

KNOWLEDGE-BASED MODALITY SELECTION FOR INFORMATION PRESENTATION IN A MOBILE SYSTEM FOR PRIMARY HOMECARE

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The Problem



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- Healthcare must be provided to every citizen
 - ▣ This is particularly important when we consider lower income population
- Public (i.e. cost free) healthcare **must** be provided to the portion of population that lies below poverty line
- Preventive healthcare should be the focus of attention
 - ▣ Education, Information, Prevention

A Solution – Step I

- The Brazilian Family Healthcare Programme
 - ▣ Started 1994
 - ▣ National system, although decentralised – different degrees of success depending on region
 - Urban *versus* Non-urban areas
- Extremely low technology
 - ▣ Pen and paper – agents visit homes and take notes

A Solution – Step 1

1. Agents check region to be visited
2. Agents pick historical data (paper forms) related to region to be visited
3. Agents decide strategy and schedule for the day
4. Agents visit homes, provide information and medicaments and collect data
5. Agents return to base (e.g. regional hospital) and record collected data in appropriate forms

A Solution – Step I



A Solution – Step II

- Mobile computing to support the Family Healthcare Programme
 - ▣ More efficient information retrieval and feeding
 - ▣ On-the-fly interaction with the system – and possibly with medical doctors hosted on the regional hospital
 - ▣ More efficient interaction with information – digital technology to optimized information rendering
 - ▣ ***Multimodal Interaction***

A Solution – Step II

1. Agents check region to be visited
2. Agents pick mobile devices and upload relevant information
3. Agents decide strategy and schedule for the day
4. Agents visit homes, provide information and medicaments and interact directly with information system through mobile devices

A Solution – Step II



Information Presentation

- Important for healthcare agents to make well founded decisions about healthcare issues
- Important for information presentation to the population, e.g. for educational purposes

System Proposal

- Server Side:

- ▣ A variety of presentation formats for selected pieces of information (video+ audio, video only, text+images, text only, etc.)

- ▣ Ontologies:

- Device

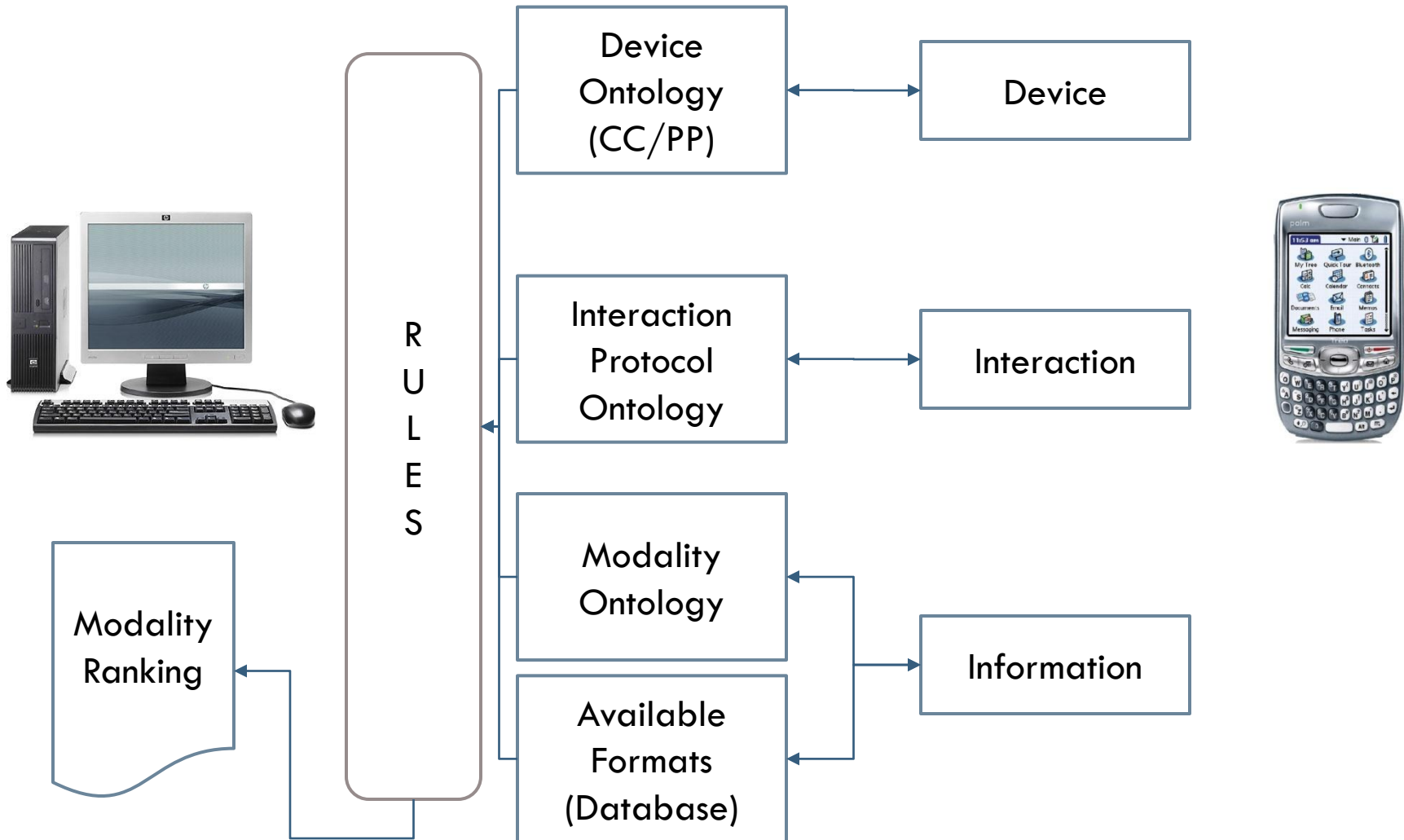
- Modality

- Interaction protocols

System Proposal

1. Mobile device communicates features of interaction (urgency, privacy, etc.), requested piece of information and features of the device itself
2. Server triggers appropriate rules to match received information with ontologies and decide a ranking of information presentation to be sent to mobile device
3. Agent receives ranking and requests formatted information

System Proposal



System Status



- Multimedia database under development
- Mobile system architecture under development

- Ontologies – design stage
- Rules – design stage



Thank you

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