

The logo for GadgEon, with 'Gadg' in blue and 'Eon' in orange.

Engineering Smartness

BSP DEVELOPMENT FOR ANDROID ON CUSTOM BOARD

10-Apr-2020

Version 1



BSP development for Android on custom board



Our customer was a worldwide leader in home automation controllers. They had developed a custom hardware for a new generation controller based on Android. They engaged with Gadgeon to bring up Android on the board as this was a niche area where not many vendors had expertise.

Solution Description

- Device driver development/integration in Android for a custom Hardware based on Freescale iMX6 DualLite processor
- Customization of OmniVison camera device driver for the imx6 platform
- Integration of Realtek ALC5672 audio codec in ALSA.
- Driver changes to route the audio through the DSP module within the audio codec chip to enable features like echo cancellation, noise suppression, far field pick up.
- Integration of WiFi driver for rtl8188 module
- Integration of Proximity sensor VCNL4020 driver
- Updating the u boot as per memory configuration of the board

Outcome and Benefits Delivered

- Completed all the device integration in just 8 weeks, enabling customer to launch the product in time
- Uncovered certain issues with hardware design which enabled customer to rectify the same in next re-spin
- Resolved issued with instability that existed in customer supplied code.



The Business Context and Challenges of the Customer

- Our customer was a worldwide leader in home automation controllers. They had developed a custom hardware for a new generation home automation controller based on Android. The hardware included many interfaces for which the silicon vendor supplied BSP did not have the necessary device drivers. It was necessary to integrate the device drivers for these devices to the BSP.
- They engaged with Gadgeon to bring up Android on the new board as this was a niche area for which not many vendors had the required expertise.

The Solution / System Description

Device driver development/integration in **Android Marshmallow** for a custom Hardware based on **Freescale iMX6 DualLite processor**. The customizations include the following.

- Customization of OmniVison camera device driver for the imx6 platform. Our team identified compatibility issues between camera and processor in the hardware design. Customer re-designed the board with compatible module retaining the IMX6 processor.
- Integration of Realtek ALC5672 audio codec in ALSA. Gadgeon team implemented the required changes for the imx6 SSI driver to record/playback audio using I2S interface for dual microphones and speakers. Implemented driver changes to route the audio through the DSP module within the audio codec chip to enable features like echo cancellation, noise suppression and far field pick up.
- Integration of WiFi driver for rtl8188 module
- Integration of Proximity sensor VCNL4020 driver to the Android subsystem
- Bootloader customization to configure the u boot for 512MB RAM which is present on the custom board.
- Resolving stability issues with Ethernet. Identified a DHCP timeout issue with Android Marshmallow base code and resolved it.

THANK YOU



For More Details, Let's Connect



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