Desarrollo de inteligencia ambiental con SociAAL

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Introduction

- Model driven solution for supporting Ambient Assisted Living development (AAL)
- AAL is expensive: equipment, human resources, time

Less researchers → Less advances

Poor experimentation → Bad products (expensive/not suited for specific needs)
What a AAL development may look like

- First of all, develop an application that detects when one person falls (videos from LTU CS)

- Once developed, it's testing time
  - It can be dangerous
  - You cannot repeat the experiment in the same way
Virtual Living Lab: Elements

SociAALML: Scenarios, actors
PHAT: 3D Rendering

jALI: AmI Devices

Channel 1
Prog 11(Ads)
Virtual Living Lab: Elements

Model Driven Based: Visual Language + Code generation

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Prog11(Ads)
A custom solution based on open source meta-modeling solution: INGENME

- Goal: quick abstract+concrete grammar for visual languages
  - GOPRR based
    - Couples notation with the grammar
    - First class representation for diagrams & relationship
  - Produces a visual editor + parser: both maven artifacts
    - Share your editor, let others try it!!
- Template in github
  - https://github.com/Grasia/template-ingenme
- Not made to be a replacement to EMF but to cope with a simpler alternative
  - Transition to EMF is possible
- Different applications: SelfMML, INGENIAS, SociAAL
- GPL v3
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SociAALML

- 190 classes
- 55 relationships
- Need to assess their utility
- Its development driven by use cases
  - Interviews with Parkinson Patients
  - Implementation of the situations
Produced Editor
Coding

- Using 9 INGENME templates
  - Actor behavior
  - Scenario configuration
  - Norm definition

- Information extraction and template instantiation are made through INGENME utilities
Lessons: languages evolve

- The language has to be easily modifiable
- Modifications come from
  - Unsuitability to express some concerns
  - Additional information required from the model-to-code transformation
  - Ease of use
- Current SociAALML comes from several iterations
  - Old examples can still be loaded
Conclusions

● A Maven based model driven development is possible
  – Ensures stabitily and eases the software reuse
  – Homogenizes the development
    • regardless the technology, it is always `mvn compile && mvn install`

● If support tools are slowing you down, perhaps they are not as supportive as you thought
  – There are alternatives to EMF
  – Choosing them is not a limiting choice: you can choose again

● SociAALML is a complex code generation case and it is expected to keep on evolving
  – INGENIAS is even more complex