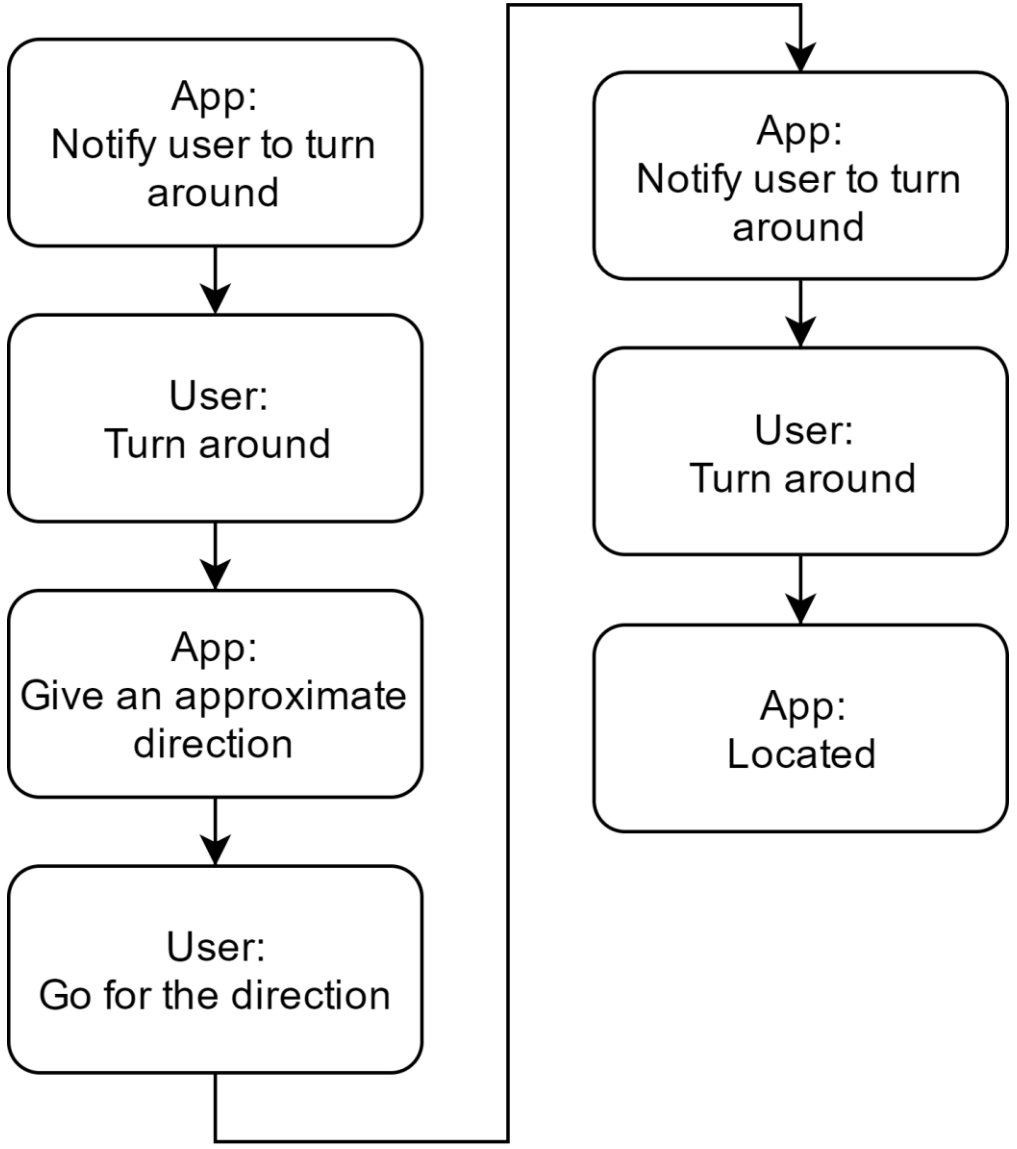


Introduction

- Usual BLE (Bluetooth Low Energy) RSSI based asset tracking has poor positioning ability.

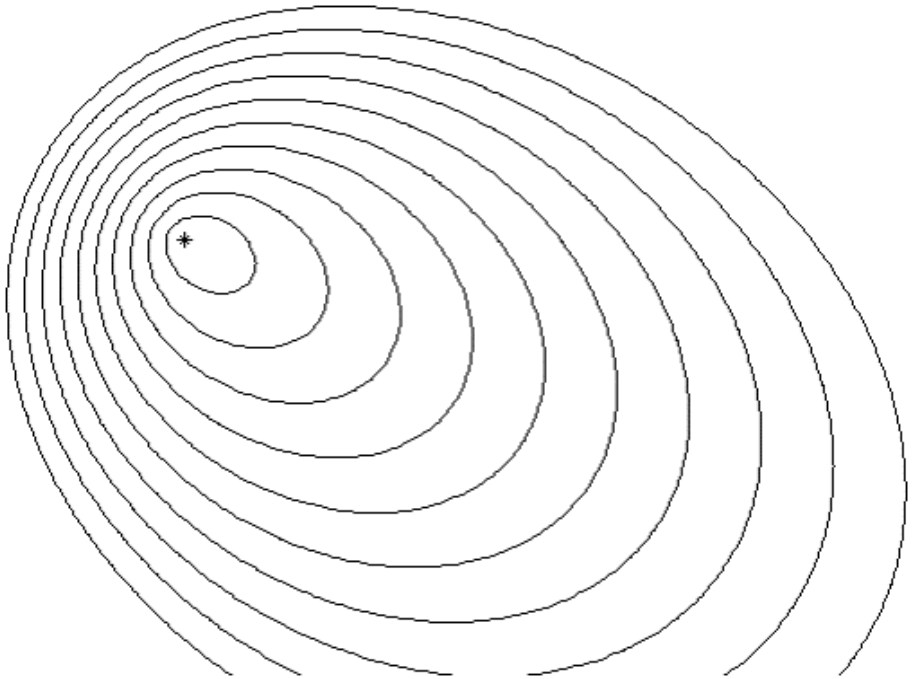
- Our application:
  - BLE-RSSI
  - Accelerometer
  - Magnet field sensor

Introduction



Algorithm

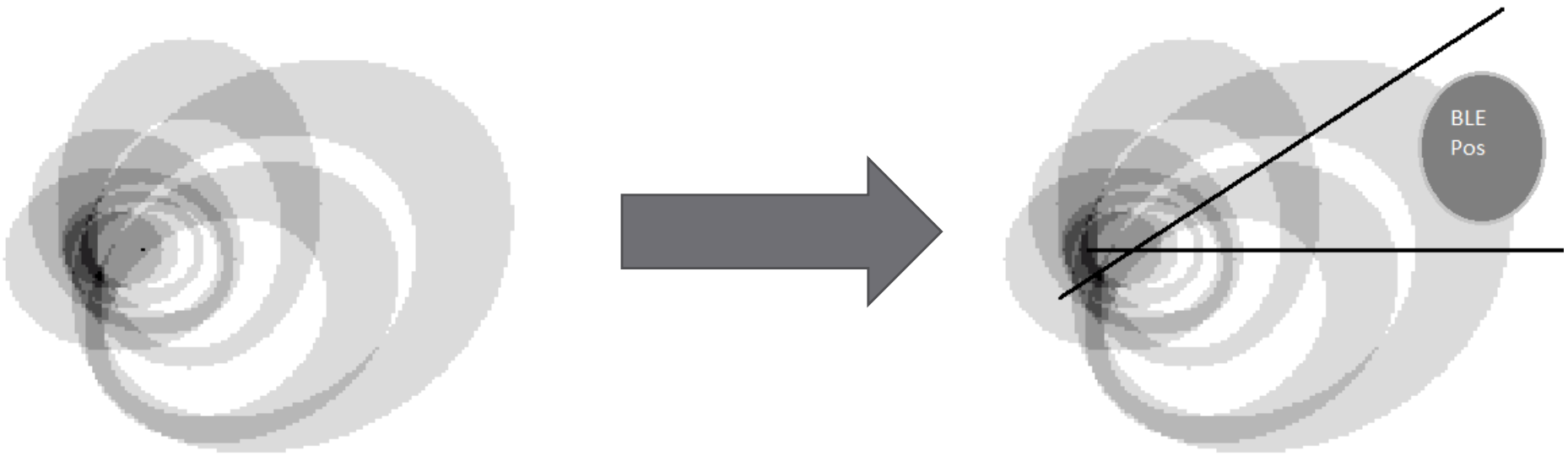
- BLE-RSSI Based Angle Detection
  - **Key Idea**: Bluetooth's RSSI is strongly interfered with the obstacles between the transmitter and receiver



Contour RSSI Line

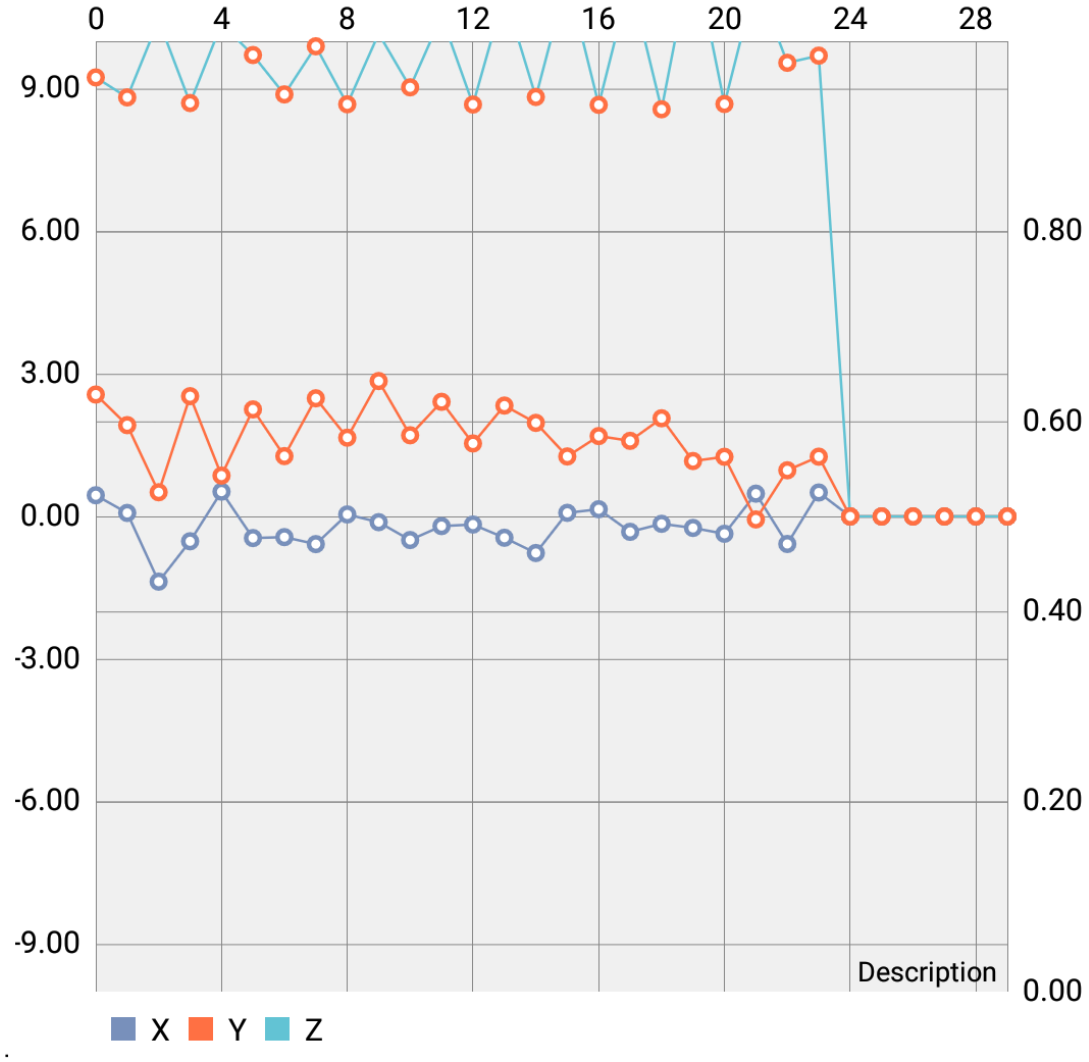
Algorithm

- Add orientation information

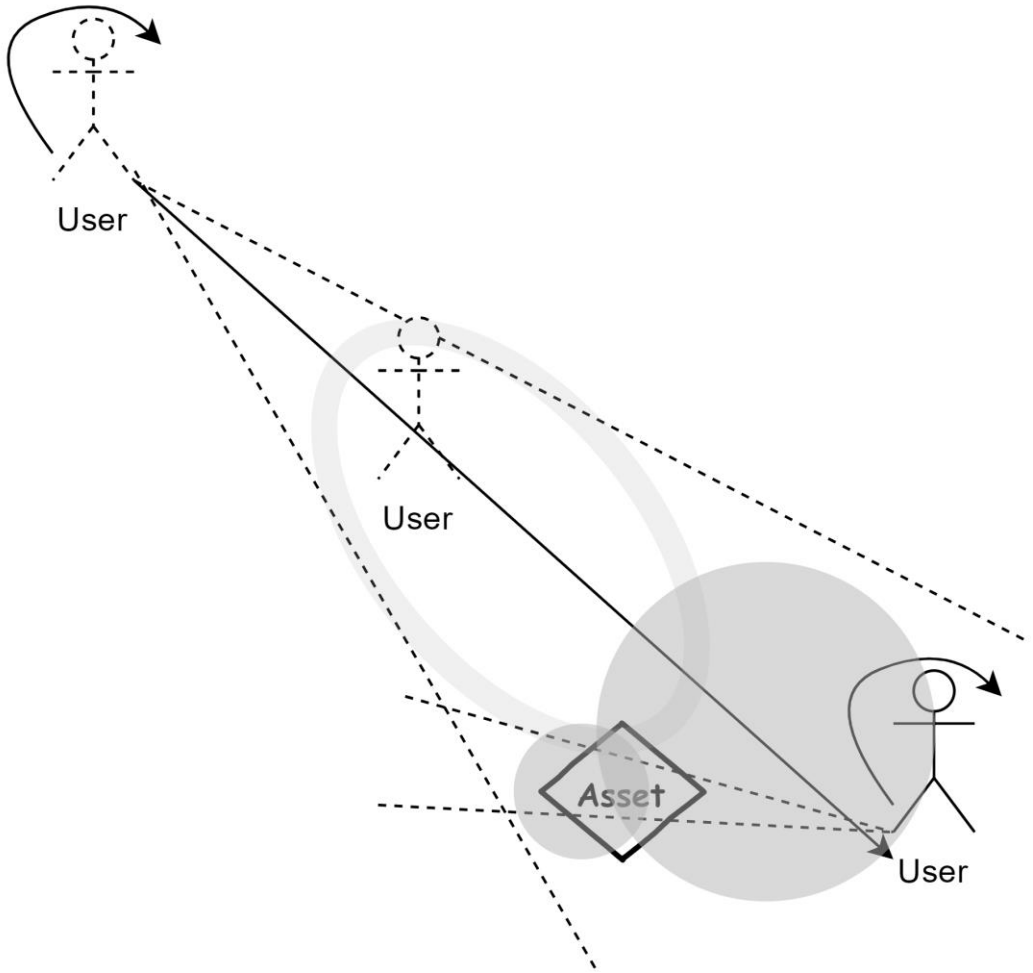


Algorithm

- Pedometer
  - Detect the current y-axis accelerometer value is going up or down
  - If current accelerometer value is going up and the variation ≥ threshold, stat up=true.
  - If current accelerometer value is going down and the variation ≥ threshold, stat down=true.
  - If stat up == true and stat down == true, step cnt += 1.



Workflow



Thanks