Everywhere

스마트폰을 이용한 임베디드 장치

Confidence

조선대학교 컴퓨터공학부

김원석 (팀장)

이정현

조영재

Start>>

contents

- Motive
- Goal
- Detail
- Demo
- Utilization
- Development Environment
- Role Division
- Q & A

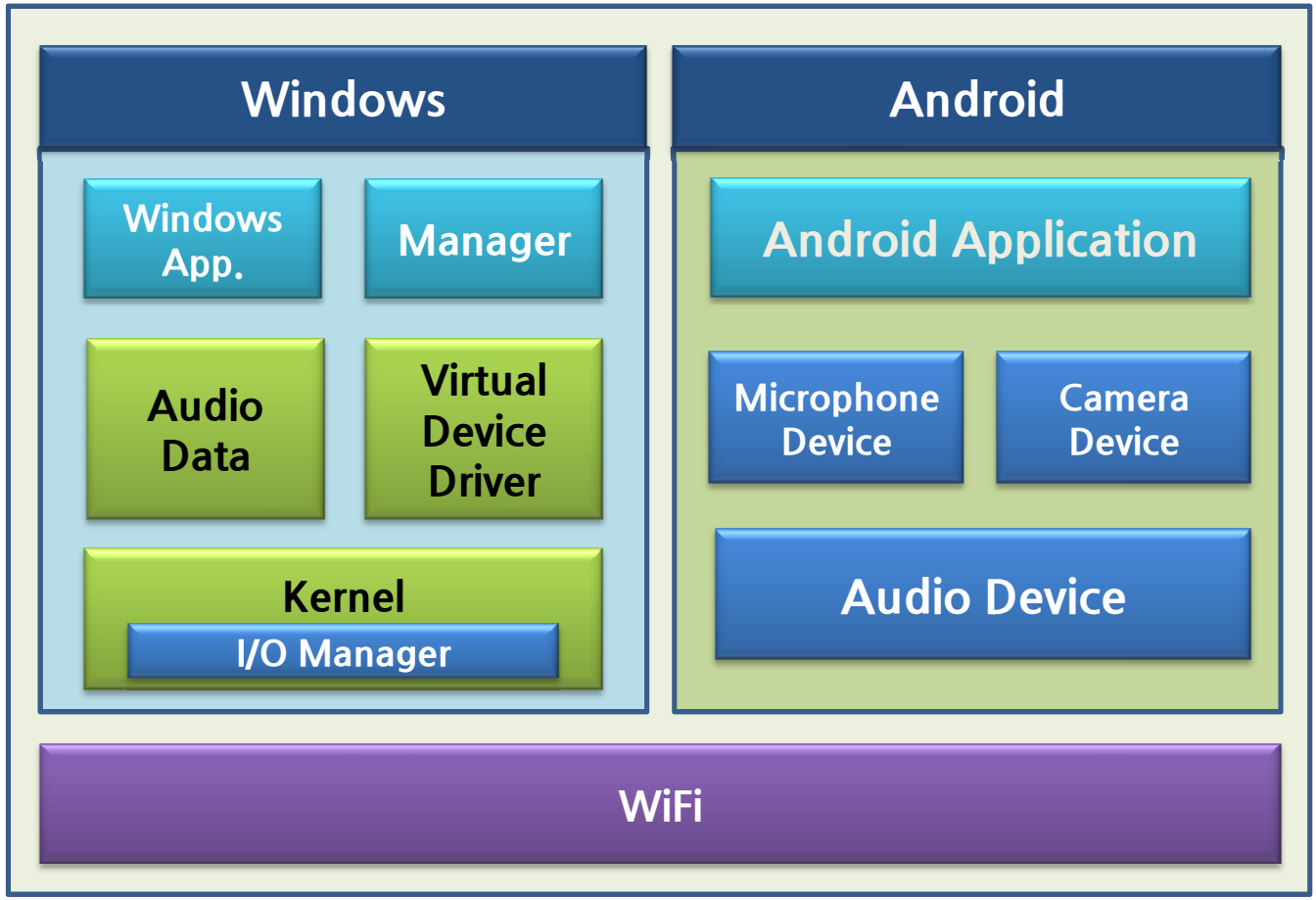

SAMSUNG


SAMSUNG

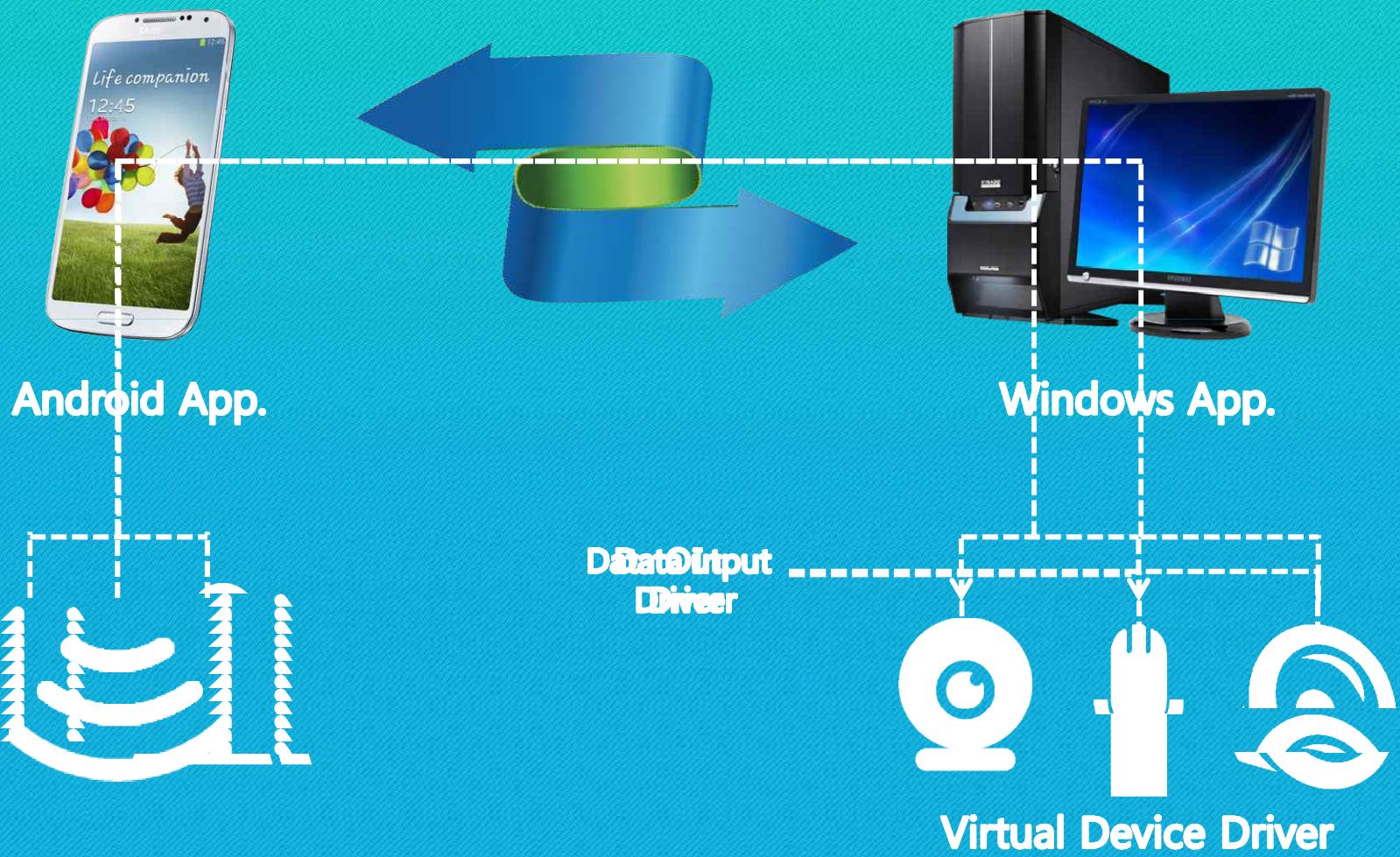

PLEOMAX

Goal

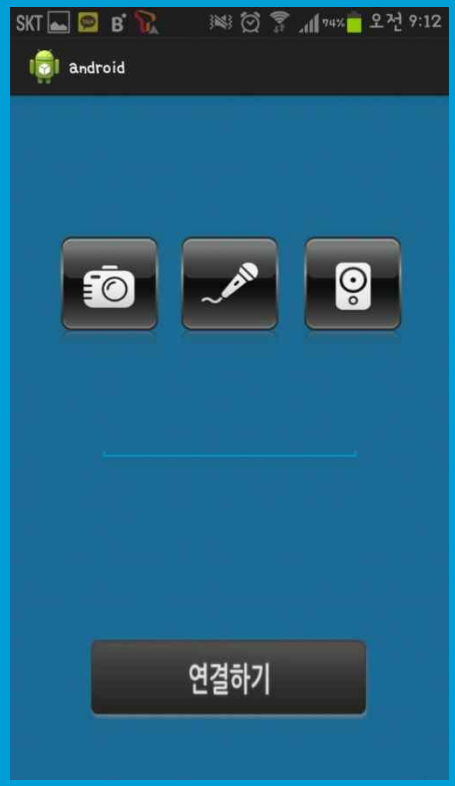

WebCam
SAMSUNG
12:45
Life companion
12:45
Thu, March 14
SAMSUNG
Speaker
Microphone

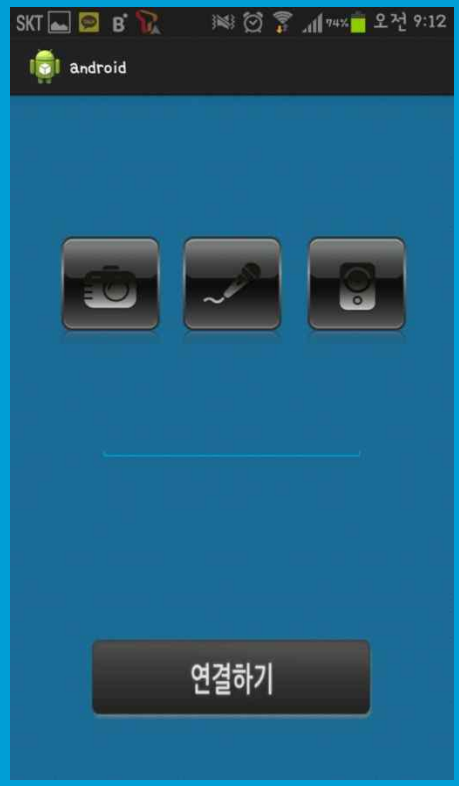

Windows
Android
Windows App.
Manager
Android Application
Audio Data
Virtual Device Driver
Microphone Device
Camera Device
Kernel
I/O Manager
Audio Device
WiFi

Detail - User Scenario



Detail - Android App.





Detail - Android App.

- Recording on Microphone Device
  - Using Android AudioRecord API
  - Recording Option
    - ✓ Sample Rate : 44100 Hz
    - ✓ Channel : CHANNEL_IN_STEREO (2 Ch)
    - ✓ AudioFormat : ENCODING_PCM_16BIT
- Audio Output on Speaker Device
  - Android Process heap → Audio Buffer
    → Audio Track
- Using UDP socket communication

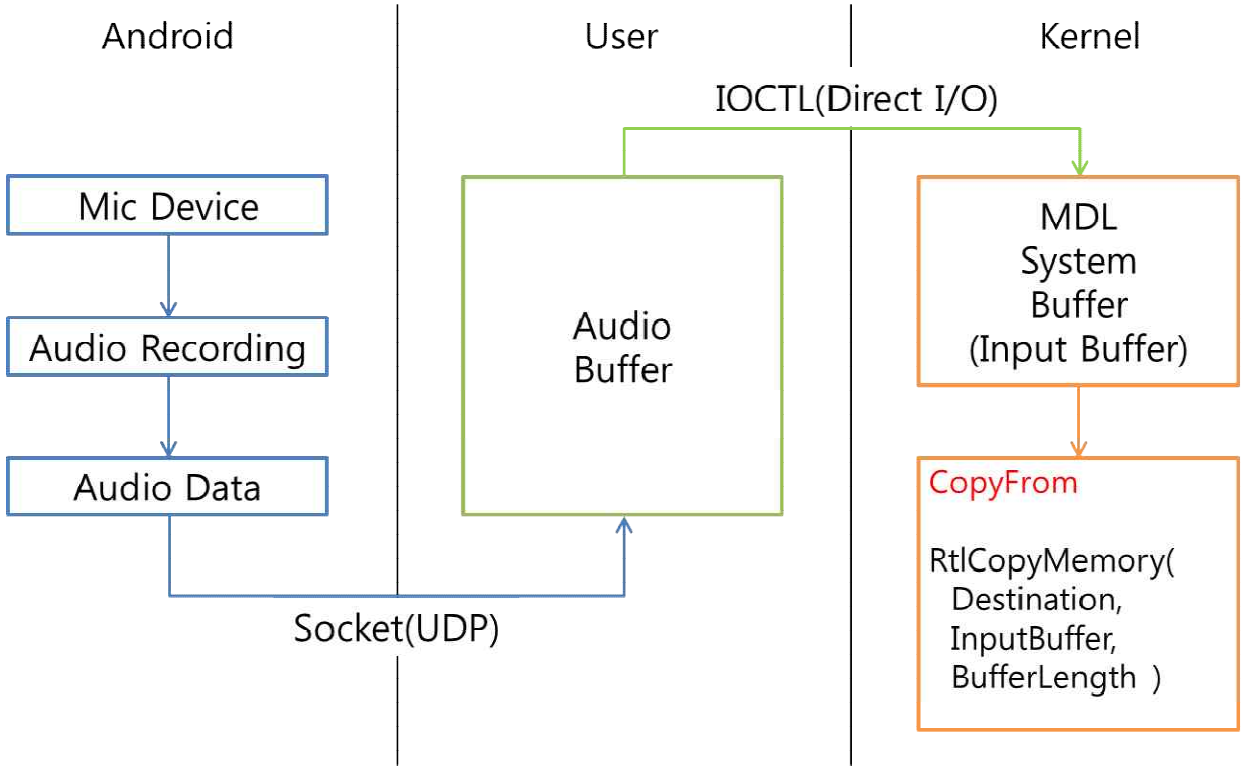
Detail - Windows App.

- App, Driver IOCTL Communication
  - Using Direct I/O (MDL)
  - Two-Way Communication

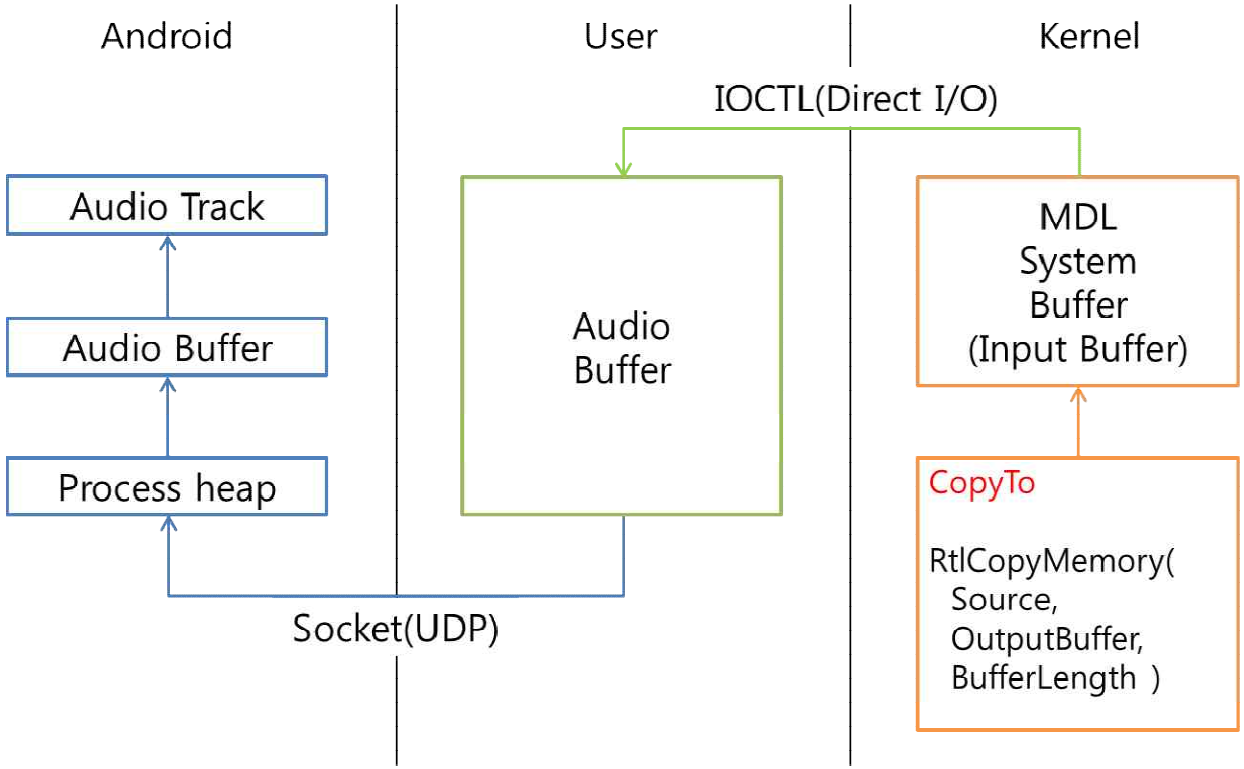
- Convert JPEG to RGB
  - Virtual Webcam Driver Input Format : RGB, YUV

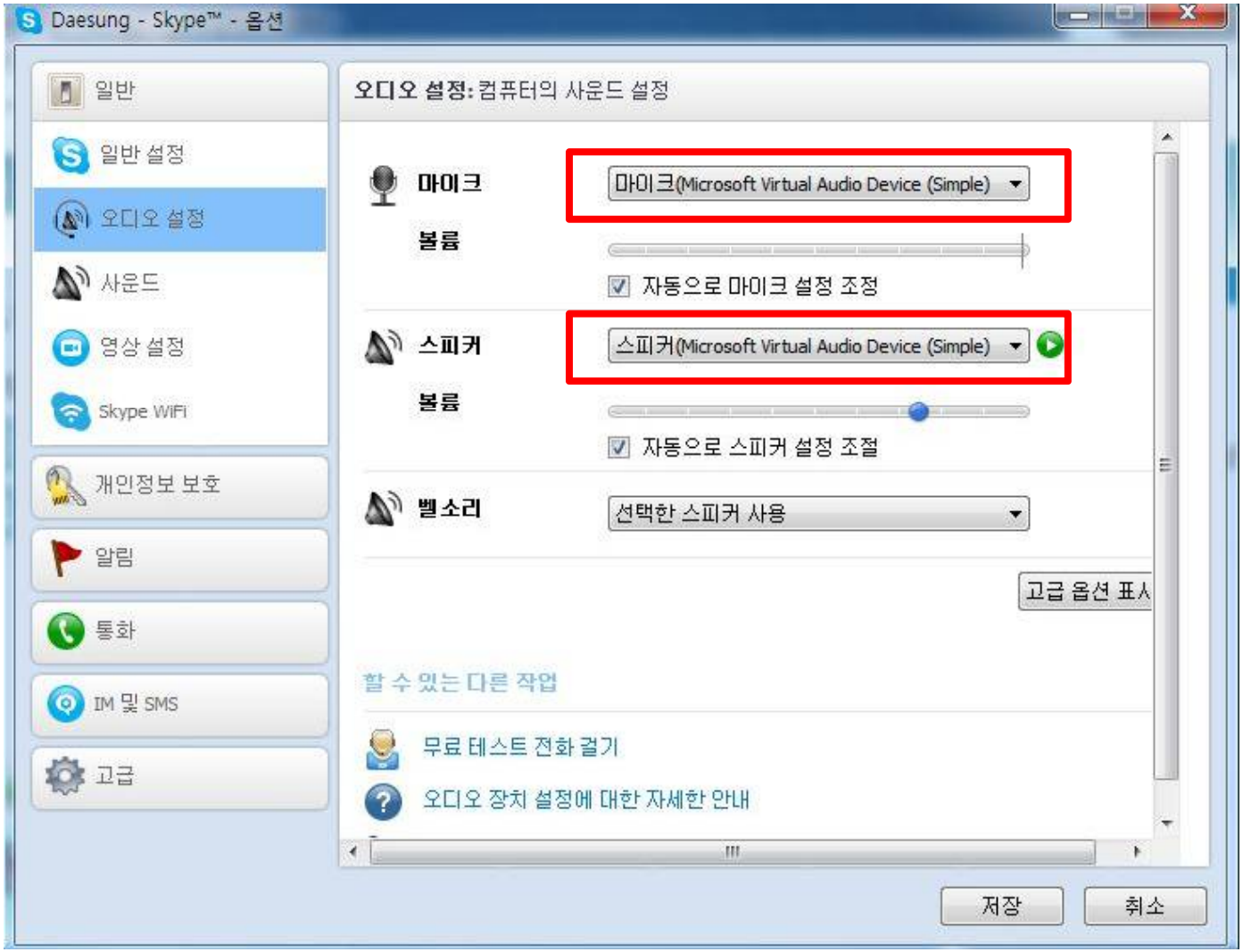
- Using UDP socket communication

- **Virtual Microphone Driver**
  - **Modifying MSVAD(Microsoft Virtual Audio Driver) Sample Driver**



- **Virtual Speaker Driver**
  - **Modifying MSVAD(Microsoft Virtual Audio Driver) Sample Driver**




Daesung - Skype™ - 옵션
일반
일반 설정
오디오 설정
사운드
영상 설정
Skype WiFi
개인정보 보호
알림
통화
IM 및 SMS
고급
오디오 설정: 컴퓨터의 사운드 설정
마이크
마이크(Microsoft Virtual Audio Device (Simple)
볼륨
자동으로 마이크 설정 조정
스피커
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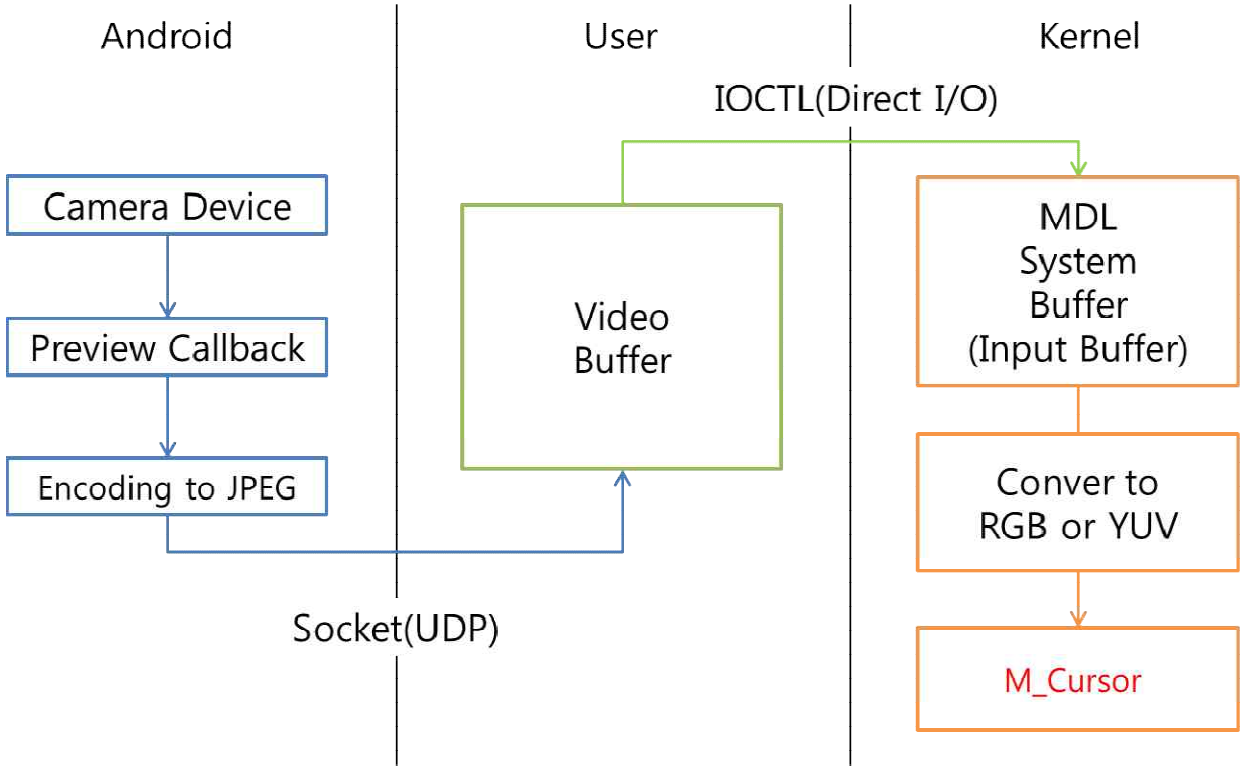
볼륨
자동으로 스피커 설정 조절
벨소리
선택한 스피커 사용
고급 옵션 표시
할 수 있는 다른 작업
무료 테스트 전화 걸기
오디오 장치 설정에 대한 자세한 안내
저장
취소

- **Virtual Webcam Driver**
  - **Modifying AVStream Sample Driver**
  - **VideoData Format RGB(NateOn), YUV(Skype)**



- **Virtual Webcam Driver**

<NateOn RGB Format>

<Skype YUV Format>

Utilization

Utilization

Utilization

Utilization

Utilization

Development Environment

Operating System

- Windows 7, Android 4.0.3(ICS)

Development Tools

- Visual Studio 2012, Eclipse Juno, WDK, WinDbg

Language

- C, C++, Java

Library

- MFC, Android SDK, JPEG

Role Division

Kim, WonSeok(PL)

- Windows Application
- PC to Android Communication
- WiFi connection
- Voice Transmission
- Image Output
- Virtual Audio Driver

Lee, JeongHyeon

- Virtual Audio Driver Development
- Virtual WebCam Driver Development
- Kernel Communication

Jo, YoungJae

- Android Application
- Android to PC Communication
- WiFi connection
- Image Transmission
- Voice Output
- Virtual WebCam Driver

Demo


QnA
?

Thank