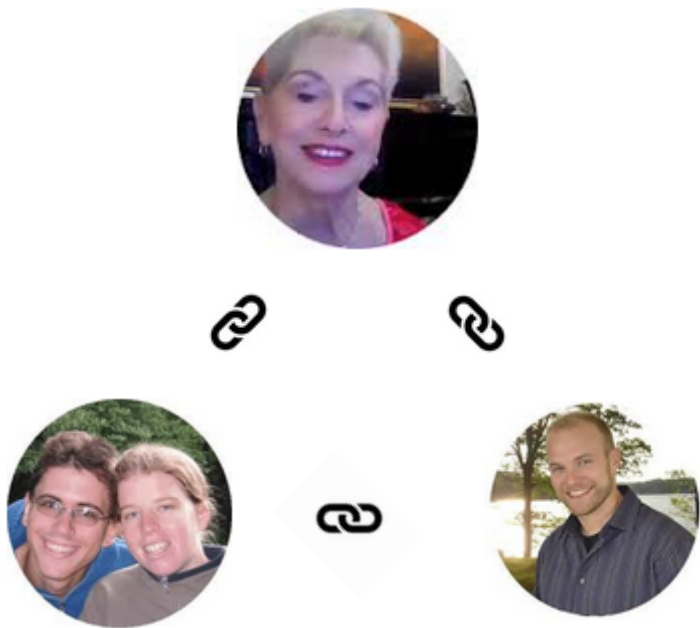


+ Linked Living

Project Overview



Help **elderly people**, their remote **family members**, and other stakeholders (e.g. **caregivers**) to communicate about how the elderly people's lives are and how healthy they are, in more **humane, narrative ways**.

Application Design





Features

1

**Activities
Detection**

2

**Heart Rate
Monitoring**

3

**Contextual
data (weather,
time, place)**

4

Narrative UI

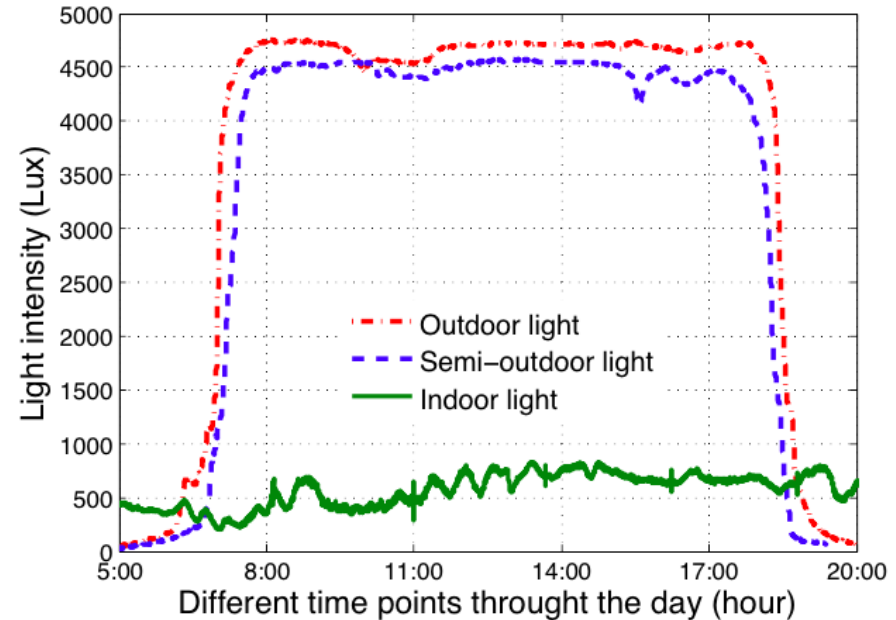
Algorithm Design

1. Activity Detection

- Pedometer
- Speed/steps per sec

2. Indoor/Outdoor Detection

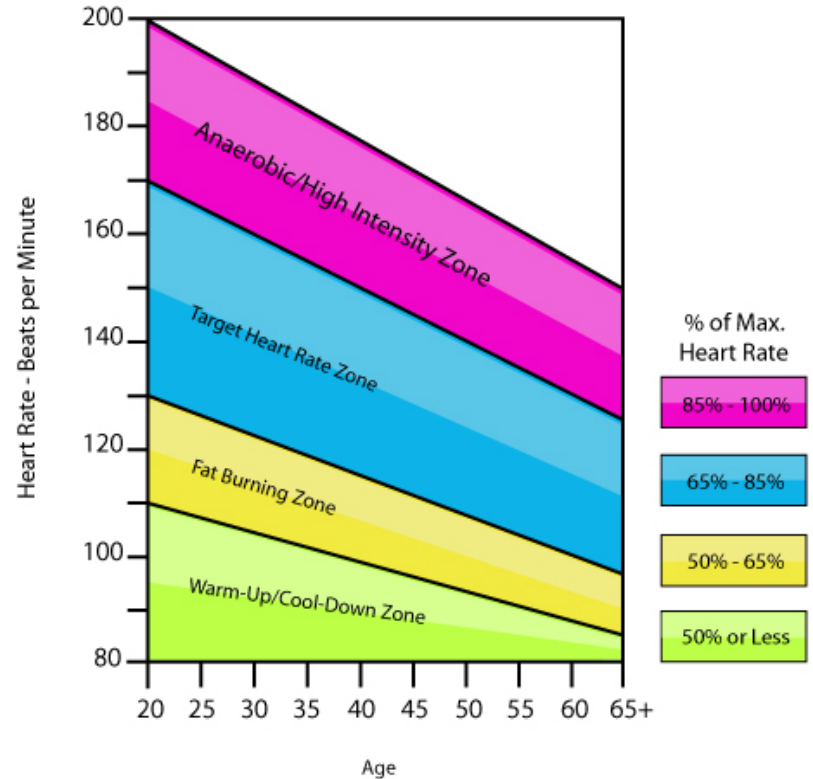
- Light Sensor
- Supervised ML Classifier



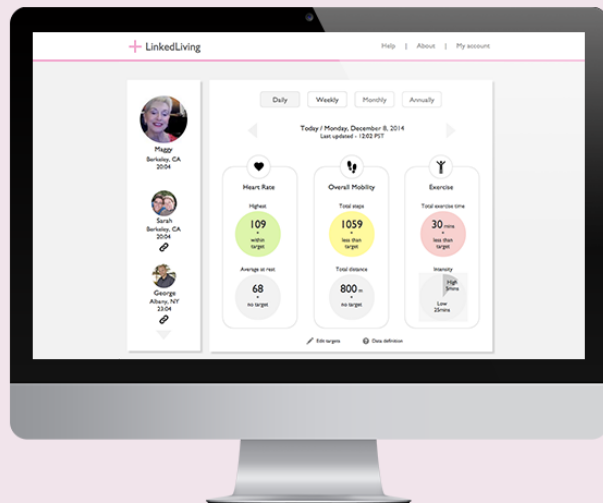
Algorithm Design

3. Intensity Detection

- Heart Rate Sensor
- Age Info



Demo



Future Direction

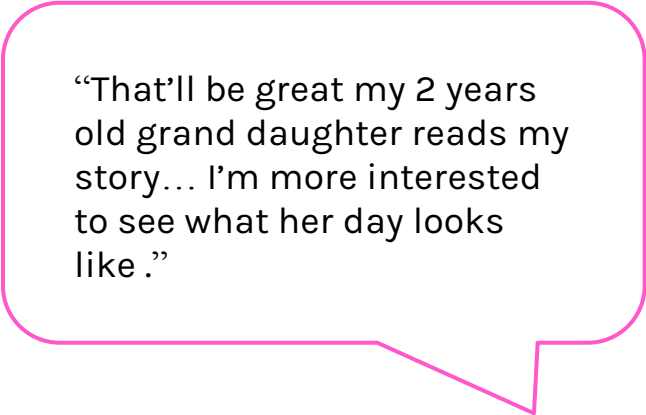
A few interviewee expressed strong interest in emergency support.

“It’s nice if the system can find falls and immediately send me a text and call automatically.”

“I call my parents every week and I don’t think this system will replace that communication. The system should do something I cannot do (which he later pointed out as emergency detection)”

Future Direction

One senior we interviewed expressed interest in communication support between grandparents and grandchildren.



“That’ll be great my 2 years old grand daughter reads my story... I’m more interested to see what her day looks like.”

Key Challenges

- Privacy
- Data input by older people
(nutrient intake, vital signs (blood pressure, body temperature), any other important data for each individual)

The screenshot shows a mobile application interface for monitoring elderly individuals. On the left, a vertical list of users is displayed, each with a circular profile picture, name, location, and time. The users are Maggy (Berkeley, CA, 20:04), Sarah (Berkeley, CA, 20:04), and George (Albany, NY, 23:04). Sarah's entry is highlighted with a blue link icon. To the right, a detailed view for Sarah is shown. It includes a header with tabs for 'Daily', 'Weekly', and 'Monthly' views, and a timestamp 'Today / Monday, December' with 'Last updated - 12:02 PM'. A dark grey banner states 'Sarah and Maggy agreed to share Maggy's data for the following services'. Below this, three sections are listed: 'Emergency Alert' (with checkmarks for Falls detection, Heart attack detection, and Wandering prevention), 'Daily monitoring' (with checkmarks for Heart rate, Overall mobility, Exercise, and Sleep, plus Location tracking), and 'Falls Detection' (describing alert modes and data usage). At the bottom right, a large circular gauge shows 'Total distance' as '800 m' with a note '* no target'. A 'Change' button with a gear icon is visible at the bottom of the Sarah's details panel.

Maggy
Berkeley, CA
20:04

Sarah
Berkeley, CA
20:04

George
Albany, NY
23:04

Daily Weekly Monthly

Today / Monday, December
Last updated - 12:02 PM

Sarah and Maggy agreed to share Maggy's data for the following services

Emergency Alert

- ✓ Falls detection
- ✓ Heart attack detection
- Wandering prevention

Daily monitoring

- ✓ Heart rate
- ✓ Overall mobility
- ✓ Exercise
- ✓ Sleep
- Location tracking

Falls Detection

You will receive alerts in the following modes as soon as our system detects high probability of falls:

- SMS text message
- Phone call

Data we use :
- Motion detection sensor data (Accelerometer and gyroscope)

Total distance

800 m
*
no target

Change

Next step

- Evaluate accuracy and usability for work in project 2.
- Conduct more interview with both young and older adults.
- Create info visualization for weekly, monthly, and yearly analysis.
- Analyze feasibility to provide interactions for older adults.

Questions?

Do you have parents or older family members living alone far away? If so, how do you see this idea?



Q&A

1. empower people - Pablo
2. another information source - Rena
3. privacy: cousin
4. wearable: glasses, ear-aid