GENIVI® Open Source Project List

GENIVI employs an “upstream first” model and actively adopts and/or adapts existing components residing in the FOSS community to meet the defined requirements for its IVI software platform. In some cases, however, software to meet defined requirements does not exist in any upstream project. In those cases, GENIVI hosts projects that facilitate the development of required functionality in an open and collaborative manner, consistent with the best practices of other FOSS projects. Further, cases may exist for new projects to be launched which implement automotive functionality not yet defined by GENIVI or that may employ a different and innovative approach that GENIVI should consider for future platform releases.

AF_BUS D-Bus Optimization

http://projects.genivi.org/afbus-dbus-optimization

As an alliance, GENIVI aims to leverage Linux and other open source technologies. One of the tools GENIVI aims to re-use, D-Bus, has become a standard for many components to communicate with each other.

Without precluding the option of using other IPC mechanisms, GENIVI decided that D-Bus will be a part of any GENIVI system. Early tests showed that the performance of D-Bus could be improved, so the D-Bus optimization project was launched. The results are approximately a 100% improvement in throughput and similar results for latency.

Audio Manager

http://projects.genivi.org/audio-manager

The AudioManager is a framework for managing audio in the IVI context. It defines an interface between traditional Linux audio routing and the automotive-specific controls, plus provides simple methods to juggle multiple streams like a cloud-based music service, traffic alerts and emergency safety messages.

Browser Proof-of-Concept

http://projects.genivi.org/browser-poc/

This Browser Proof of Concept has taken a from scratch approach due to the specific requirements for an in-vehicle browser, existing browsers were evaluated but not found suitable. The Browser PoC is an example IVI browser and has limited functionality.

Diagnostic Log and Trace

http://projects.genivi.org/diagnostic-log-trace

DLT is a reusable open source software component for standardized logging and tracing in infotainment ECUs based on the AUTOSAR 4.0 standard. The goal of DLT is to consolidate the existing variety of logging and tracing protocols into one format.

IPC CommonAPI C++

http://projects.genivi.org/commonapi/

CommonAPI C++ is an Inter Process Communication (IPC) language binding API for C++, which enables applications to use different IPC middleware as backend without any changes to the application code.

The intention is to make the IPC interface for application development independent from the underlying IPC middleware.

IVI Layer Management

http://projects.genivi.org/ivi-layer-management

Layer Manager provides a uniform interface to the wide variety of graphical elements presented by a car’s sensors and cameras, and to user controls and system-critical status information like that displayed on the instrument cluster. The goal of this work package is to define a common API and provide a proof-of-concept implementation for the IVI Layer Management Service.
**Node Startup Controller (NSC)**

http://projects.genivi.org/node-startup-controller

The Node Startup Controller (NSC) was introduced into the lifecycle package for GENIVI in order to handle some startup and shutdown functionality. It essentially "extends" systemd to implement some IVI requirements that are not done by systemd itself because they are not generally applicable for all Linux systems (as determined through discussion with the systemd community). However, similar functionality might be desired in non-automotive systems so we hope this can be useful and/or develop into something shared across domains.

The main areas of responsibility for the NSC are:
- Last User Context (LUC) Management
- Legacy Application Shutdown
- Target Startup Monitoring

**Point-Of-Interest PoC**

http://projects.genivi.org/poi-service-poc/

Under the scope of the Location Based Services features, the GENIVI Alliance has standardized a search interface that provides access to the Point Of Interest (POI) databases. This API allows access either to the embedded database or to additional databases, by a powerful mechanism based on connection to ContentAccessModule (CAM). In order to check and demonstrate the main features of the API, the "Point Of Interest POC" provides a Proof Of Concept (POC) software. This POC could also be considered as an interesting starting point for a test software, that could significantly reduce the validation and integration effort.

**Node State Manager (NSM)**

http://projects.genivi.org/node-state-manager

The Node State Manager (NSM) was introduced into the lifecycle package for GENIVI in order to handle some startup and shutdown functionality. It essentially "extends" systemd to implement some IVI requirements that are not done by systemd itself because they are not generally applicable for all Linux systems (as determined through discussion with the systemd community). However, similar functionality might be desired in non-automotive systems so we hope this can be useful and/or develop into something shared across domains.

**Persistence Client Library**

http://projects.genivi.org/persistence-client-library

Persistence Management is responsible for handling persistent data, including all data read and modified during the lifetime of an infotainment system. "Persistent data" is data stored in a non-volatile storage such as a hard disk drive or FLASH memory.

**SmartDeviceLink**

http://projects.genivi.org/smartdevicelink/

SmartDeviceLink is a project which intends to standardize and wrap the many in-vehicle interfaces which may exist in the automotive context. The end goal is to provide an expandable software framework to both mobile application developers and automotive head unit creators for the creation of brought-in applications that appear integrated onto a head unit.

**Web API Vehicle**

http://projects.genivi.org/smartdevicelink/

The Web API Vehicle is a proof of concept that demonstrates an interface to the vehicle accessible from HTML5.

The proof of concept shows how one can use the various system calls and sensors on a vehicle via an HTML5 interface. It allows for a browser or similar HTML rendering toolkit to access vehicle data and manipulate that data with standard HTML5 tools.

This list of projects is current as of March 2013. For an up-to-date summary, please visit www.genivi.org/projects