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

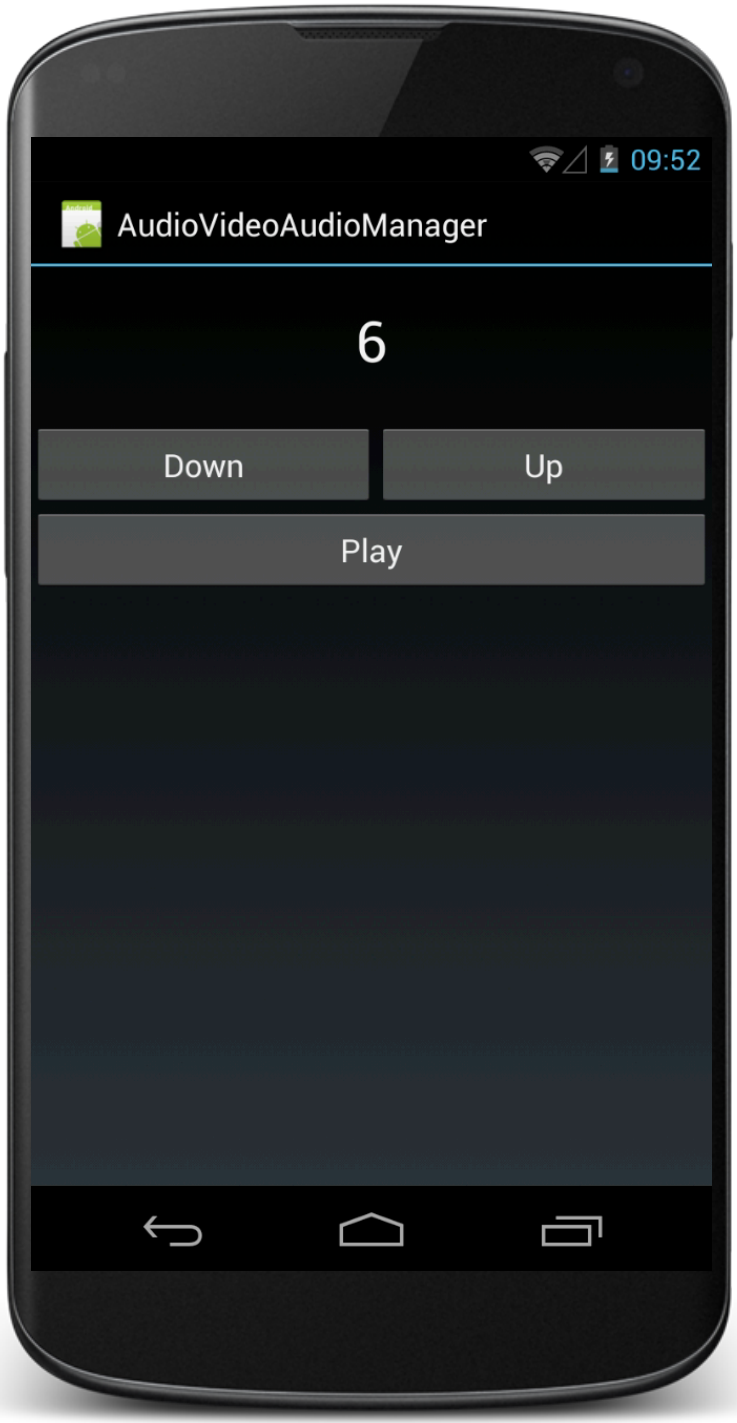
Represents a collection of audio samples (streams)

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


09:52
AudioVideoAudioManager
6
Down
Up
Play

Demonstration of the AudioVideoAudioManager project in the IDE

Ringtone and RingtoneManager

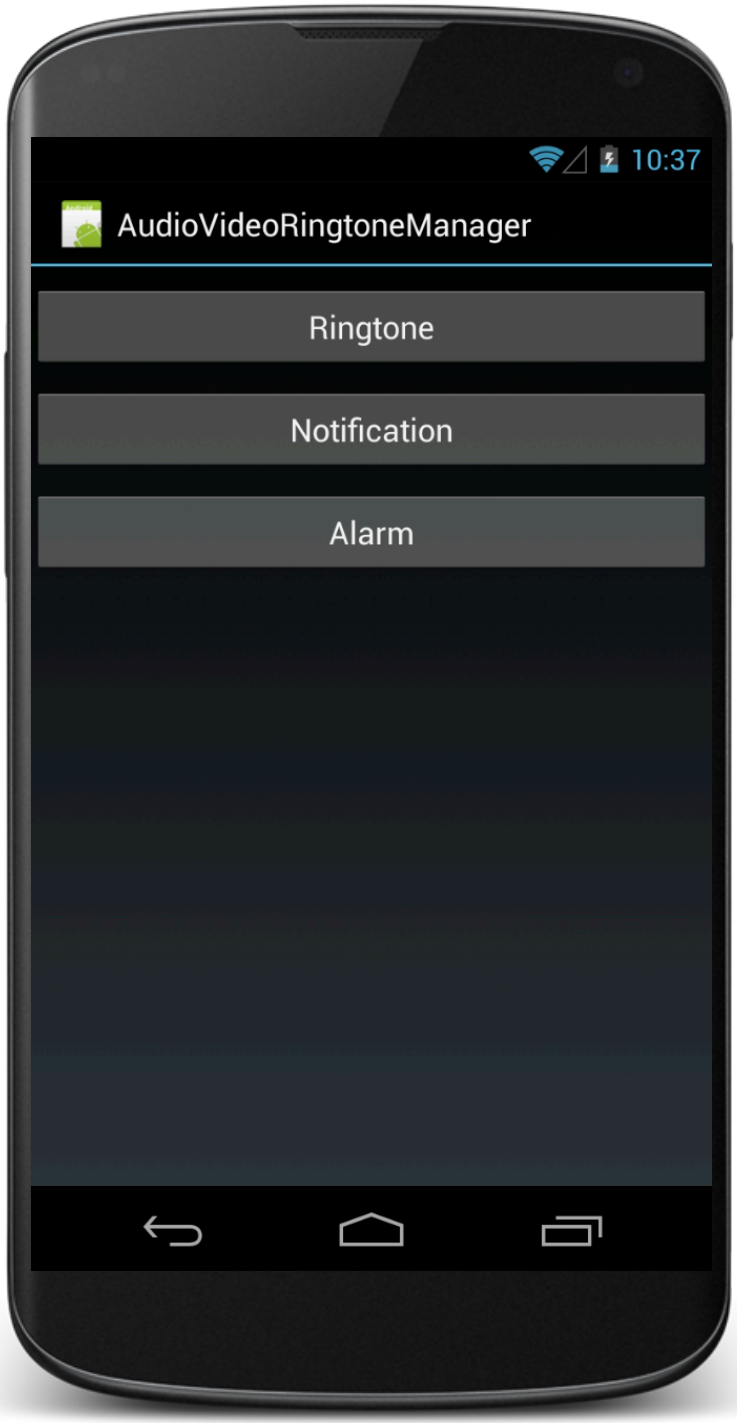
RingtoneManager provides access to audio clips used for incoming phone calls, notifications, alarms, etc.

Allows applications to get and set ringtones and to play and stop playing them

AudioVideoRingtoneManager

Application presents three buttons labeled ringtone, notification and alarm

Pressing one of these buttons causes the associated default ringtone to play


10:37
AudioVideoRingtoneManager
Ringtone
Notification
Alarm

Demonstration of the AudioVideoRingtoneManager project in the IDE

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

AudioVideoVideoPlay

Application plays a movie in a VideoView

11:09
AudioVideoVideoPlay

Demonstration of the AudioVideoVideoPlay project in the IDE

MediaRecorder

Used to record audio and video

Operates in accordance to a state machine

See:
http://developer.android.com/

reference/android/media/
MediaRecorder.html

Some MediaRecorder Methods

setAudioSource()

setVideoSource()

setOutputFormat()

prepare()

start()

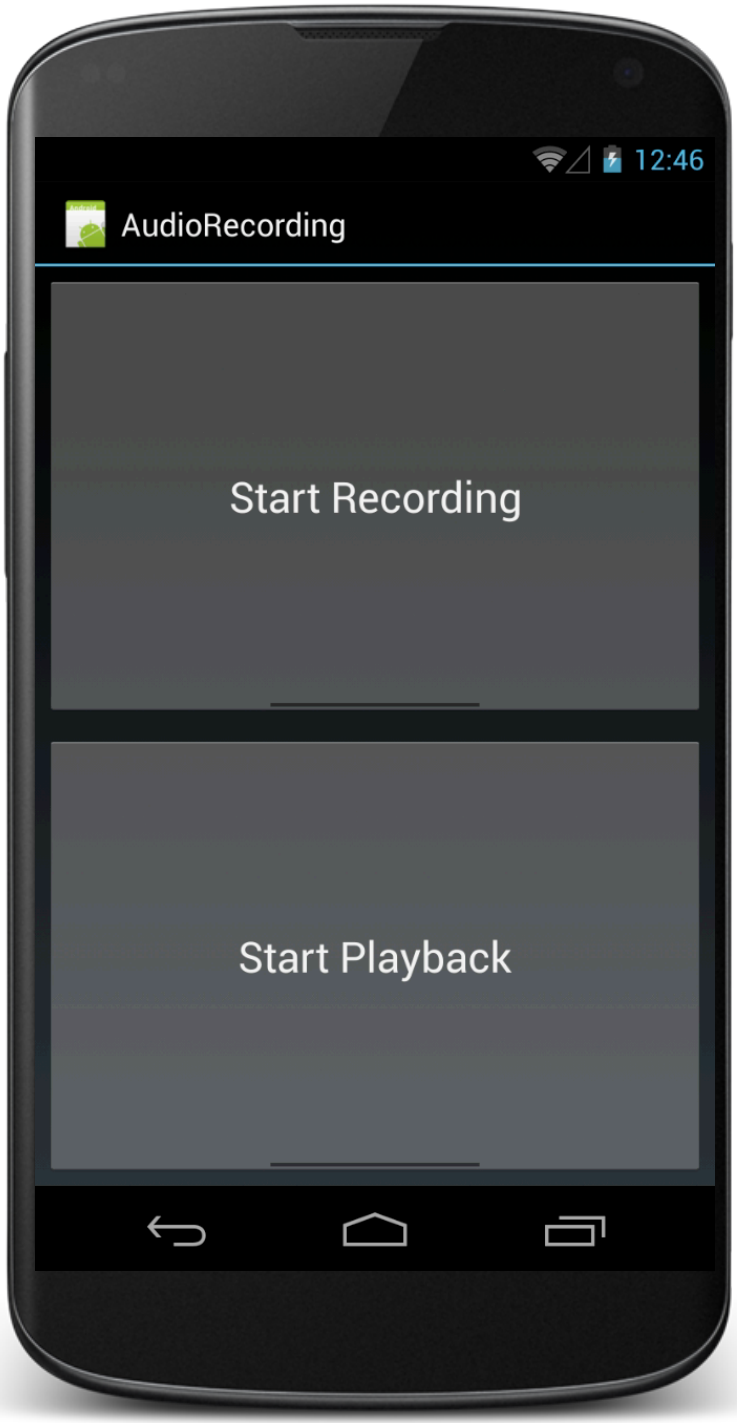
stop()

release()

AudioVideoAudioRecording

Can record audio from the user

Can play back recorded audio


12:46
AudioRecording
Start Recording
Start Playback

Demonstration of the AudioVideoVideoPlay project in the IDE

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

Demonstration of the AudioVideoCamera project in the IDE

Next Time

Sensors