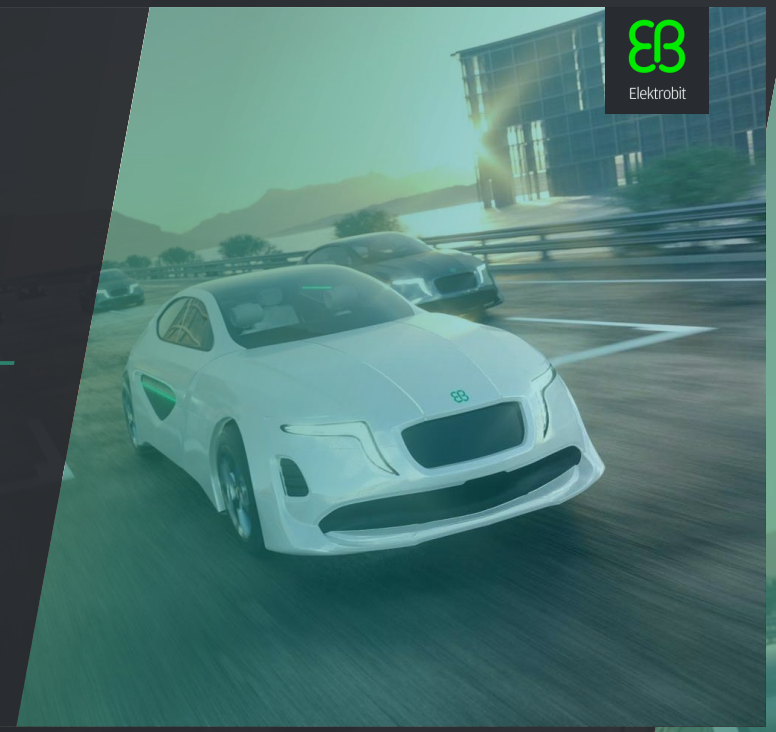
SOAFEE Linux Hypervisor PoC (v 2)

Uwe Meißner
March 14, 2024



Uwe Meißner, Marcel Dausend
March 14, 2024

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Agenda

01 Welcome!

02 Introduction of Elektrobit

03 Project introduction

04 Q&A

Elektrobit (EB) – Cockpit System Solutions

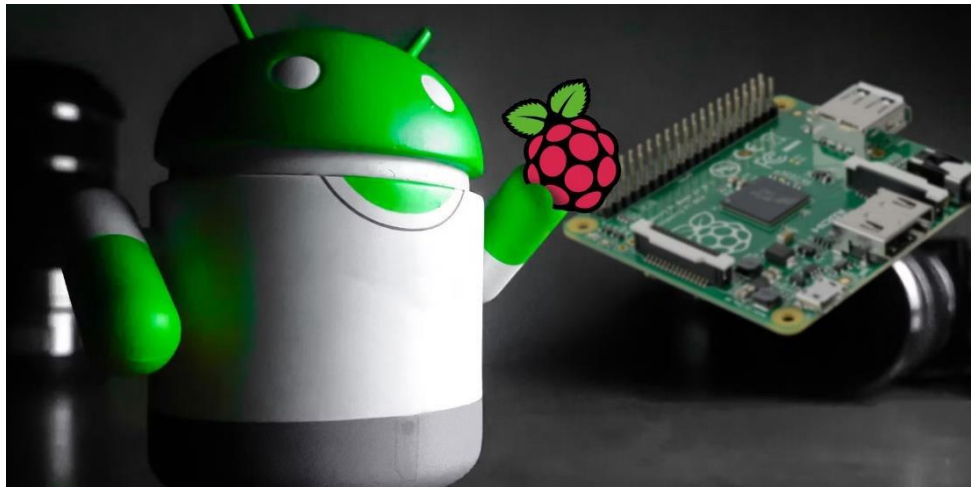
Development of Android-based Infotainment Systems at Elektrobit

Raspitainment

... Motivation and main use cases

Project Goals

- Bring Android Automotive OS (AAOS) to a commercial single computer platform like raspberry pi
- Integrate periphery to AAOS on target HW
- Implement a reference use case integrating external data into AAOS



Main Elektrobit use cases

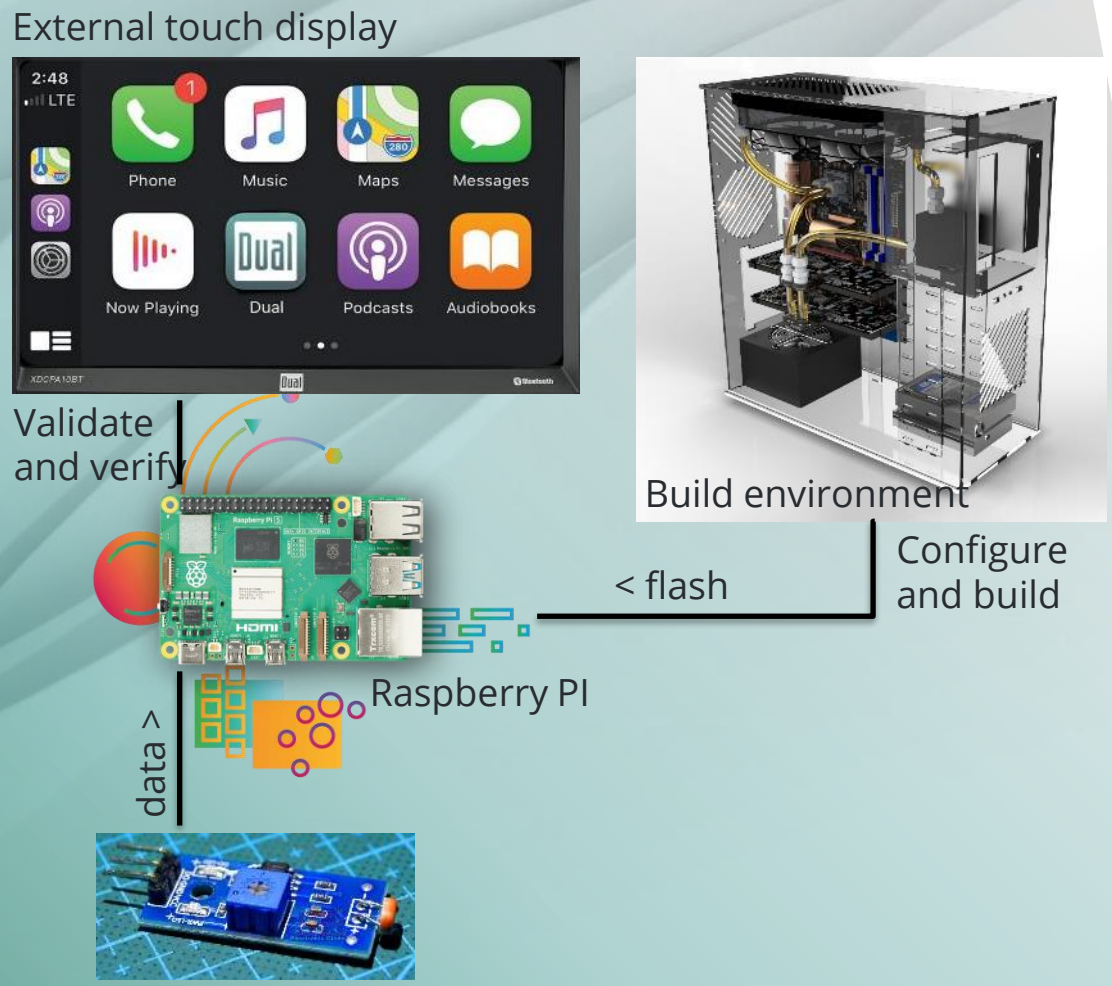
- Get Vanilla Android running on raspberry pi
- Learn how to build your own Vanilla Android for raspberry pi
- Build AAOS on raspberry pi
- Integrate data via GPIO into raspberry pi, e.g. day night mode sensor that affects the AAOS‘s behavior

Main leaning areas and challenges

- Understanding the build system of Android / AAOS
- Handle high HW requirements for SW build
- Learn how to flash and test Android on raspberry pi
- Create a basic AAOS image for raspberry pi and test it
- Implement a use case that integrates „car data“ like day/night sensor via Vehicle Hardware Abstraction Layer (VHAL) into AAOS
- Collect feedback and improvement ideas

System Overview

… your working environment



Prerequisites

- https://source.android.com/docs/setup/start
- https://source.android.com/docs/setup/start/requirements#hardware-requirements (>=32GB RAM; >=400GB Discspace)
- Consider own HW or bwcloud
  - https://www.bw-cloud.org/en/first_steps
  - https://www.bw-cloud.org/de/bwcloud_scope/flavors
  - https://www.bw-cloud.org/en/faq/quota
- Development and system under test (SUT) setup
- Understand basics of Android build environment, build system, and its configuration
  - https://source.android.com/docs/setup/start/requirements
  - https://source.android.com/docs/setup/download
  - https://source.android.com/docs/setup/build

Project outlook

… main project activities

Clarify organizational aspects

Requirements elicitation and analysis

Familiarization phase, i.e. start learning, organize your team, …

Prepare basic working environment

Define and prioritize main project goals

Perform project planning

Get used to SCRUM or KANBAN or ..

Prepare for your first tasks

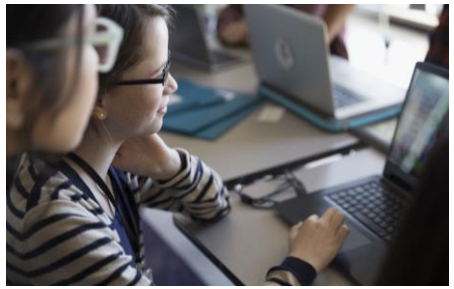
HW/SW integration concept

Start technical investigations

Define the system’s architecture

Work on your HW setup and flashing process

Define your build, test and delivery strategy



Design and implement user stories

Apply state-of-the –art working methodologies like pair programming, code reviews, static code analysis, test automation, …

Verify and validate your implementation

Improve your way of working and your work environment

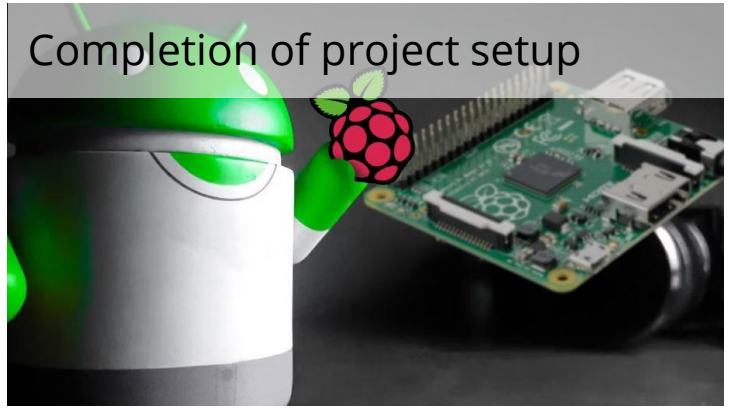
Demonstrate your system and get customer feedback

Project milestones

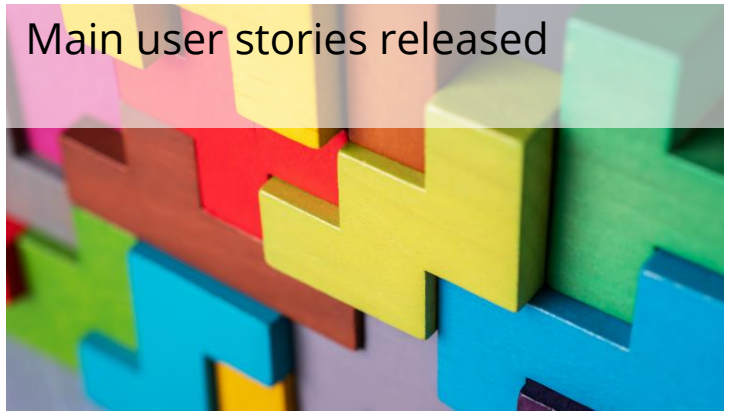
... on our common way

Kick-off meeting

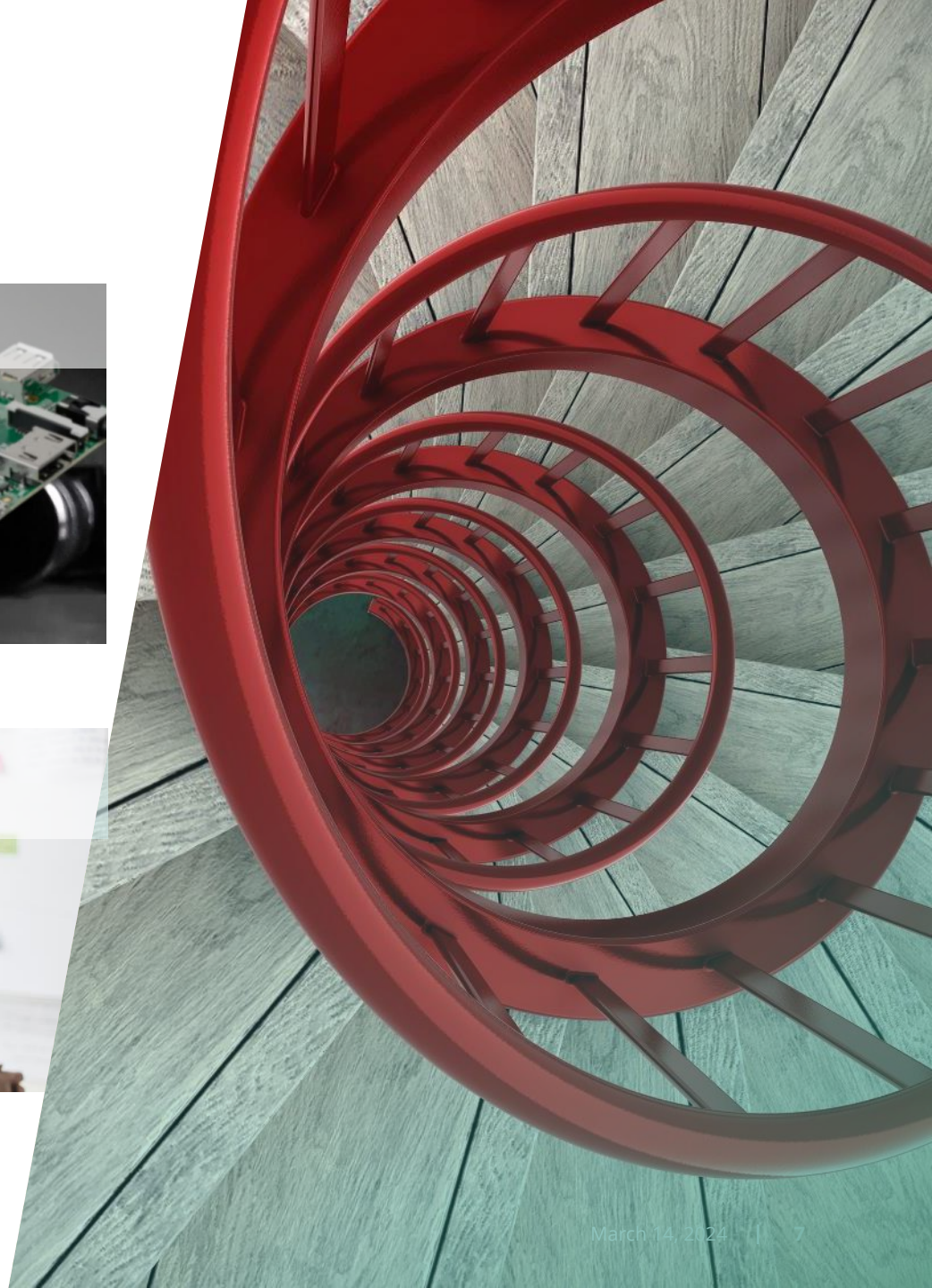
Completion of project setup



Main user stories released



Project demonstration at Technische Hochschule Ulm



References

List of references

- Raspberry PI home: https://www.raspberrypi.com/software/
- KonstaKANG home: https://konstakang.com/devices/rpi4/
- Grace up: https://grapeup.com/blog/android-automotive-os-on-raspberry-pi-4b/#
- LineageOS build for Raspberry : https://konstakang.com/devices/rpi4/
- LineageOS Wiki: https://wiki.lineageos.org/
- Visual Embedded Android (AOSP) with Drawings and Practice: https://www.udemy.com/course/embedded-android-training/

Elektrobit

External Elektrobit accounts

Github enterprise at Elektrobit:
https://gitext.elektrobitautomotive.com/mada270593/raspitainment

Name	Account	Company	Last Logon	Expiration Date
Bircks Nicolas (EXT)	a10650079	Technische Hochschule Ulm	Never	2024-04-29
Karagöz Michael (EXT)	a10650080	Technische Hochschule Ulm	Never	2024-04-29
Karagöz Deniz (EXT)	a10650081	Technische Hochschule Ulm	Never	2024-04-29
Lanzinger Tim (EXT)	a10650082	Technische Hochschule Ulm	Never	2024-04-29
Lippold Fabian (EXT)	a10650083	Technische Hochschule Ulm	Never	2024-04-29
Graf Philipp 1 (EXT)	a10650084	Technische Hochschule Ulm	Never	2024-04-29

from https://jasonvbarger.com/uncategorized/the-irrefutable-power-of-teams-inspirational-thoughts/

Questions and Answers

... let‘s listen to your expectations and further discuss

Contact us

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