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Envisioning an Ambient Smart Calendar to Support Aging in Place

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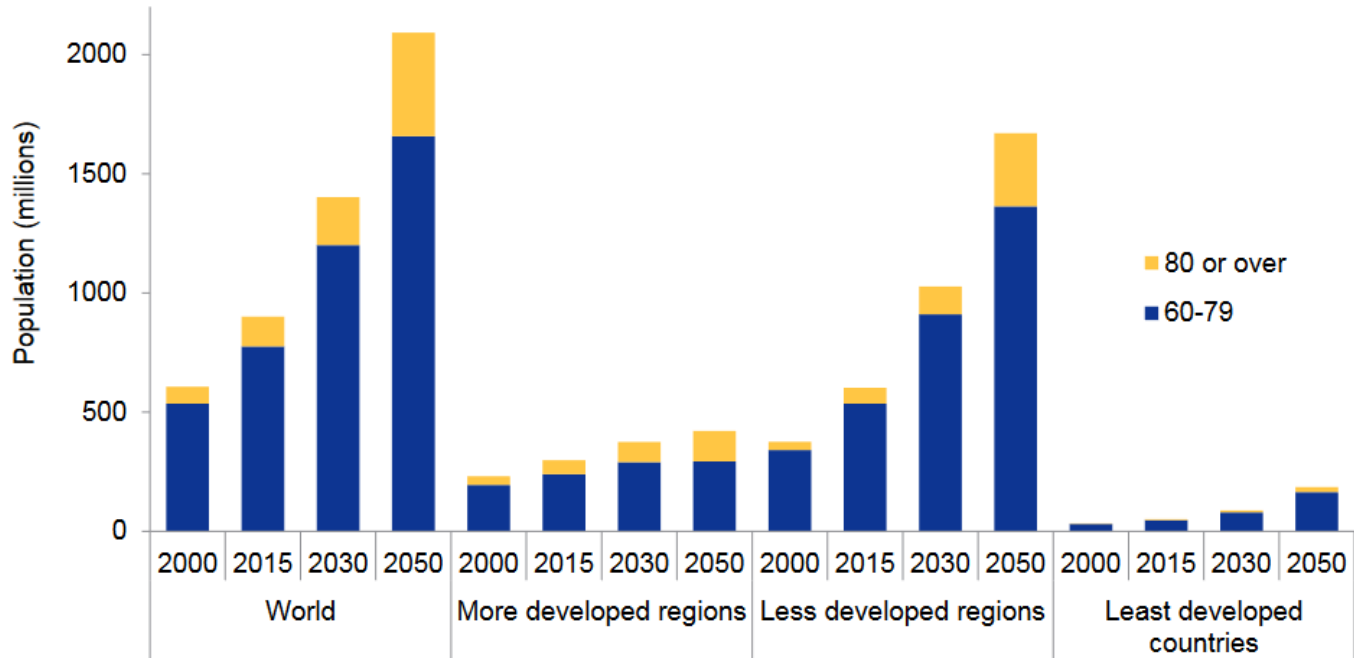
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Motivation



Data source: United Nations (2015). *World Population Prospects: The 2015 Revision*.

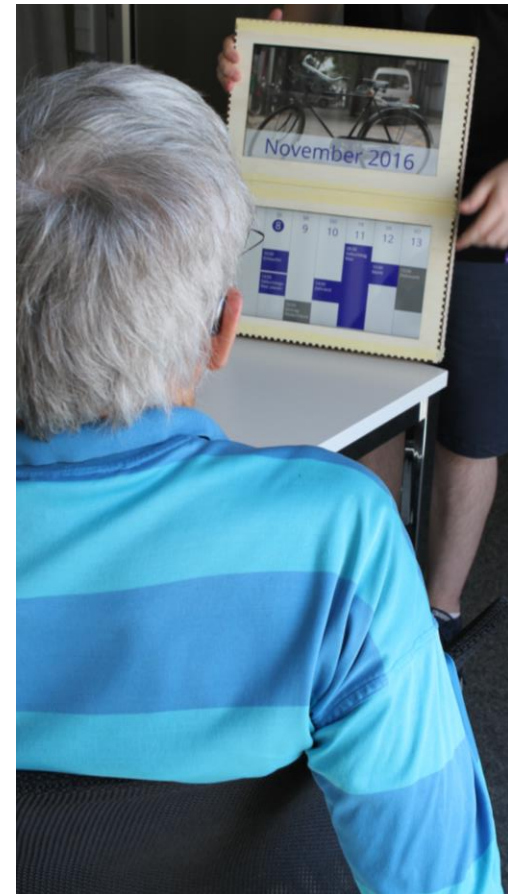
Image source: http://www.un.org/en/development/desa/population/publications/pdf/ageing/WPA2015_Report.pdf

Background

- Various factors are influencing the acceptance of technology that supports aging in place: [1]
- Design guidelines: [2]
 - Need of simple interfaces
 - Avoid parallel tasks in order to minimize the possibility of errors
- [1] Sebastiaan T.M. Peek, Eveline J.M. Wouters, Joost van Hoof, Katrien G. Lujckx, Hennie R. Boeije, and Hubertus J.M. Vrijhoef. 2014. Factors influencing acceptance of technology for aging in place: A systematic review. *International Journal of Medical Informatics* 83, 4 (2014), 235 – 248.
- [2] P. Rashidi and A. Mihailidis. 2013. A Survey on Ambient-Assisted Living Tools for Older Adults. *IEEE Journal of Biomedical and Health Informatics* 17, 3 (May 2013), 579–590.

Concept

- We envision a persuasive system that supports aging in place.
- We propose a smart calendar for
 - Seniors without health concerns
 - Seniors with mental or physical impairments



Example Application for an Elderly

- Maria Miller
 - 68 years old and retired
 - Divorced and lives alone
 - Her only daughter lives a few hours away

- Her activities:
 - Goes to the market every morning
 - Listens to classic music during cooking
 - Calls her grandchildren every evening
 - Meets with friends every Saturday to play cards



Image source: <http://www.freestockphotos.biz/stockphoto/15813>

State: In Health

Event suggestions

Mon 12	Tue 13	Wed 14	Thu 15	Fri 16	Sat 17	Sun 18
		10:00 Market			10:00 Market	
	14:00 Call Peter		14:00 Call Peter		14:00 Call Peter	
					15:00 Cards	
18:00 Dinner	18:00 Dinner	18:00 Dinner	18:00 Dinner	18:00 Dinner		18:00 Dinner
					19:00 Dinner	

State: In Health

Event suggestions

Mon 12	Tue 13	Wed 14	Thu 15	Fri 16	Sat 17	Sun 18
		10:00 Market			10:00 Market	
	14:00 Call Peter		14:00 Call Peter		14:00 Call Peter	
					15:00 Cards	
18:00 Dinner	18:00 Dinner	18:00 Dinner	18:00 Dinner	18:00 Dinner		17:00 Concert in Heidelberg
					19:00 Dinner	

State: In Health

Support for daily activities and tasks

Mon 12	Tue 13	Wed 14	Thu 15	Fri 16	Sat 17	Sun 18
10:00 Shopping		10:00 Market			10:00 Market	
	14:00 Call Peter		14:00 Call Peter		14:00 Call Peter	
					15:00 Cards	
18:00 Dinner	18:00 Dinner	18:00 Dinner	18:00 Dinner	18:00 Dinner		17:00 Concert in Heidelberg
					19:00 Dinner	

State: In Health

Support for family connection

Mon 12	Tue 13	Wed 14	Thu 15	Fri 16	Sat 17	Sun 18
10:00 Shopping		10:00 Market			10:00 Market	
	14:00 Call Peter	14:00 Call Susi	14:00 Call Peter		14:00 Call Peter	
					15:00 Cards	
18:00 Dinner	18:00 Dinner	18:00 Dinner	18:00 Dinner	18:00 Dinner		17:00 Concert in Heidelberg
					19:00 Dinner	

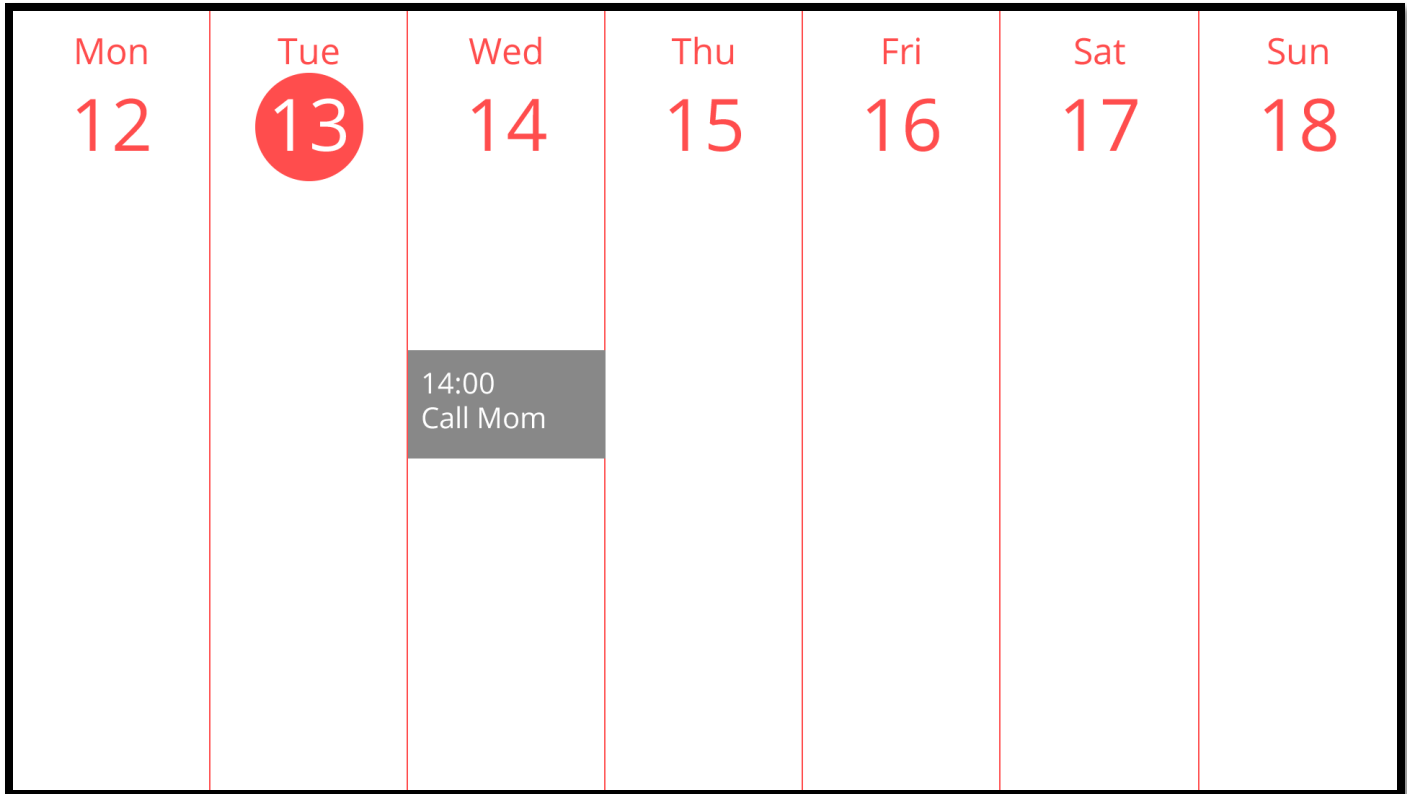
State: In Sickness

Missed social events



State: In Sickness

Missing contact with other family members



Challenges / Upcoming Themes

- Distinguish between normal and unhealthy behavior changes
- Appropriate reactions on unhealthy behavior change
- Privacy issues
- Safety issues
- Support multi-user functionality

Summary

- We envision a **smart calendar** to **support aging in place**
 - For seniors without health concerns
 - For seniors with mental or physical impairments
- The calendar supports:
 - Event suggestions
 - Daily activities and tasks
 - Is able to react on unhealthy behavior changes
- Future Work / Challenges:
 - Detect behavior changes, privacy issues, ...

