

PODD Ontology Driven Database

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Background

PODD Ontology
Driven Database

Dr Peter Ansell

- PODD implemented between 2009 and 2011
- Design by Yuan Fang Li and Gavin Kennedy for High Resolution Plant Phenomics Centre

Motivation

PODD Ontology
Driven Database

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- Flexible scientific experiment management
- Use RDF and OWL technology to support science

Example

PODD Ontology
Driven Database

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Simultaneous Phenotyping of Drought Stress Tolerance
in Arabidopsis OST1-2 Mutant and Wild Type

Credit to Xueqin Wang for the example design :
[http://podd.plantphenomics.org.au/podd/
object/podd0bject:838](http://podd.plantphenomics.org.au/podd/object/podd0bject:838)

Interface Layer

(Restlet, Freemarker)

Object
Services

Metadata
Services

Publishing
Services

Search &
Query

Security Layer

(Spring Security, custom authorization)

Business Logic Layer

Object
Management

Concept
Management

Reasoning
Service

Data Access Layer

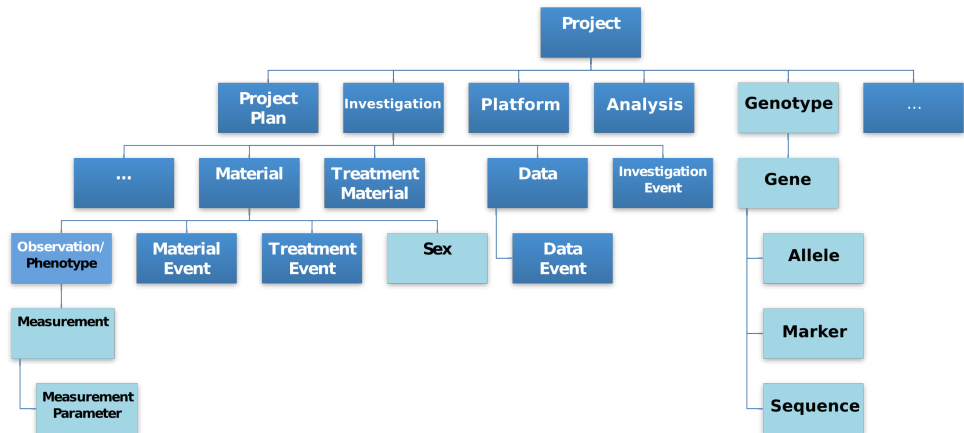
Fedora
Commons

Sesame
Triple
Store

MySQL
Database

users, roles

Lucene
Index



Demo

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<http://podd.plantphenomics.org.au/podd>

Evaluation

Good:

- 1 Flexible : Simultaneously support different experiments
- 2 Adaptable : Additions and changes to schema ontologies

Bad:

- 1 Current implementation does not scale with experiment size
- 2 Only supports OWL-1.1
- 3 Uses old versions of Fedora and Spring

Next steps

PODD Ontology
Driven Database

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- Use upcoming SPARQL 1.1 Query and Update standards
- Support OWL-2
- Pure SPARQL access to a single database
- Support links from experiments to other RDF documents

Questions

PODD Ontology
Driven Database

Dr Peter Ansell

Open source code can be found online at:
`https://github.com/podd`

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