

# Personal hypothesis evaluation based on ubicomp sensors using pervasive displays

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1. **Many emerging devices** for self tracking now make it **feasible** people to test their own hypotheses about ways to achieve their goals.
2. However, **currently it is difficult** for people to flexibly harness emerging technology to do this.
3. My research aims to **create a framework** to enable **non-technical users to do this**.

## Personal Hypothesis (PH): achieving measurable end goals by setting measurable means goals

- An individual's belief about the ways that their actions affect their lives.
  - If I become more active **by taking more steps each day**, this will **improve my health**, in line with current health recommendations

### Sensed Means Goal

### Measureable End Goal

### Ubiquitous Sensors Collect various types of data



- Activity Monitor Device/Phone
- Blood Pressure
- Log mood
- Log how well I feel
- Weight
- ....

### Objective

#### Explore Personal hypotheses to achieve long-term goals

- A new approach to end-user ubicomp programming
- Exploit ubicomp sensing
- Explore personal hypothesis to achieve goals
  - A person explores what works for him/her

### Potential Outcomes

- **Help** a person **to decide how to select and test** one personal hypothesis for an end goal
- Allow people **compare** two personal hypotheses for the same end goal
- **Share** results in a form of Citizen Science
- New class of **end-user programming interface** for ubicomp
- **Scope** of Research
  - Simple personal hypothesis
  - [ Paired personal hypothesis ]

### Future Work

- **Implement** the architecture, based on **Personis** [5]
- **Create Interfaces**,
- Conduct **usability studies**: lab for hypothetical users
- **Field trial** to learn about use
- **Evaluate analytical**
  - Infrastructural and User interface design

### Personal Hypothesis examples

Means Goal	End Goal
• Walk 30 min/day	→ Feel healthier
• Walk 30 min/day	→ Reduce hypertension
• Exercise 60 min/day	→ Lose weight
• Reminder every 30mins	→ Reduce continuous sitting time
• Use my FitBit	→ Increase my physical activity
• Learn 10 French words/day	→ Be able to read French newspaper
• Buy a dog	→ Increase my physical activity

### User View



#### Prototypes

- Setting a personal hypothesis, Logger's View and Long term view of PH evaluation (what they will be able to see)

1) Pick your goal

Category: Healthy Weight

Select your Goal: Lose Weight

2 Kilo Monthly

Select the way to measure it: Withings

2) I Think I can do this if I

Select the way: Eat Vegetables

5 Serves Daily

Select the way to measure it: Log on my display device

+ add more ways

3) Set your deadlines I believe that if I

Limit Cake to 5 per day

Eat Vegetables 5 Serves Daily then I will

Lose Weight 2 Kilo Monthly

I expect to see results by: 01-12-2014

I would like to check it: weekly

Notify me by email

Log Vegetables and Cake Consumption

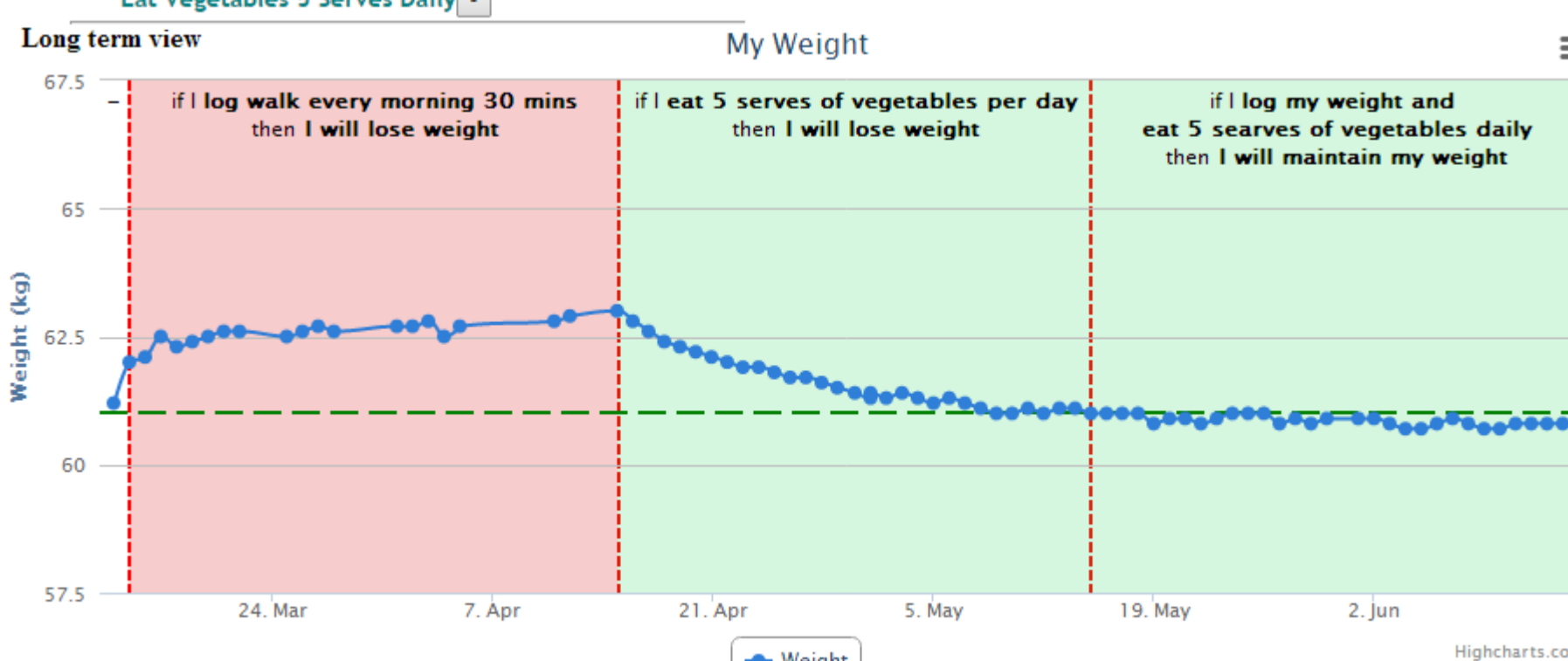
Vegetables 0/5

Cake 0/1

Logged days: ☆☆☆☆☆☆☆

Remaining days (30 days): ☆☆☆☆☆☆☆☆☆

More Info



### References

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