Highly Accurate Occupancy Estimation Using RF Signals and Wi-Fi

Tech ID: 25050 / UC Case 2015-636-0

BRIEF DESCRIPTION

A framework that counts the number of people in an area based on RF signals and a Wi-Fi card or network.

BACKGROUND

In recent years, there has been an increased interest in understanding what Wi-Fi signals can tell us about our environment. Successful occupancy detection by Wi-Fi has many potential applications, such as search and rescue, robotic exploration, location awareness services, and smart health systems. Currently, occupancy detection using direct vision-based techniques is limited by high computational and deployment costs, and the use of radio frequency (RF) signals largely requires users to carry devices.

DESCRIPTION

Researchers at UC Santa Barbara have created a framework that counts the number of people in an area based on RF signals and a Wi-Fi card or network. It bases its calculations on Wi-Fi power measurements between a transmitter and a receiver. Occupants alter these measurements by impacting the Line of Sight (LOS) and scattering effects. This invention captures these effects and then employs mathematical and statistical computations to determine the accurate number of people within a given space.

More information on Dr. Mostofi's website: http://www.ece.ucsb.edu/~ymostofi/HeadCountingWithWiFi.html

ADVANTAGES

- Improves accuracy of occupancy estimations

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INVENTORS

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OTHER INFORMATION

KEYWORDS

indtelecom, wi-fi, rf signals, occupancy, indsoftw

CATEGORIZED AS

- **Communications**
  - Internet
  - Networking
  - Wireless
- **Energy**
  - Other
- **Security and Defense**
  - Screening/Imaging

RELATED CASES

2015-636-0

- Low computational & deployment costs

APPLICATIONS

- Smart building management
- Emergency response operations
- Any Wi-Fi-enabled electronic device

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Sensing with RF Signals by Exploiting Edge Diffraction

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