iStalk

Brian Duff, Maxwell Koo, Benjamin Koopman, Bryan Shultz

http://www.ece.cmu.edu/~ece549/spring12/team15/index.html

Motivation

- To provide in-store targeted digital advertising based on passively collected location and behavioral data.
- Improve the consumer's experience by displaying ads relevant to their interests and shopping habits.

Development Environment

- Custom firmware on Linksys routers performs wireless trilateralization of Wi-Fi signals from smartphones, etc.

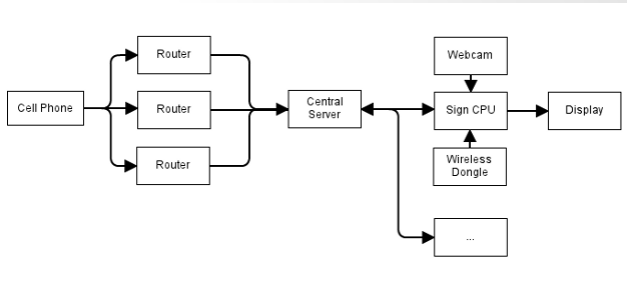
- Client location database, facial recognition software, and targeted advertisements on Intel digital signage.

Goals

- Be able to estimate consumer positions within +/- 2 meters from their actual position
- Be able to recognize a consumer's face with >80% accuracy
- Be able to process arbitrarily many clients at any time
- Produce a fault-tolerant and robust advertisement platform

Architecture

- Custom software on COTS routers performs wireless trilateralization on consumers to track their position
- Facial recognition is performed and targeted ads are served using the Intel digital signage
- Historical consumer location and facial recognition data is stored on a central server

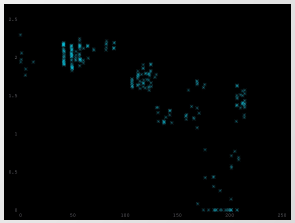


Results

- Successful tracking of consumers, storage of consumer location data, and facial recognition

Consumer shopping preferences are used to serve targeted advertisements

Localization accuracy to within 2 meters



Better than 95% facial recognition accuracy with 10 face samples