Improving Personal and Environmental Health Decision Making with Mobile Personal Sensing

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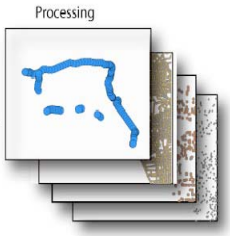
Introduction: Building a mobile personal sensing toolbox

Each application contributes something different to the mobile personal sensing toolbox

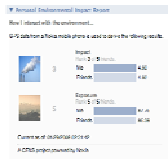
Focus on server-side analytics and the user experience

Solution: Contributions from each application

Configurable software on the phone periodically samples on-board sensors (e.g. GPS, image)



Activity classification and other analytics pre-process data.

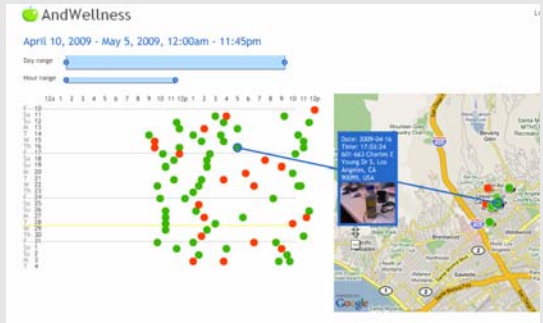


PEIR: Outdoor exposure monitoring in Los Angeles

Existing models are used to calculate an individual's carbon impact and PM2.5 exposure. Data is displayed on a map, and in other formats with an emphasis on user legibility.

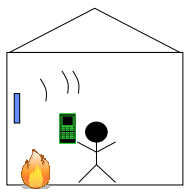
AndWellness: Real-time assessments and feedback on diet, stress, and exercise

Engaging phone app with reminders triggered by time, place, or (in the future) data or activity.



Server-side visualization and analytics highlight correlations and trends across time and space.

Textless interface on the mobile phone (future work).



Place location using static Bluetooth sensors.

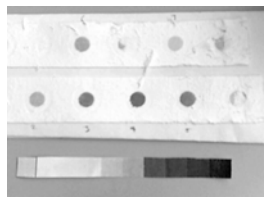
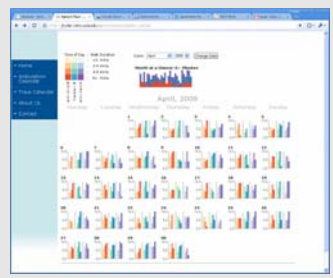


Image analytics automatically infer pollution levels from an image of a pollution filter and calibrated color chart.

Project Surya: Indoor pollution exposure monitoring in rural India

AndAmbulation: a system for monitoring chronic disease status and response to medication



Visualization and analytics of mobility and location highlight significant variations in behavior in time or space.