

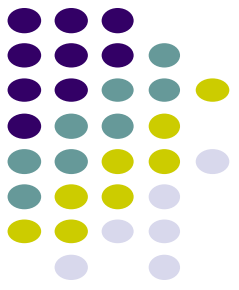
Ubiquitous and Mobile Computing

CS 528: Media Recorder & Speaking to Android

Boya Zhou, Chu Wang, Jin Huang,
Roger Wirkala, Yuhan Liu

Computer Science Dept.

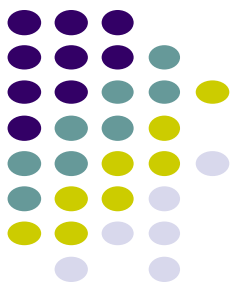
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Android Media Recorder

- Mobile phones have been equipped with sensors able measure and record their surroundings since their inception.
- Media creation and consumption is constantly evolving and so is the way we interact with it.

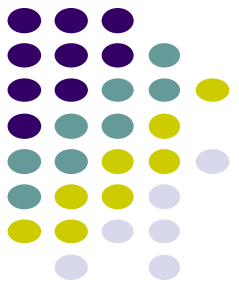




Problem Solved

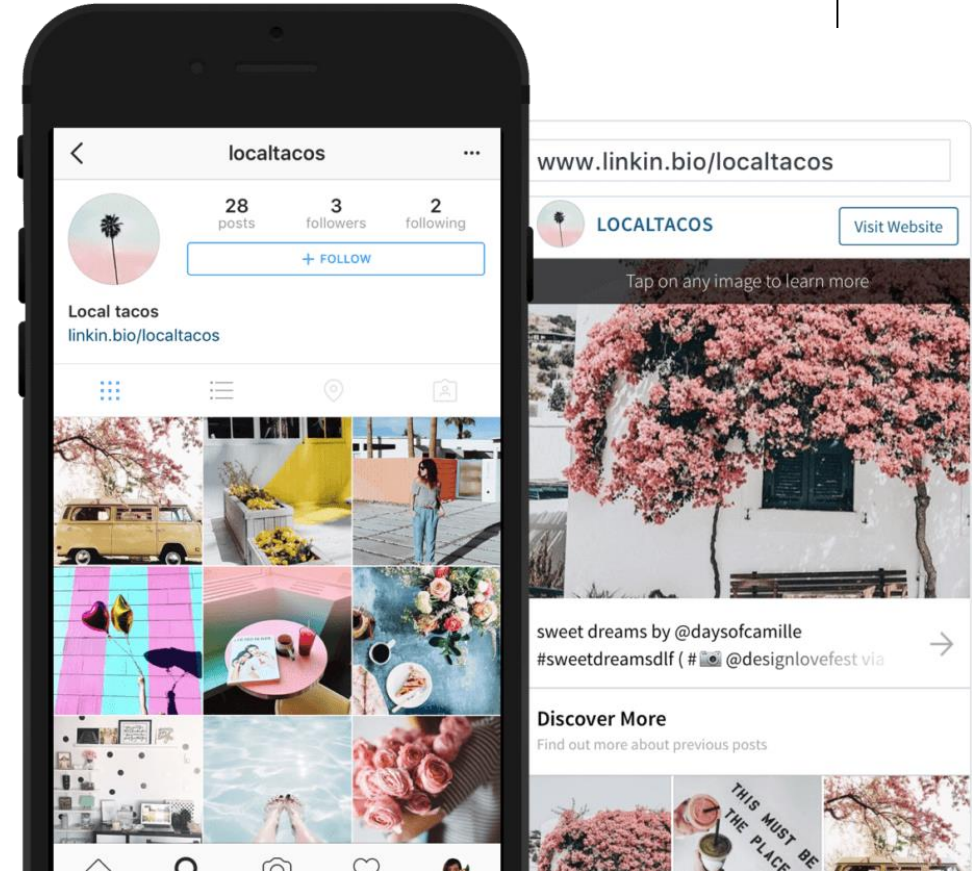
- Easy, intuitive, and streamlined API for developers to leverage the capture and consumption of various different media mediums

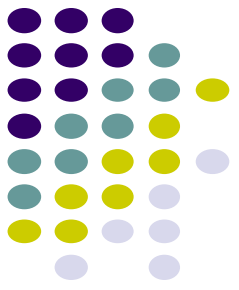














Typical Use Case

- Social Media
- Supplemental material
- Communication
- Almost endless creative possibilities

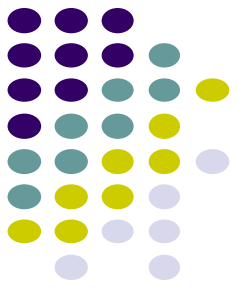




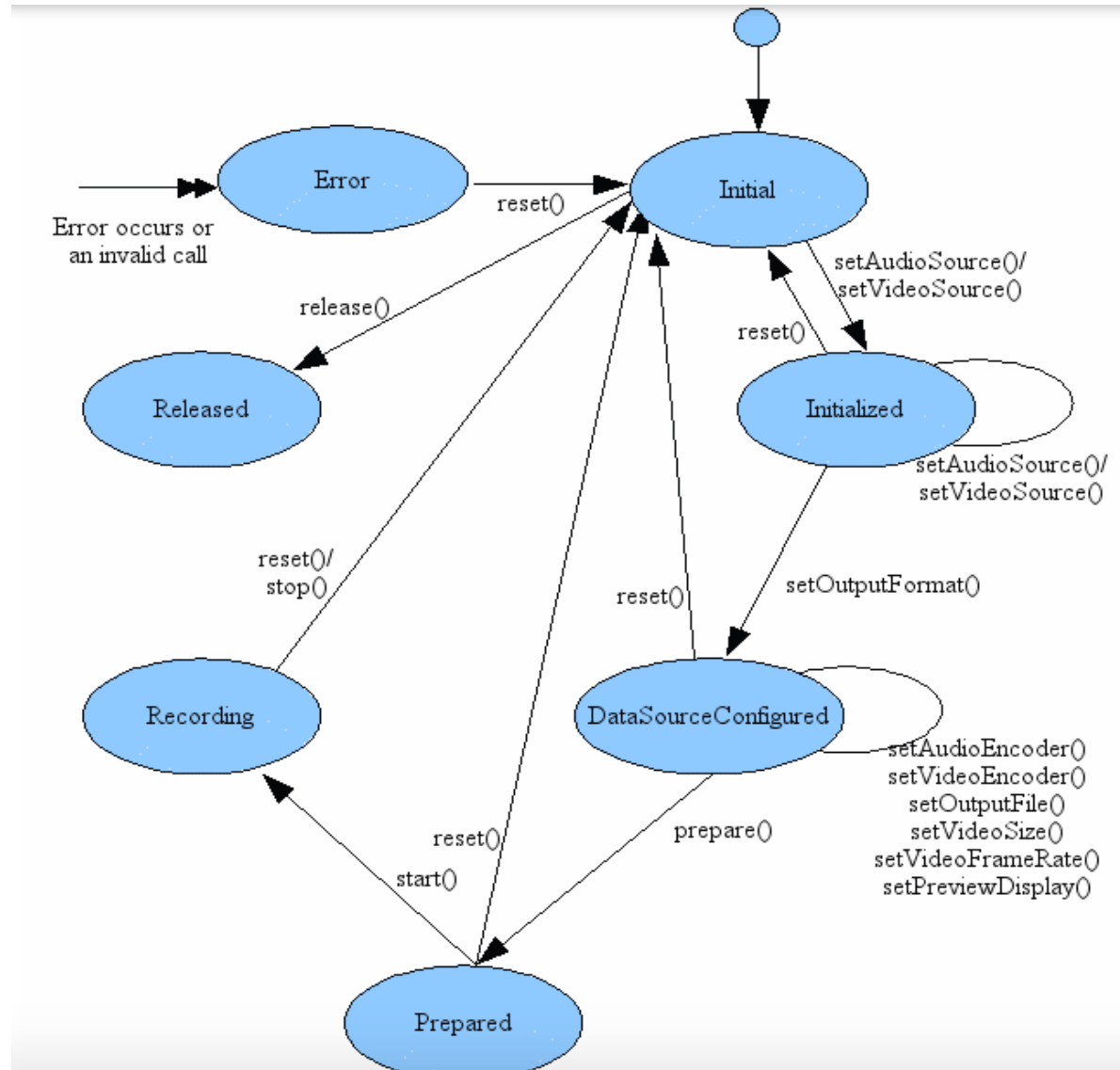
Real World Examples

 <p>Instagram Instagram</p> <p>★★★★★</p>	 <p>Tumblr Tumblr, Inc.</p> <p>★★★★★</p>	 <p>Snapchat Snap Inc</p> <p>★★★★★</p>	 <p>Twitter Twitter, Inc.</p> <p>★★★★★</p>	 <p>Facebook Facebook</p> <p>★★★★★</p>
 <p>Media Recorder Mobile Solutions World</p> <p>★★★★★</p>	 <p>Voice Recorder quality apps (recorder, v</p> <p>★★★★★</p>	 <p>Screen Recorder Vic VideoShow EnjoyMobi \</p> <p>★★★★★</p>	 <p>Smart Video Record INTank Corp</p> <p>★★★★★</p>	 <p>Screen Recorder AppSmartz</p> <p>★★★★★</p>

Overview of how it works



State machine of the recording control:



Initial state:

Initialize a new instance of MediaRecorder with the following calls

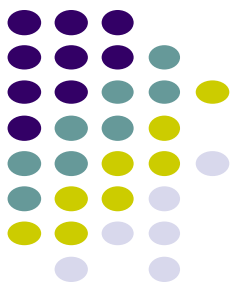
Prepare state:

Complete the initialization by calling prepare()

Released state:

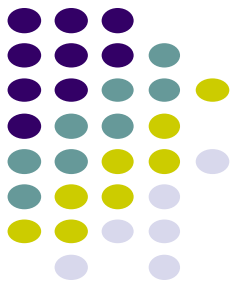
When you are done with MediaRecorder instance free its resources as soon as possible by calling release()

Code snippet(create and run a MediaRecorder)



```
MediaRecorder recorder = new MediaRecorder();  
    recorder.setAudioSource(MediaRecorder.AudioSource.MIC);  
recorder.setOutputFormat(MediaRecorder.OutputFormat.THREE_GPP);  
recorder.setAudioEncoder(MediaRecorder.AudioEncoder.AMR_NB);  
recorder.setOutputFile(PATH_NAME);  
recorder.start(); //recording is now started  
...  
recorder.stop();  
recorder.reset();  
recorder.release(); //Now the object cannot be reused
```

Overview of how it works

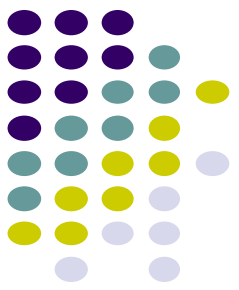


- To be able to record, your app must tell the user that it will access the device's audio input. Include the following permission tag in the app's manifest file:

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

- **RECORD_AUDIO** is considered a “dangerous” permission since it may pose risk to a user's privacy. Starting with Android 6.0 an app that uses a dangerous permission must ask the user for approval at run time. [ActivityCompat.requestPermissions\(\)](#) is used to implement this behavior.

Code snippet (request permissions)



```
public class AudioRecordTest extends AppCompatActivity {

    private static final String LOG_TAG = "AudioRecordTest";
    private static final int REQUEST_RECORD_AUDIO_PERMISSION = 200;
    // Requesting permission to RECORD_AUDIO
    private boolean permissionToRecordAccepted = false;
    private String [] permissions = {Manifest.permission.RECORD_AUDIO};

    @Override
    public void onRequestPermissionsResult(int requestCode,
        @NonNull String[] permissions, @NonNull int[] grantResults) {
        super.onRequestPermissionsResult(requestCode, permissions, grantResults);
        switch (requestCode){
            case REQUEST_RECORD_AUDIO_PERMISSION:
                permissionToRecordAccepted =
                    grantResults[0] == PackageManager.PERMISSION_GRANTED;
                break;
            }
        if (!permissionToRecordAccepted ) finish();
    }
}
```

Code snippet(how to make video recording)

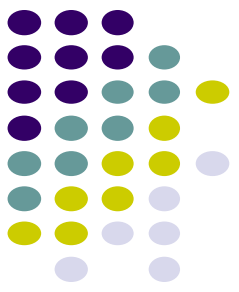


```
private void onRecord(boolean start) {
    if (start) {
        startRecording();
    } else {
        stopRecording();
    }
}

private void onPlay(boolean start) {
    if (start) {
        startPlaying();
    } else {
        stopPlaying();
    }
}

private void startPlaying() {
    mPlayer = new MediaPlayer();
    try {
        mPlayer.setDataSource(mFileName);
        mPlayer.prepare();
        mPlayer.start();
    } catch (IOException e) {
        Log.e(LOG_TAG, "prepare() failed");
    }
}
```

Code snippet(how to make video recording)



```
private void startRecording() {
    mRecorder = new MediaRecorder();
    mRecorder.setAudioSource(MediaRecorder.AudioSource.MIC);
    mRecorder.setOutputFormat(MediaRecorder.OutputFormat.THREE_GPP);
    mRecorder.setOutputFile(mFileName);
    mRecorder.setAudioEncoder(MediaRecorder.AudioEncoder.AMR_NB);

    try {
        mRecorder.prepare();
    } catch (IOException e) {
        Log.e(LOG_TAG, "prepare() failed");
    }

    mRecorder.start();
}

private void stopRecording() {
    mRecorder.stop();
    mRecorder.release();
    mRecorder = null;
}
```