

Projet n°161

Titre : Analyzing Indoor Movement Patterns via Raspberry Pi Network

Description : Understanding how people move through physical spaces is becoming increasingly valuable in the age of ubiquitous connectivity and intelligent systems. Whether students navigate the halls of a university or customers browsing a shopping mall, their journeys tell a story that can inform design, improve services, and create more efficient environments.

This project focuses on developing an indoor circulation graph using Internet of Things (IoT) devices. A circulation graph is a dynamic graph that models the flow or movement of entities through a network over time. In the context of indoor spaces, nodes represent physical locations (e.g., hallways, classrooms, or stores), and edges represent detected transitions or movement flows between these locations.

The objective of this Pi2 project is twofold. First, to develop a Raspberry Pi-based network of sniffing devices for capturing Wi-Fi and Bluetooth packets. Second, to design and implement a Python-based prototype capable of analyzing and visualizing spatio-temporal behavioral patterns extracted from a circulation graph constructed using data from the sniffing devices. This system will enable the identification of high-traffic zones and reveal the temporal dynamics of movement between key areas.

Informations sur le projet

Compétences développées : Raspberry Pi Programming, IoT-based Network Deployment, Graph Mining

Informations complémentaires : See the attached PDF file.

Majeure(s) concernée(s) : OCC, DIA, CCC, P. HPC, OCC_Alt, DIA_Alt, CCC_Alt

Année(s) concernée(s) : A4, A5

Acceptera une équipe A4 si aucune équipe A5 ne se positionne : Oui

Mot(s)-clé(s) concerné(s) : Data Science, IoT, Python

Informations sur le partenaire

Entreprise / Association / École : ESILV - DVRC

Nom : Alatrística-Salas

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