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PU	Public	✓
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

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Table of Contents

Executive Summary

The DEHEMS project has various systems that have been based on Open Source code as well as a commitment to furthering open source development in the area of energy and ICT. For this reason open source community tools, Git and Trac have been deployed to support the project management and organisation of development to a wider audience.

A repository service, Sourceforge has been chosen such that developers can more easily work on branches and integrate their code back into the main stream. Also open source repositories are well indexed so that the project will be able to attract new developers and users to the community with less promotional effort. Sourceforge supports both Git and Trac as plugins and we have opted to enable those features.

Outside of code that is released into the Open Source community there is also a service that developers can use to store, retrieve and analyse data using the DEHEMS backend systems. This service simplifies the development time for other developers and allows them to utilise community intelligence from the larger statistical database powering the hosted service.

This document covers the organisation of the open source components and how the community will organize efforts for continued development beyond the life time of the formal project.

Project organisation

The DEHEMS project is organised into work packages that correspond to the delivery of the overall project and does not necessarily lend itself to discrete development activity. Also there are systems that will not require as much new development, for example areas in the DEHEMS architecture that use Apache or MySQL. Therefore, the open source organisation of the code and systems should be chosen to effort and growth potential.

With that rationale in mind, the following organisational structure has been initialised.

Data Gateway and Sensors

Code related to the sensors and collection of data from serial interfaces on the board. Immediate compatibility are with off the shelf sensors that have serial interfaces e.g. Current Cost, OWL and Wattson. There will be an ongoing interest in developing serial drivers for a range of sensors and this area will be dynamic with new sensors on the market requiring low cost data gateway services for IP enablement.

Data Collection Web Service

This includes the development of protocols for communication between the data gateway and the hosted data base. Both client and server implementations can be done in a variety of languages to support web clients (PHP, Perl, ASP, Python, etc.) various gateway devices and server side implementations. The start of the effort will be the publication of the D2C2 protocol with implementation notes. Full software release will be available during Cycle 2 of the project.

OLAP and Semantic Services

Online analytical processing (OLAP) and semantic services are the reporting and aggregation intelligence in the project. This area is starting during Cycle 2 and will not be particularly useful as operational code released into the open source community, rather there will be small releases of focused systems. License agreements with 3rd parties, namely JESS, prevent the release of code in the expert system area.

Energy Models

The simulation models that were created as a part of Cycle 1 will be released into the open source community with implementations being released in Cycle 2. Energy models benefit from having data and activity that contribute to machine learning. It is the intention to focus on the publication of energy models as services to exploit these benefits.

Front-end and Widget Code

Javascript objects and 3rd party widgets are being developed as a part of the project. These include chart objects and compatibility with services like Google Powermeter. There will be a complement of controls published including those created for the iPhone platform.

Services

For many in the development community, hardware resources will not be available nor a critical mass of users providing intelligence. Therefore a set of services that publish and collect data will be provided. They will be compatible with the data consumer clients (front-end code) and data provider clients (gateways and sensors).

Location

The Sourceforge URL is http://sourceforge.net/projects/dehems/ with the open services hosted at http://www.dehems.org

Contributors of code register with Sourceforge or they can independently develop using GIT and hosting their own project branch.

Requirements capture will be maintained via the built in TRAC system for the open source community. These may or may not be inline with the requirements for the Living Labs, but most importantly they need not be as those requirements are fulfilled under the DEHEMS project proper.

Complementary Projects

Since there has been the use of other open source code in the project, publicity can be done, when appropriate, through various complementary projects. They are listed as followed:

- Hypertable
- OpenWRT
- Memcached
- Ontology Repositories (SWOOGLE, SUMO)

Conclusions

The project can be found on Sourceforge and since it is a free service, will be available to any developers wishing

Future work

Future work will include publicity online to the developer community to get involved in creating modules within the respective areas.

Implications for other Work packages

All project areas should be aware of the structure and publication of code and services.

WP7 should be aware the data published for research will be on an anonymous basis.

References

Sourceforge - http://sourceforge.net/projects/dehems/

Trac guide - http://trac.edgewall.org/wiki/TracGuide

GIT - http://sourceforge.net/apps/trac/sourceforge/wiki/Git