**Minutes of Android Automotive SIG**

**9 July 2019**

**Agenda**

1. Development / Reference Platform
2. Automotive services discussion.
3. Refine HAL topics

**Attendees**:

Adam Konopa, Andre Hainzlmaier, Charnjiv (Chief) Bangar, Frederic Berat (ADIT), Gerald Spreitz (Bosch), Grzegorz Bajorski (Tieto), Jochen Bohm (BMW), Marc Bellanger (Renault),, Marcin Katulski (Tieto), Markus Boje (BMW), Markku Tamski (Tieto), Michal Stawinski, Pete Brown (Wind River), Piotr Krawczyk, Stefan Sysocki, Suhasini Raghuram (Analog Devices), Venkatesh Natarajan (FCA), Viet-Anh Pitaval (Tieto), Marques McCammon (Wind River), Rejani Syamala, Marc Bellanger, Philippe Robin (GENIVI, Project Management Lead), Gunnar Anderson (GENIVI, Development Lead), +1 (USA) (FCA)

**Apologies:**Steve Crumb (GENIVI, Executive Director)

*Minutes by Gunnar Andersson*

**Discussion**

Gunnar Andersson welcomed everyone and presented the agenda.

 **Progress on the Reference Platform**

Action from last week was: **Steve, Chris, Sujal and Gunnar to develop a request to Qualcomm and Renesas for hardware to support the SIG’s Android reference platform.**

Gunnar: This request has been drafted but is being held up by getting the right Qualcomm contacts.
Can someone else provide them?

Marques and/or Chief:
For Qualcomm platform, we have spoken to them. Generally it is difficult to work with the platform openly.

Pete: I would again suggest i.MX8 as another possibility. Due to cost, availability of BSP etc.
Gunnar: Is there's a comparable automotive kit?
Pete: Yes.
Gunnar: Last meeting we only agreed on contacting Qualcomm and Renesas. I take this as a request to add NXP. Please send the contact information.
**Action**: Pete/Marques will send contact info for NXP (and Qualcomm if possible) to Gunnar/Steve.

Gunnar: I appreciate your investigation and preliminary status, however the plan is to send a written and official request from the GENIVI Alliance on behalf of this SIG. We will then get more official answer.

Gunnar: Also note we have not made any general statements about “openness” – instead the request first asks the vendors for information on what paperwork is needed. After receiving an answer that we can evaluate and/or enter into any needed discussion/negotiation. HW vendors will be in a clear position to support or decline our request.

Marques: Are we sending out to the vendors sequentially or in parallel?

Gunnar: I think all in parallel, and we see what comes back.

**GAS and app/service ecosystem**
Gunnar: Our proposal is that this is a strategic question to be considered & discussed by OEMs (only) to start with. We should separate it from technical platform advancement for the moment.

…Who is taking lead on this?

Jochen: Yes, that is as agreed, and I think Chris was going to take lead on organizing that group. He is away this week.

Gunnar: (Everyone) Is this plan OK? (If there are no objections...) we will leave that topic for today and let Chris organize it as agreed.

**Project Organization**

Gerald: What will be the organization (of the HAL work)

Gunnar: We will generally try to split topics into sub-project. If there is a large enough group to make it a separate meeting series then it will.
…We will send out a kind of survey to see who wants to sign up for participation. Let's clarify first the content a bit - it makes that question easier to answer. Likely next week due to GENIVI face-to-face board meeting this week.

**HAL improvement – refining the topic**

Gunnar: Let’s recap from last meeting. What does the HAL topic include? Vehicle signals, and what more?

Stefan: There already exists some defined vehicle signals in the Vehicle HAL that are exposed to apps. I think it's difficult (for OEMs) to agree on more standard signals.

Gunnar reminding about VSS work, W3C work.

…The GENIVI Connected Services project is right now surveying all existing standards which includes gap-analysis on protocols, but also on data-signal definitions from other projects (such as SENSORIS and other).

Gunnar: This is a basis for (off-board) vehicle data but can also be a basis for onboard application APIs.

Jochen weighs in: Yes, it is important to not duplicate this work that already exists.

Gunnar – Be aware, possible alternative and complementing databases of signals\* besides VSS (\*more generally "data items") are often discussed in W3C, but we are not really getting examples of those yet. In any case I expect some things will be published in open-source fashion soon, and then we can include them and work towards a consolidated view.

Jochen: Agree, gap analysis is the first step. Such as what's in the current (Vehicle Data API) HAL, and what needs to be added?

Marques: ... or "removed"? I.e. could there be something in there that is not desired (by OEMs)?

Jochen: ... agreed, gap analysis can cover both of these directions

Piotr: I also wonder if all apps can rely on a fixed standard API or if we need to introduce a general mechanism for access. (The current set of data in Android Vehicle HAL is quite limited).
... we could instead introduce some kind of tool like the CommonAPI interface
to any properties [that can be defined later]. Would be good to use CommonAPI and Franca IDL, or similar.

Gunnar: Yes, to add to that – I believe in addition to all our standards effort, there will be some remaining need for smaller complementing proprietary data sets. For example an after-market vendor might add a device, which has a unique capabilities, and eventually some specialized apps should be able to access that data. But if the *mechanism* through which all such extension is done is still standard, this is a huge big benefit.

Gunnar also notes that GENIVI has always promoted VSS and Franca IDL in parallel. There is a slight overlap but mostly they serve different purposes. VSS is a more direct way to describe signal-type data and Franca is more powerful for programming interfaces. But a translation between VSS and Franca attributes (=properties) would be possible.

Any more thoughts on HAL?

Marc: I think the primary interest not the data itself but the way we expose to the API. Is the current Android approach, its unique IDL and tooling not too difficult to manage? Should we investigate/promote an alternative
framework to manage this?

Gunnar: Good question for the group to investigate further. Let's stop there. We now have a starting point for HAL/data discussions.

**Other improvement areas (whether named “HAL” or other)**

What other topics? Audio? Radio?

Venkatesh (FCA): Android Camera API is now native only to meet the timing requirements. Not perfect and not quite there yet. [Improvement opportunity]

Piotr: Similar for early audio of course. A standardized and working approach is needed.

Gunnar: The group ought to discuss a bit where to draw boundaries – one approach is adding important component/subsystems – another is more fundamental work on the Android platform (such as the mentioned boot time and early functions)

Marques: In this context] I would like to continue leading the development platform activity as we said.

Gunnar: Great, as soon as we get the official hardware request sent out from GENIVI I'd appreciate driving forward the development of the (software) platform.

Gunnar notes again an opportunity to reuse already ongoing “board farm” test infrastructure built with Renesas - \*if\* we end up using Renesas for the Android work.

Marques: Is the group also interested in the dev platform running a Hypervisor?

Gerald: Yes, seconded.

... some discussion.

Gunnar notes that we are at least in the Hypervisor Project striving to stay vendor-neutral to promote good collaboration, and this should be taken into account.

Order of operations: It is agreed that it is of interest, but we get things running on hardware first, virtualization second.

*Adjourned 17:58 CEST*

For reference the link to the SIG wiki is: [https://at.projects.genivi.org/wiki/display/PROJ/Android+Automotive+SIG](https://at.projects.genivi.org/wiki/display/PROJ/Android%2BAutomotive%2BSIG).

GENIVI has also set up an issue tracker in JIRA here: <https://at.projects.genivi.org/jira/projects/AASIG/summary>.
Note that GENIVI is still working out a permissions scheme for this, and in addition there’s a temporary glitch in account creation right now. For the moment, please email directly to one of the above GENVI staff if you need help to get a JIRA account created.