Programming
Handheld Systems
Multimedia
Today’s Topics

Multimedia Support Classes
Playing Audio
Watching Video
Recording Audio
Using the Camera
Multimedia

Android provides support for encoding and decoding a variety of common media formats. Allows you to play & record audio, still images & video.
Some Multimedia Classes

AudioManager & SoundPool
RingtoneManager & Ringtone
MediaPlayer
MediaRecorder
Camera
**AudioManager**

Manages volume, system sound effects, and ringer mode control

Acquire **AudioManager** instance via

```
Context.getSystemService(Context.AUDIO_SERVICE)
```
AudioManager

Load & play sound effects
Manage volume
Manage peripherals
SoundPool

Represents a collection of audio samples (streams)
Can mix and play multiple simultaneously
AudioVideoAudioManager

Presents two buttons that adjust the volume up or down

Presents a play button that, when pressed, plays a bubble popping sound at the current volume level
Ringtone and RingtoneManager

RingtoneManager provides access to audio clips used for incoming phone calls, notifications, alarms, etc. Allows applications to get and set ringtones and to play and stop playing them.
Application presents three buttons labeled ringtone, notification and alarm. Pressing one of these buttons causes the associated default ringtone to play.
MediaPlayer

Controls playback of audio and video streams and files

Allows applications to control playback

Operates according to a complex state machine

See: http://developer.android.com/reference/android/media/MediaPlayer.html
Some MediaPlayer Methods

setDataSource()
prepare()
start()
pause()
seekTo()
stop()
release()
**VideoView**

*SurfaceView* for displaying video files

Can load video from multiple sources

Provides various display options & convenience functions
Audio
Video
Video
Play

Application plays a movie in a VideoView
MediaRecorder

**Used to record audio and video**

**Operates in accordance to a state machine**

Some MediaRecorder Methods

setAudioSource()
setVideoSource()
setOutputFormat()
prepare()
start()
stop()
release()
Audio Video Audio Recording

Can record audio from the user
Can play back recorded audio
Camera

Client for the Camera service, which manages the actual camera hardware
Manages image capture settings
Start/stops preview
Takes pictures
Camera Permissions

<uses-permission
android:name="android.permission.CAMERA" />

<uses-feature android:name="android.hardware.camera" />

<uses-feature android:name="android.hardware.camera.autofocus" />
Using the Camera

Get Camera instance
Set Camera parameters as necessary
Setup preview display
Start the preview
Take a picture & process image data
Release the Camera when not in use
AudioVideoCamera

Takes still photos using the device’s display as the camera’s viewfinder
Next Time

Sensors