Automotive Linux Summit(ALS) 2019

AGL-based Container Technology Applied to Mass Production of RSE(Rear Seat Entertainment)

18 July 2019

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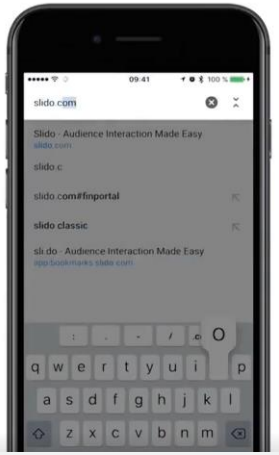
AUDIENCE GUIDE

https://www.sli.do/

Open any browser and go to

www.slido.com



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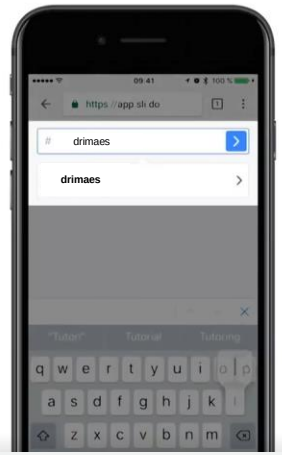

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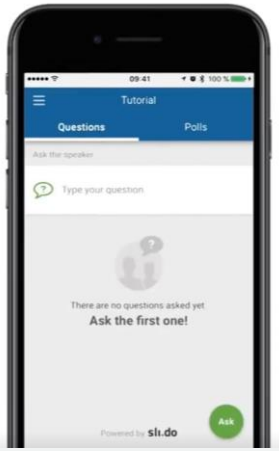
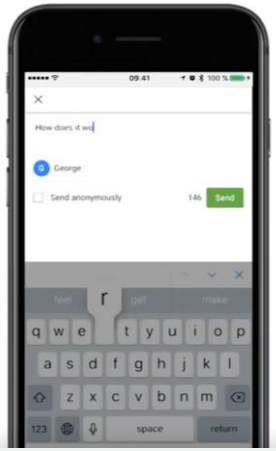
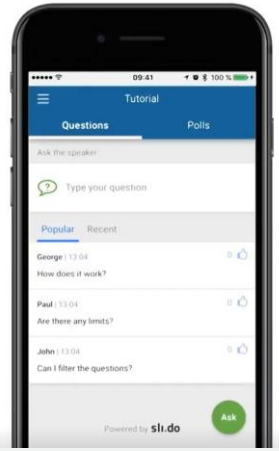






VISION VIDEO

DRIMAES INC.

Since 2015, we have developed automotive embedded software technologies. Especially, we are specialized in developing and customizing infotainment software platform based on AGL(Automotive Grade Linux) and virtualization technologies. As AGL Silver member, we would like to have diverse chance to collaborate with other global infotainment leaders.

2015

11
Won the 2nd place at Infineon Asian Venture Forum

Founded DrimAES, Inc.

2016

03
Acquired an embedded software start-up

05
Launched automotive embedded software training kits (DK-AUTOSAR, DK-IVI, DK-AVR)

07
Set up a research lab

Obtained the Korean venture business certification

11
Secured 3 Korean government R&D funding projects

2017

01
Joined AGL as a silver member

Registered DAVINCI(visual launcher) as AGL 3rd party app in CES 2017

07
Set up partnership with several SoC companies

08
Participated in the ARM Partnership Meeting as an exhibitor

2018

04
Secured Seed funding and premier Korean R&D funding program, TIPS(Tech Incubator Program for Startup)

09
Filed two patents in the US and Europe

Made a contract to develop RSE software platform with a Korea Tier 1

2019

01
Secured Series A funding

02
Made a contract to develop AVN software platform with a Korea Tier 1

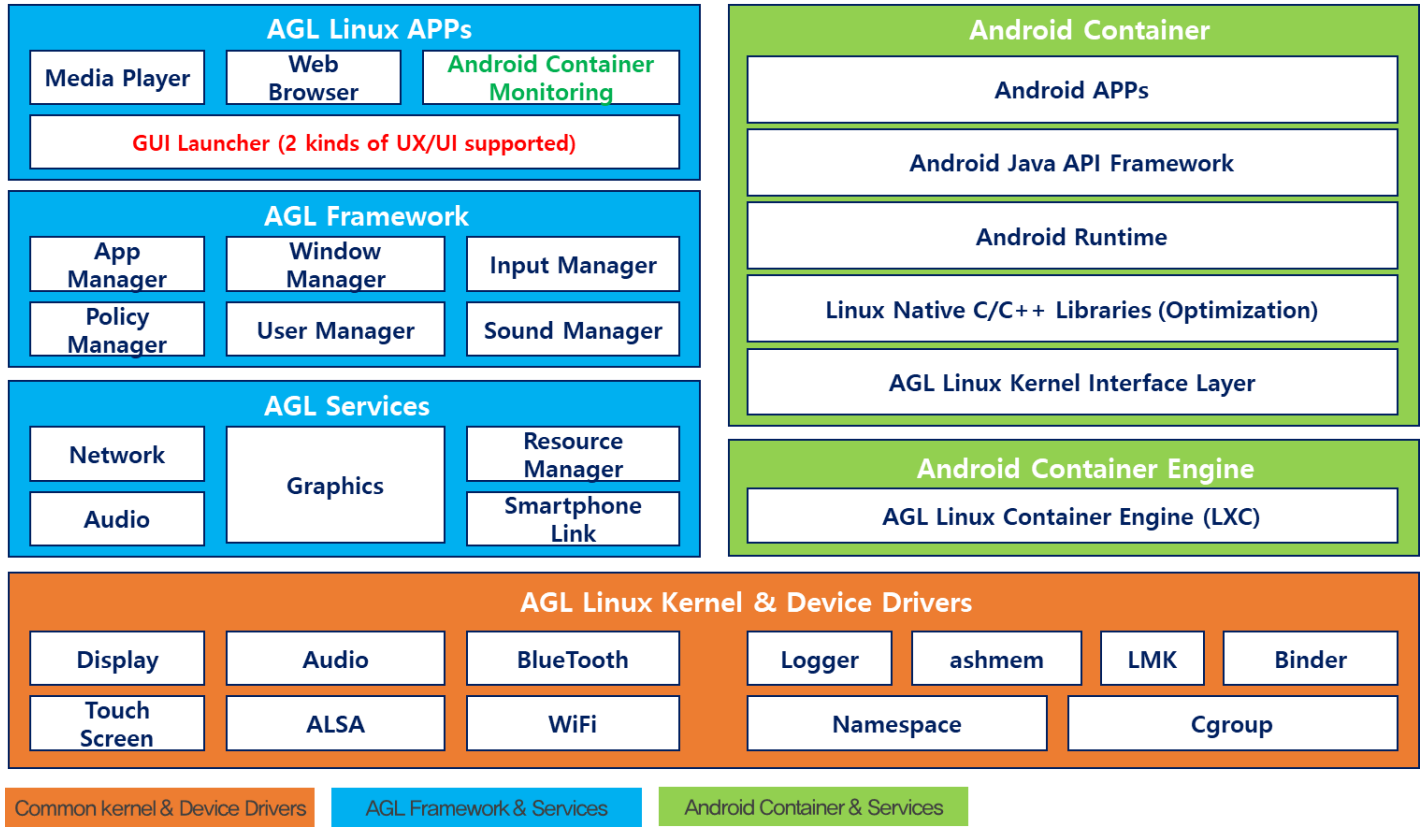
05
Enlisted as top 10 fast-growing SW startups by Korean government

07
Participating in the Automotive Linux Summit 2019 (CFP awarded)

CONTAINER IN RSE

Headrest type RSE

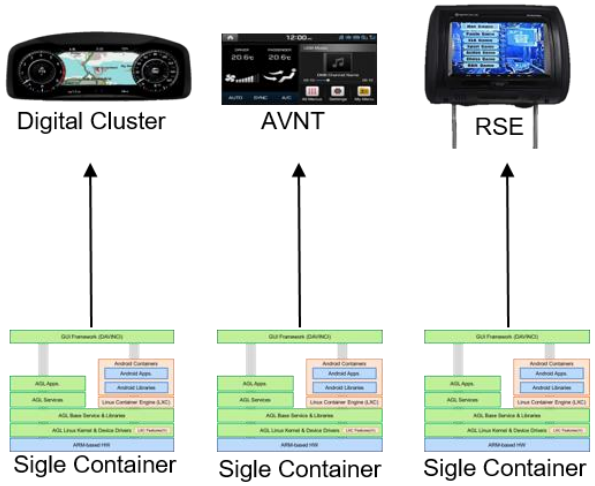
SW Architecture



CONTAINER IN IIP*

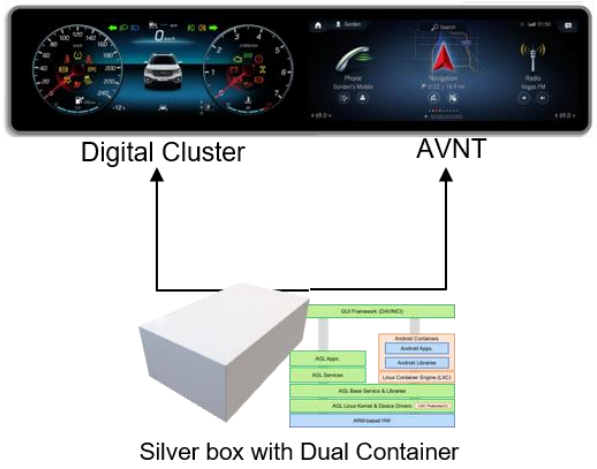
*Integrated Infotainment Platform

Stage1: Separate products & Reuse platform



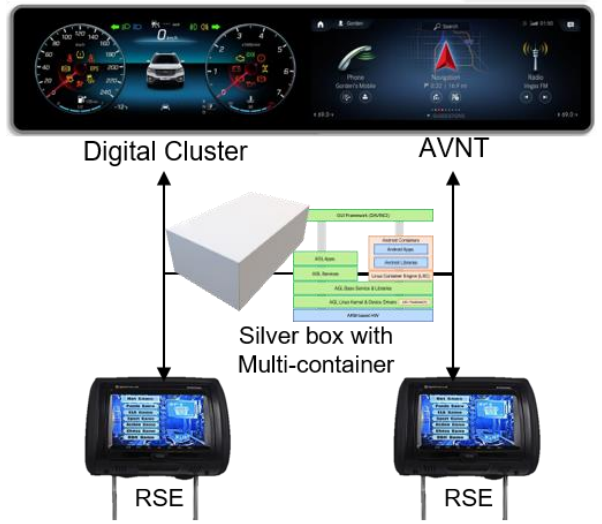
- Simultaneous use of AGL and Linux/Android-based OS on one device

Stage2: Partial integration & silver box



- Simultaneous IVI control with one silver box

Stage3: Full integration & silver box



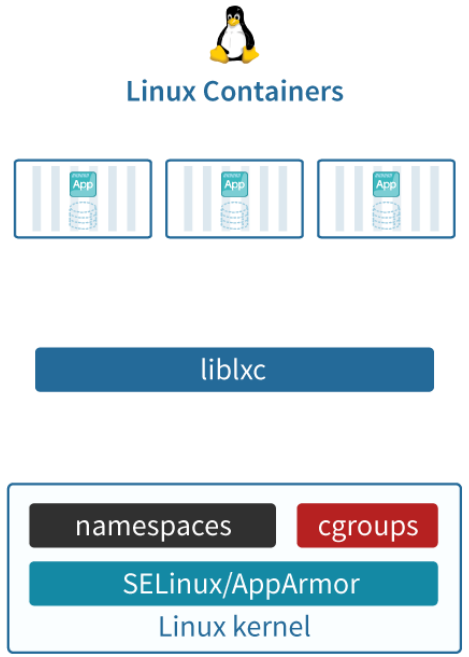
- Control all IVIs with one silver box

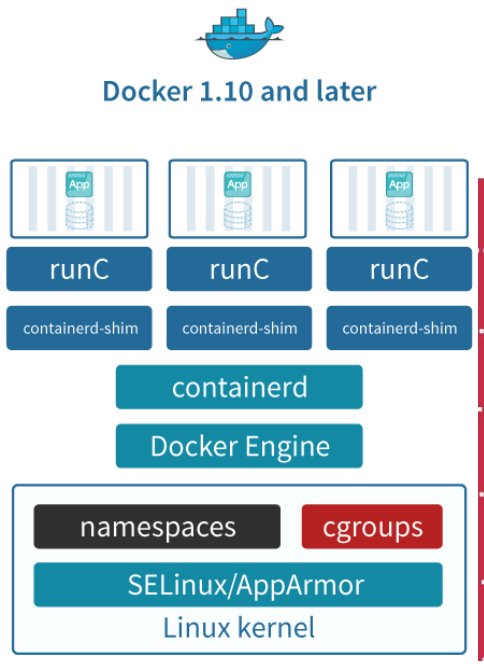
WHY LXC (DOCKER vs. LXC)

Booting Sequence

Android (Embedded System)		AGL
Power up Device	=	Power up Device
Internal ROM	=	Internal ROM
Bootloader 1(BL1)	=	Bootloader 1(BL1)
Bootloader (U-Boot)	=	Bootloader (U-Boot)
Kernel	=	Kernel
init	≠	init
Zygote	≠	Root File System
Dalvik VM	≠	User space
Root File System		
User space		

Docker vs. LXC





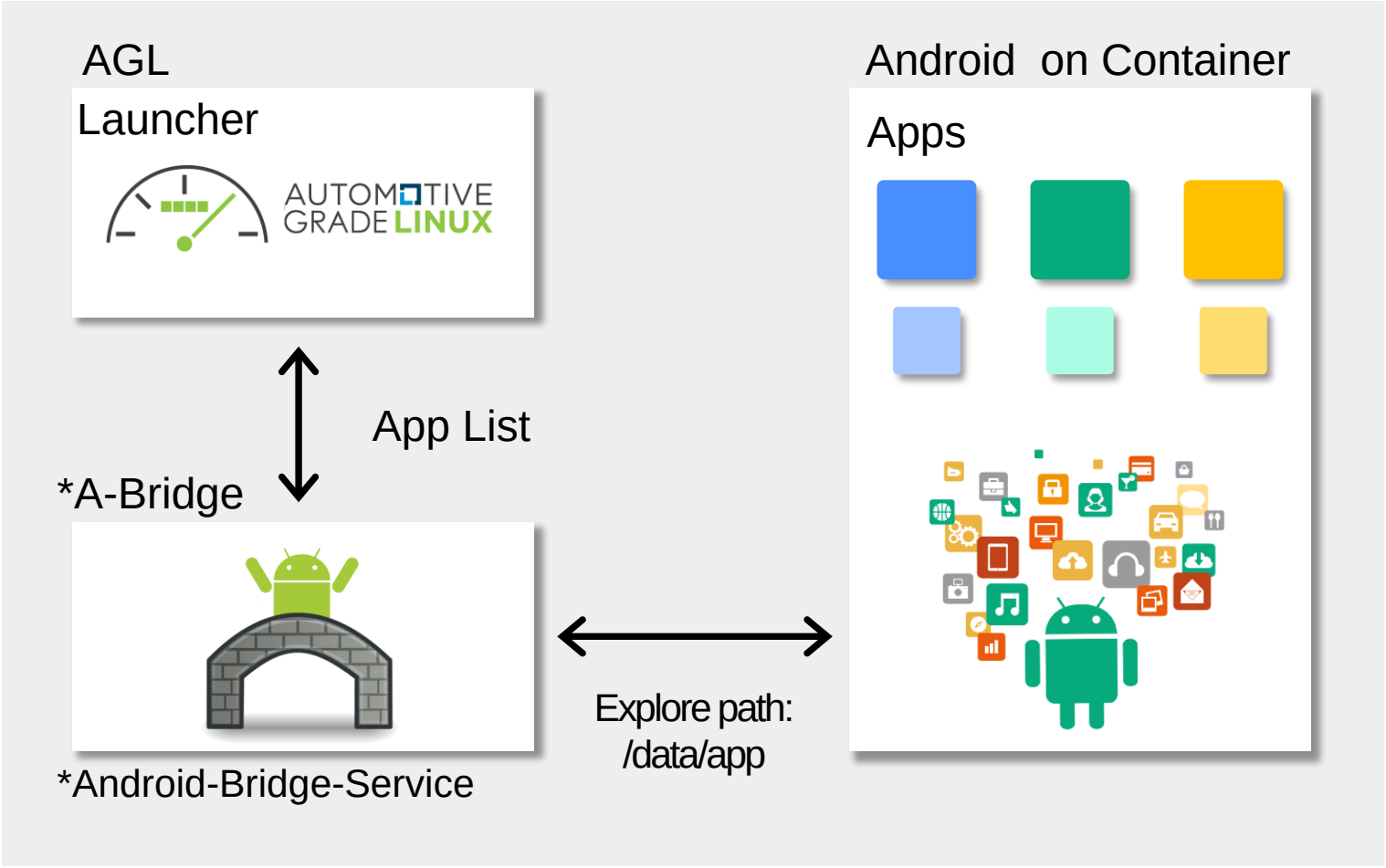
DOCKER VERSUS LXC/LXD

bobcares.com

DOCKER	LXC/LXD
Application virtualization	Full system virtualization
Data not saved	Data can be retrieved
Single purpose	Multi-purpose
Platform independent	Linux platform
Security by isolation	No app isolation

MAJOR DEVELOPMENT HISTORY (1)

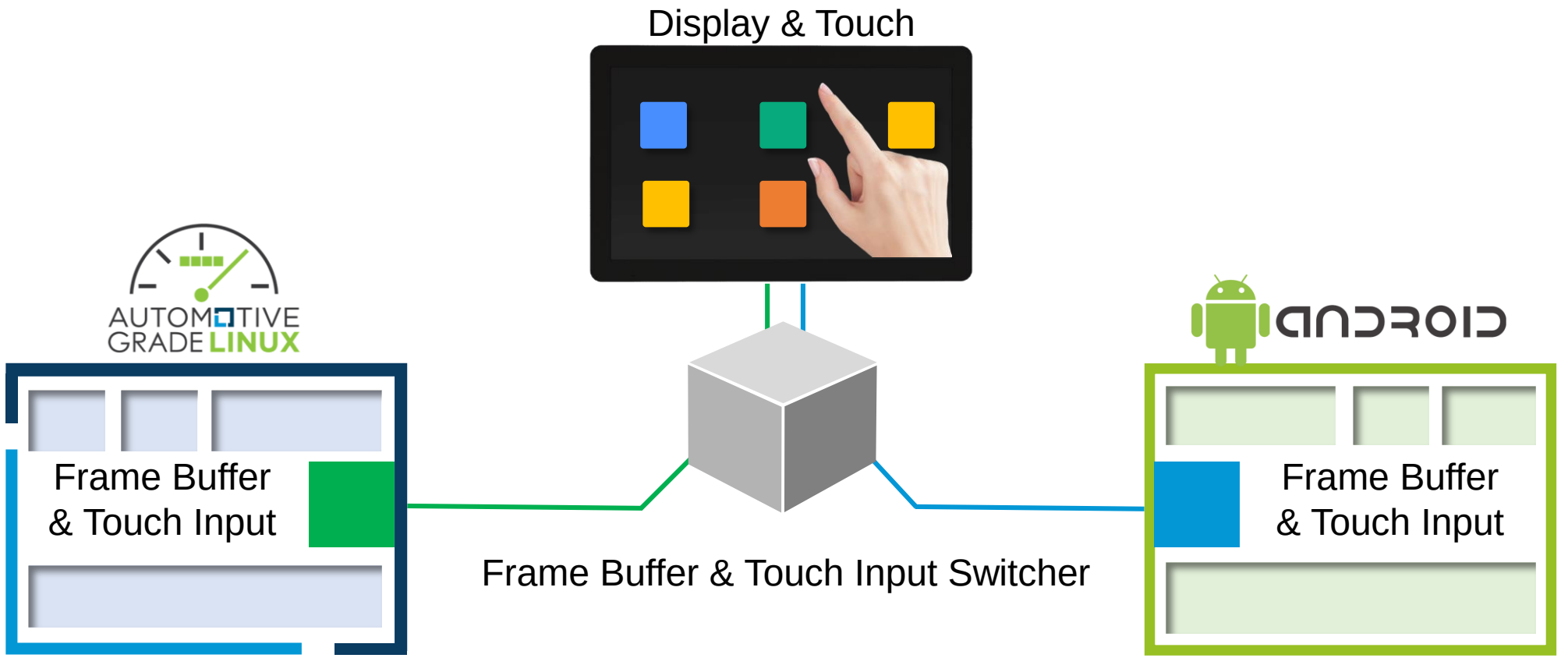
Android app install, execute and icon display



- Scan Android : /data/app Folder
- Parses APK file to get Icon, App name, etc.
- If the user touches the Android App icon in the launcher of AGL, the App is executed through A-Bridge Service
- At this time, pass the display to android

MAJOR DEVELOPMENT HISTORY (2)

Where does the display & touch control?



***Blue Path** **or** **Green Path**

MAJOR DEVELOPMENT HISTORY (4)

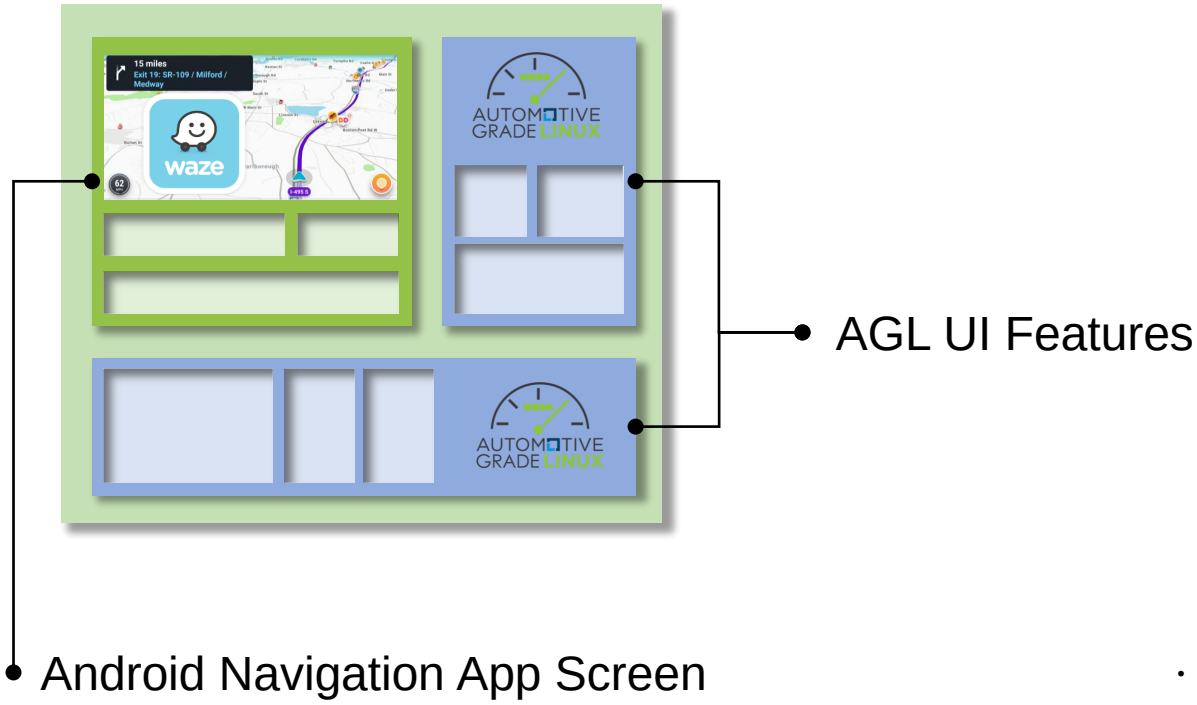
Blocking USB and Network

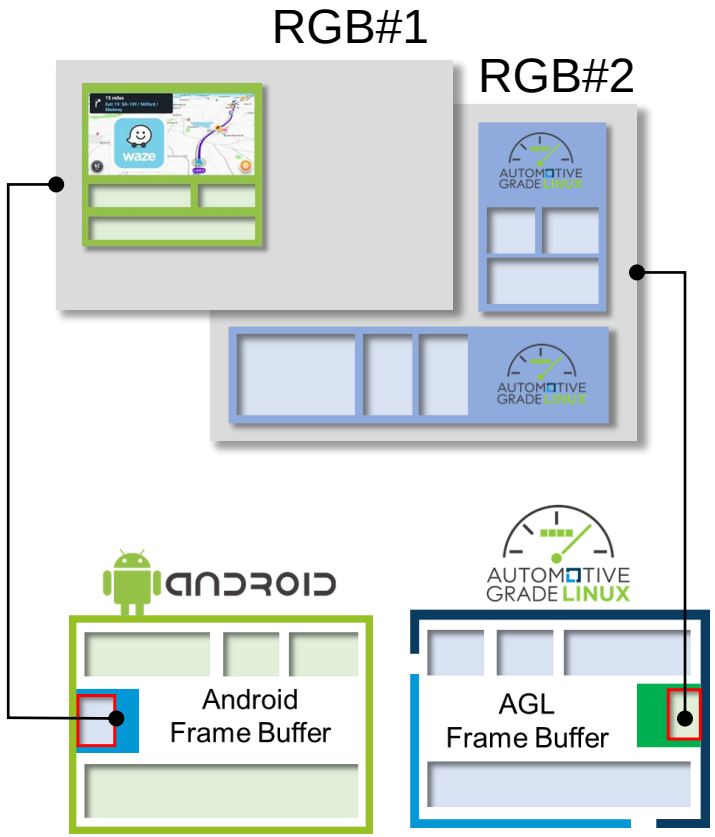
- Remove USB Functions(MTP, ADB, etc.) from Android System (Preventing collision with AGL)
- Remove Wifi & Network Initializations From Android System (Preventing collision with AGL)

REMAINING WORKS (1)

Android Overlay

- Overlay Android Screen on AGL Screen for AVN





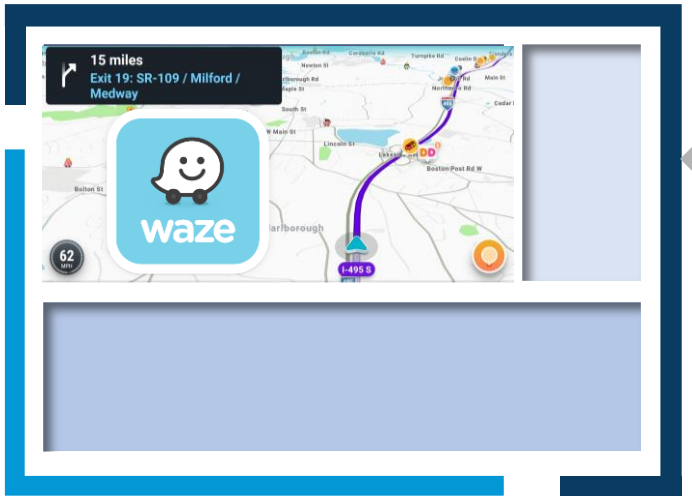
- Use hardware with 2 or more RGB layers

→Features with hardware dependencies

REMAINING WORKS (2)

Android Streaming

- MJPEG Streaming From Android



AGL UI & Using only one RGB Layer

Screen Capture & Streaming

Why mjpeg?

→ Minimize delay due to video encoding

Q&A

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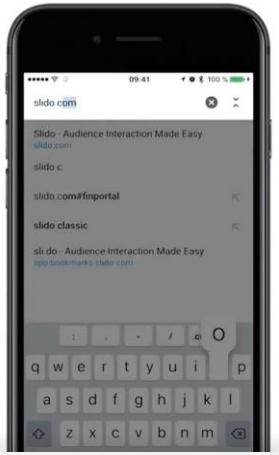

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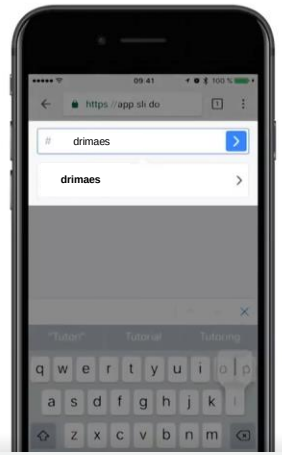

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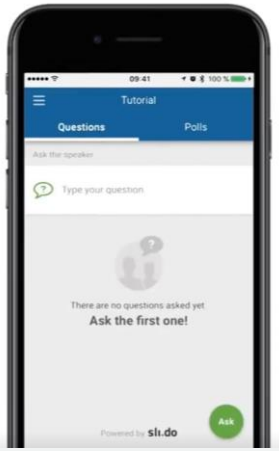

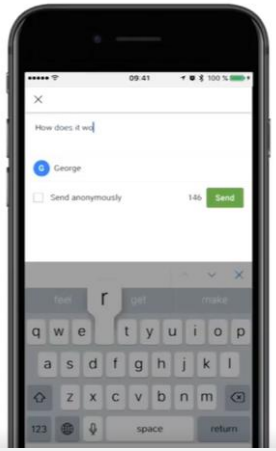

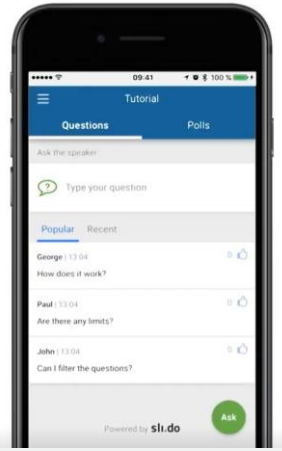

OPEN DISCUSSION