# High Accuracy Indoor Localization System

## Application

Locating people or objects where GPS and other satellite signal is not available, such as inside multistory buildings, airports, alleys, parking garages, and underground locations. It is a critical components for indoor navigation.
The indoor localization market is projected to grow to US$17B by 2025 [1]

## Technology

A novel VLC/IMU real-time integrated localization system with a tightly-coupled formulation by an extended Kalman filter (EKF)

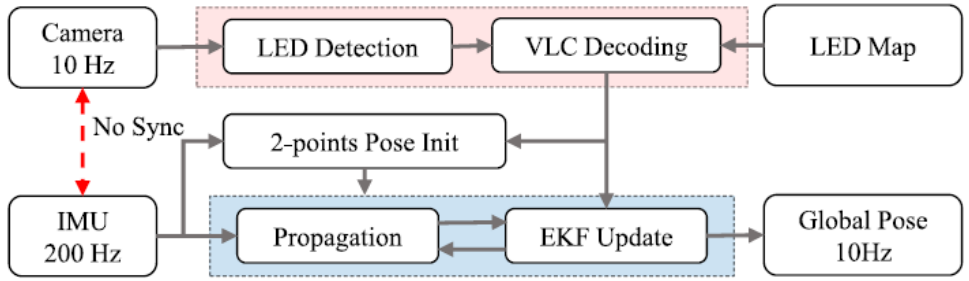


Fig 1. Overview of the VLC-inertial localization system

## Advantages

- High accuracy in 3D (3-dimensional) positioning with Visible Light Communication (VLC)
  - Position error < 4cm
  - Orientation error around 1 degree
- Simple configuration
- Verified by extensive field test

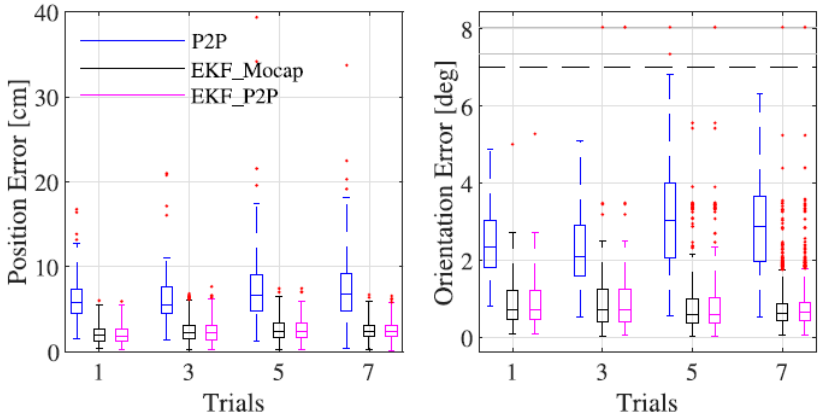


Fig 2. Pose errors evaluated on trial 1, 3, 5, and 7. We compared the results from perspective-2-point (P2P), the EKF initialized by the Mocap ground truth, and the EKF initialized by P2P. There is no statistically significant difference in performance between the latter two cases

## Talk to Us

Tobby Fu, tobby@ust.hk
Head (Robotics and Autonomous Systems)

## Intellectual Properties

Chinese Patent No. ZL201810276459.2 & ZL201820450027.4

1. According to market research report, "Indoor Location Market by Component, Deployment Mode, Organization Size, Technology, Application, Vertical And Region - Global Forecast to 2025", ID: 5164656, published by MarketsandMarkets in May, 2020