

A Survey on Life Logging Data Capturing

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Devices (a small selection)

Mobile Phone



RediBand – sleep tracking from your wrist



SenseCam



Heart Rate Monitor



BodyMedia SenseWear Pro II armband



Looxie



Personal Computer



Fit Bit



Equival



Bluetooth Logger



WearComp1

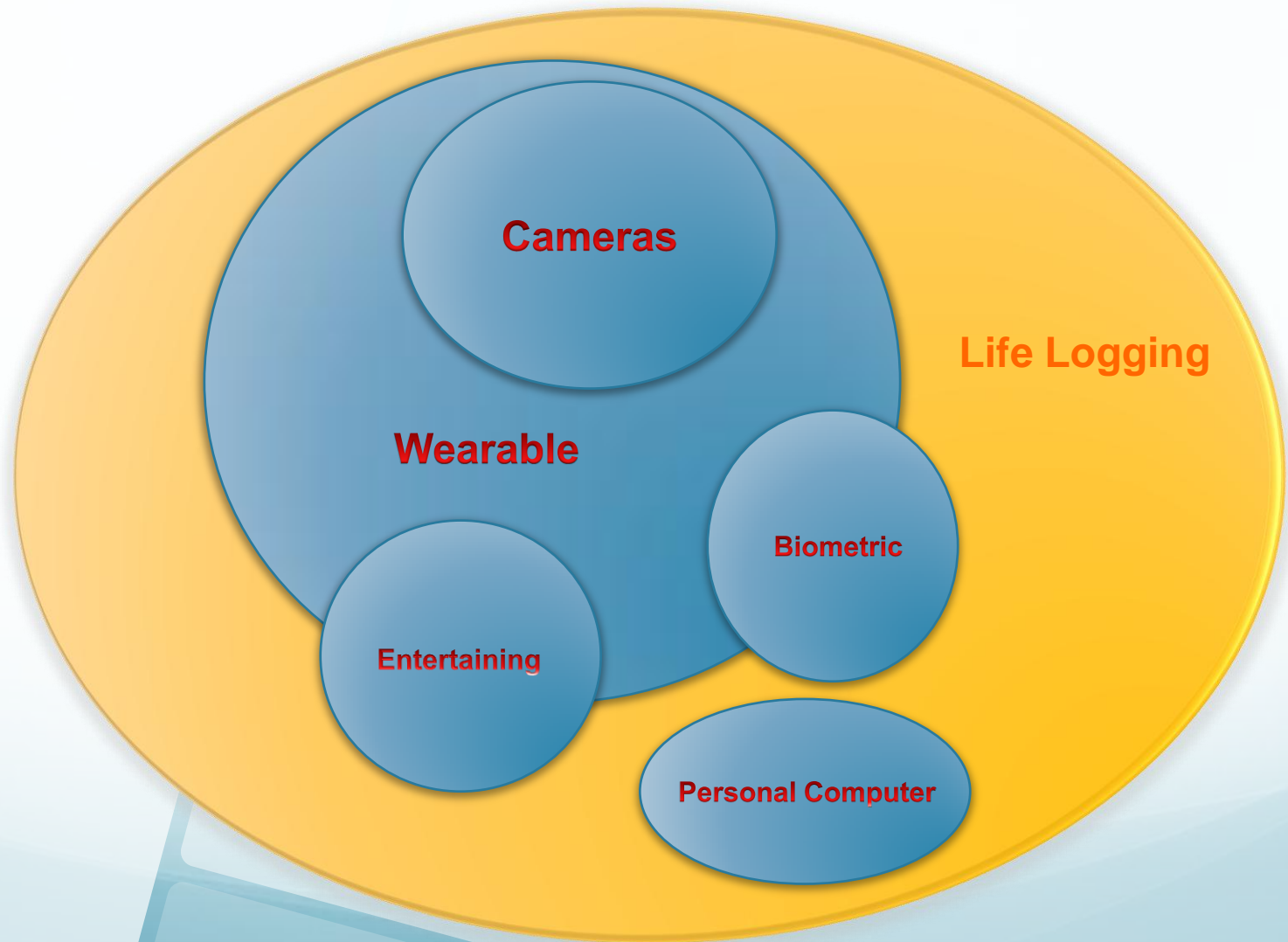
Overview RoadMap

- Existing Devices
- Life Logging Data
- Issues
- Use of Data
- Future Usage Framework
- Conclusion

Overview

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Existing Devices Categories



Existing Devices

- **Wearable Cameras:** SenseCam, Video glass, Looxcie, Go-Pro
 - Memory Enhancement
 - Life Style Detection and Health Management
- **Biometric Devices:** HR-monitor, Readiband, Bodymedia – sleep tracking from your wrist
 - galvanic skin response (GSR) and skin temperature (ST) , physiological responses such as changes in heart rate or increased sweat production, sympathetic nervous activity
- **Amateur Fitness Devices:** Fit-Bit, Nike+Pod
 - Record fitness data, normally small and comfortable to wear
- **Other Wearable Devices:** Logger, GPS checking device,
 - GPS
- **Unwearable devices:** Personal Computers, CCTV system

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Data Types

	Pictures	Location	Blue tooth	Noise	Movement	Heart Rate	Email/Web page	SMS	Wi-Fi/3G	User * Feeling
SenseCam	✓	✓			✓					15
Looxcie	✓									9
Phone	✓	✓	✓	✓	✓		✓	✓	✓	23
HR Monitor					✓	✓				15
PC	✓	✓	✓	✓	✓	✓	✓	✓	✓	23
Eye-tracker	✓	✓								null
Logger		✓								23
ReadiBand						✓				10
BodyMedia						✓				12

Technical Comparison

	Data Sharing	Recording Functionality	Intended Usage Time
SenseCam	manually	Frequently (every 30 secs)	18 hours/day
Looxcie	manually	anytime	User-dependent
HMA-P	automatically	Every 5 Mins/less	18 hours/day
HR Monitor	manually	anytime	Workout
PC	automatically	anytime	PC-On time
Eye-tracker	manually	anytime	User-dependent
Shimmer	manually	anytime	User-dependent
Logger	Automatically/Bluetooth Syn	anytime	User-dependent
ReadiBand	manually	Sleep anytime	Sleep time

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Issues

- Privacy/Security
 - Personal Computer for recording.
 - Strictly obey privacy protection contract
 - No external intervention
- Storage
 - SenseCam pictures size 30K to 300K, at least 10 times increase
 - See [MMM'12 paper on how to store lifelong data/pictures (2012)]
- Application
 - Multidisciplinary cooperation for human healthy, Entertainment
 - Big challenges for computer scientists to record, store, organize and use data. cold start etc. Step by step progressing

→ We have to carefully examine how we interact with private sensor data

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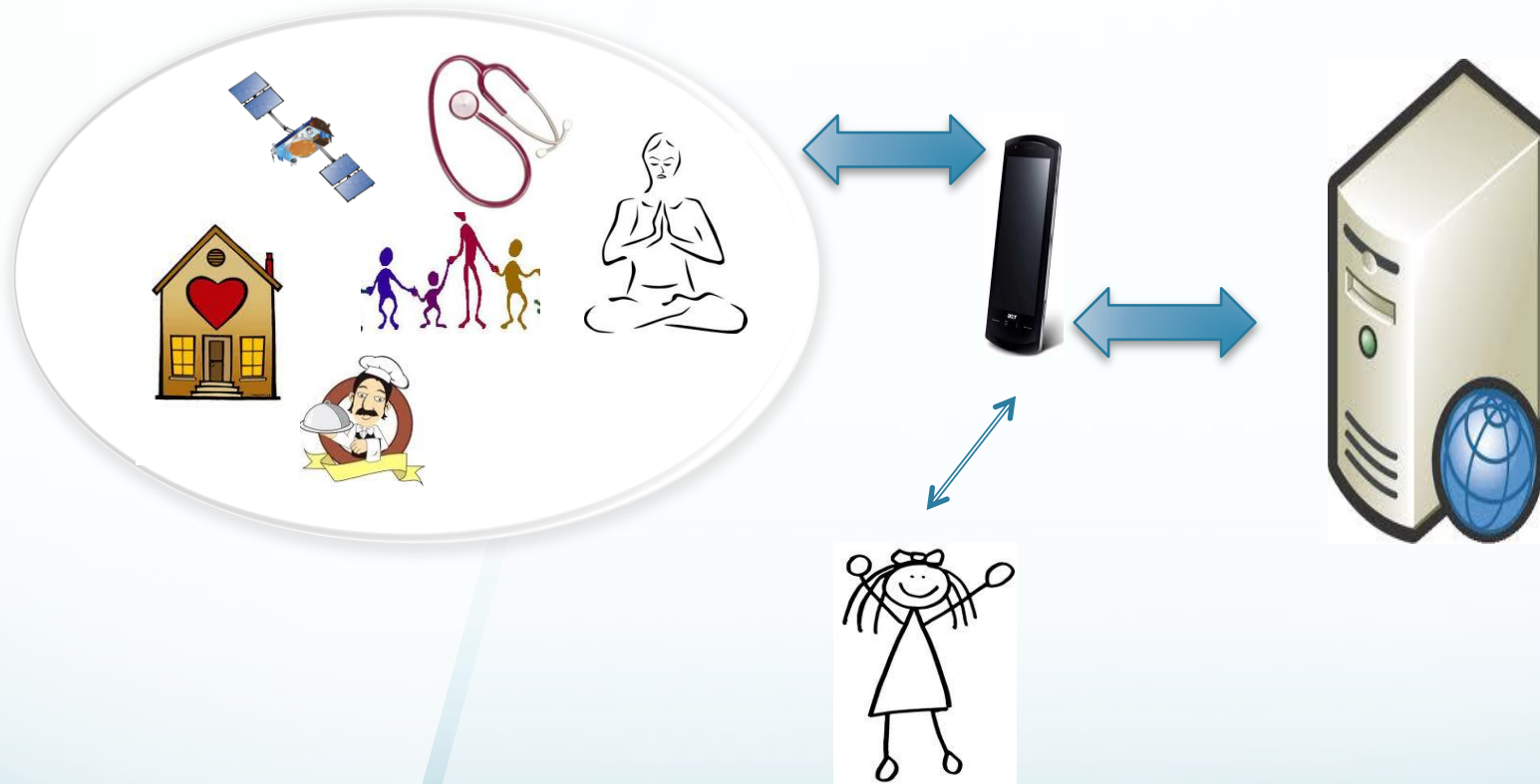
What is next? Big challenges...

- Cheapest/Portable Way to Capture LifeLogging
- Realtime lifelog of Pictures/GPS/Bluetooth/Activity
- Individual Narrative Diary Generation
- Display personal logging data in a more readable way.
- Data Storage: Public Management Platform, Cloud Storage, Personal Computer

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Future Usage Framework



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Conclusion

- In this presentation, we talk about how we gather data for personal lifeLogging, and compare the different types of data gathering devices.
- Besides, we also talk about what we can do in future, issues we should concern in gathering, usage of different types of data.
- Recommendation:
 - Your requirement
 - Complete log, Phone+wr+complus or wear video

References

- [1] Elliott, D., Hopfgartner, F., Leelanupab, T., Moshfeghi, Y., and Jose, J. M., An Architecture for Life-long User Modelling, In Proc. LLUM'09 - Lifelong User Modelling Workshop, Trento, Italy, pp. 9--16, 6 2009.
- [2] Abigail Sellen, Andrew Fogg, Mike Aitken, Steve Hodges, Carsten Rother and Ken Wood. Do Life-logging Technologies Support Memory for the Past? An Experimental Study Using SenseCam. CHI 2007
- [3] Mark Blum, Alex Pentland, Gerhard Troester. Insense: Interest-Based Life Logging. Capture, Archival, and Retrieval of Personal Experience, 2006
- [4] Daragh Byrne, Barry Lavelle, Aiden Doherty, Gareth Jones, Alan Smeaton. Using Bluetooth&GPS Metadata to Measure Event Similarity in SenseCam Images.
- [5] Zhengwei Qiu, Cathal Gurrin, Aiden R. Doherty, and Alan F. Smeaton . A Real-Time Life Experience Logging Tool, MMM 2012

- Questions?

