Ubiquitous Computing
UbiShopper .Alpha

Team Member:

Michael Hotan [michael.hotan@gmail.com]
Jingxiang Gou [zenkiggou@gmail.com]

Ideation:

- **Home** — Sustainability, GPS and Local area network.
- **Restaurant** — GPS and location awareness
- **Office** — Differentiate phone state and behavior
- **Airport GPS** — Location awareness info on the luggage status, guest receiving, etc
- **Transportation** — Travel safe with the phone, "aware" of arounding effortless
- **Retail Store** — Each specific store LAN and customized user & specific user data.

Brainstorming
Full Freedom

Consolidation
Make Decisions

Exploration
Learn and Understand

Motivation

Physical retail stores are struggling to compete with their online competition.

However, retailers still see **value** and even the **necessity** to maintain a physical presence.

We believe that the benefits of **online context** is missing from the in store shopping experience.

Objectives

A mobile application (with soft/hard sensors engaged): consumer oriented with features that benefit retailers as well.

- **Ambient Intelligence**
understand user preference, past shopping behaviour, current retail state.

- **Contextual Awareness**
be able to sense consumers entering and exiting boundaries. Changes can be potential contextual triggers.

- **Data aggregation**
logs user interaction data for behaviour pattern analysis.

- **Customer Engagement**
Price match & pay via phone. Personalized recommendations at appropriate times.

- **Others**
Audio sensor, listens for keywords that interest you.

Credit Card

keep*it*usable

Product Intro

Personalization

Authentication
Facial recognition / user password.

Recommendations
Based off user interest.
Ideally we would mine social, e-commerce data and/or ask for user input.

User profile & preference
social profile data.

Augmentation: in store experience

Indoor navigation [Cam + Gyroscope]
QR Code scanning will be used, too.
product info [barcode, QR code]
Camera scanner

product correlation with search history [Awareness]
Software sensor. Use digital profile data

Proximity based notification[Accelerometer]
promotional for distance moved of a user notify with promotions.

Context Domain

1. Data Captured

More than 1D with built-in phone sensors.
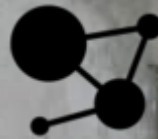
Orientation via Gyroscope.
User profile and preference data.
Proximity based sensors, GPS.

Perspective features:
Network sensor for in store map.
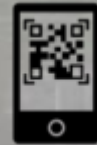Bluetooth and NFC do not work as they are passive protocols.

Context Domain

2. Classification

Data analysis with software model.

Based off of who the user is, where they are, and what they interact with, UbiShopper defines a preferential model for that particular person.
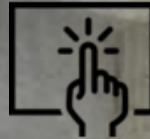
Categories:
- Proximity with physical product.
- Interaction with product
- User preferences

Context Domain

WHAT ARE YOU LOOKING AT?

3. Context Acquired

Update with social context.

Based on the preferential state,

Retailers:

track and analyze customer experience and outcomes.

Customers:

provide with personalized experience for each one in the physical store.

recommendation   discount

preferred items

Design features for UbiShopper

- **Navigation** Indoor(augmented reality) through compass and gyroscope
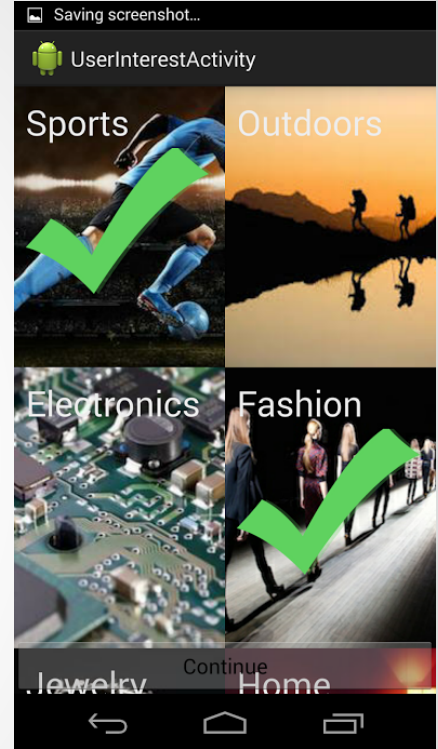
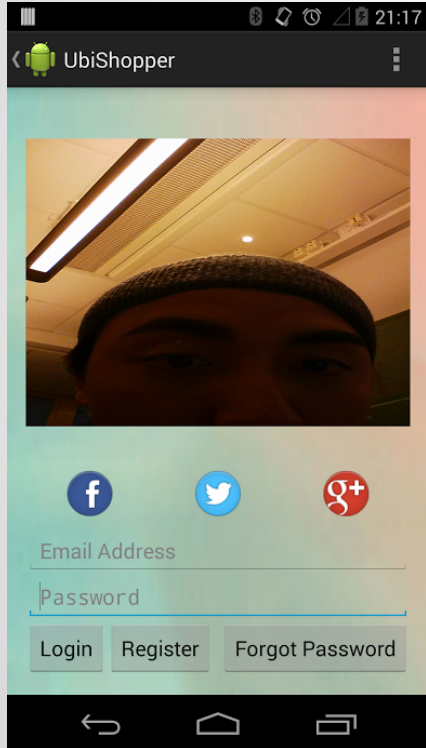- **Scan** for product info and search correlations

- **Facial** recognition for login and check out

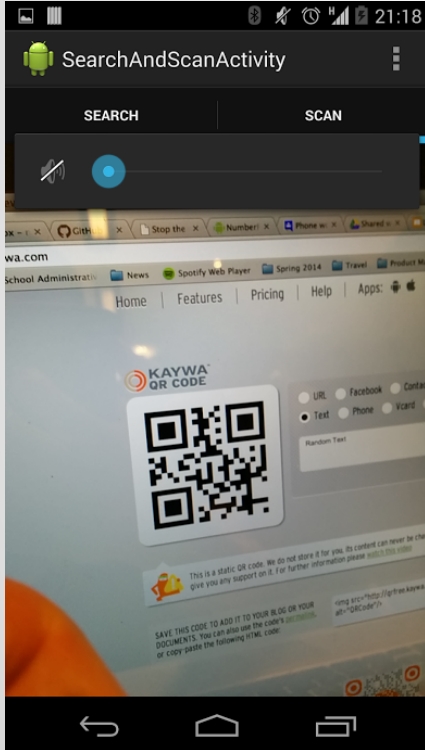- **Recommendation** list. Combines the user interest and location.

UbiShopper:
Login Screen

UbiShopper:
Interest Screen

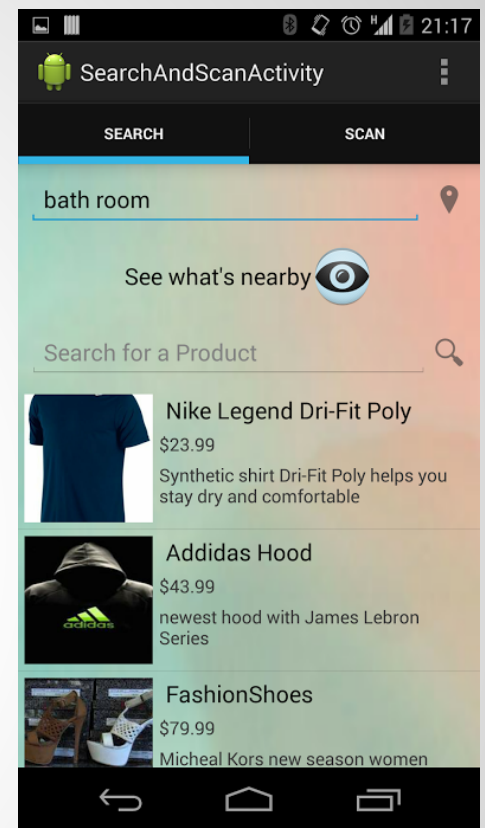# UbiShopper:
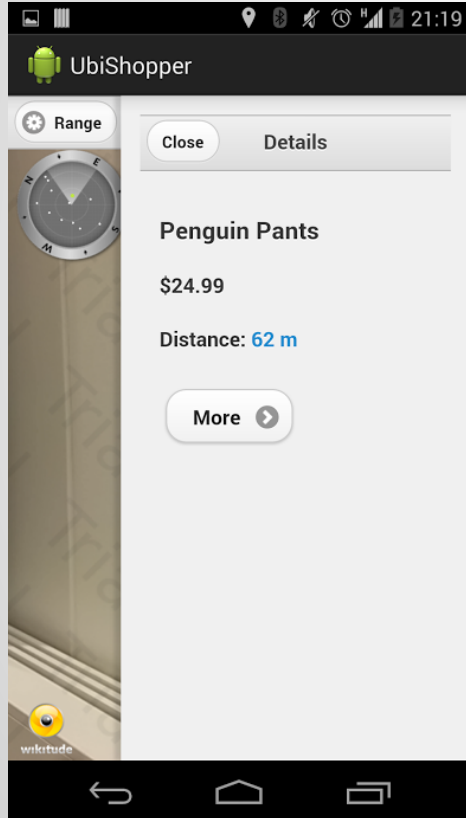# Main Scanning Screen

UbiShopper:
Navigation Screen

UbiShopper:
Product info Screen

UbiShopper:
Search Screen

Future Work

Fast checkout

Other features to be accomplished

Unassisted indoor positioning.

Retail store user data aggregation.

Thank you!