


Android Telephony  
Android Smartphone Programming

University of Freiburg

Matthias Keil  
Institute for Computer Science  
Faculty of Engineering  
University of Freiburg  
13. Januar 2015



Notizen

---

---

---

---

---

---



---

---

Outline

University of Freiburg

- 1 Telephony
- 2 SMS
- 3 Summary

Matthias Keil    Android Telephony    13. Januar 2015    2 / 12

Notizen

---

---

---

---

---

---

---



---

Telephony

University of Freiburg

- Package *android.telephony* provides classes to monitor basic phone information, tools to manipulate phone numbers and to work with SMS[1].
- Most important class is *TelephonyManager*[4].
- Provides access to information about telephony services of the device.
  - For example network type or call state, which indicates idle or ringing.

```
Context.getSystemService(Context.TELEPHONY_SERVICE);
```

Matthias Keil    Android Telephony    13. Januar 2015    3 / 12

Notizen

---

---

---

---

---

---

---

---

- Very limited access to work with calls for security reasons.
- Possibility to place a call from activity if permissions are set.
- Extend Android manifest:

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

- There are ways to interfere a bit more: Listen to phone state change to ringing and then mute phone.



Notizen

---

---

---

---

---

---

---

---

- How? Create *Intent* with predefined action.

```
1 try {  
2 Intent callIntent = new Intent(Intent.  
  ACTION_CALL);  
3 callIntent.setData(Uri.parse("tel:1234567"));  
4 startActivity(callIntent);  
5 } catch (ActivityNotFoundException e) { ... }
```



Notizen

---

---

---

---

---

---

---

---

- Extend Android manifest:

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

- Use *AudioManager* to manipulate ringer mode.
- Get instance of *AudioManager*:

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



Notizen

---

---

---

---

---

---

---

---

## Telephony

Example mute phone continued  
University of Freiburg



- Method to change the ringer mode used with parameters `RINGER_MODE_NORMAL`, `RINGER_MODE_SILENT` or `RINGER_MODE_VIBRATE`:

```
1 void AudioManager.setRingMode(int ringerMode)
```



Matthias Keil

Android Telephony

13. Januar 2015

7 / 12

Notizen

---

---

---

---

---

---

---

---

## SMS

University of Freiburg



- Class `SmsManager` can be used to send and receive SMS from an application<sup>[3]</sup>.
- Extend Android manifest with needed permissions:
  - `android.permission.SEND_SMS`
  - `android.permission.RECEIVE_SMS`
  - `android.permission.READ_SMS`
  - `android.permission.WRITE_SMS`

```
1 <uses-permission  
2 xmlns:android="http://schemas.android.com/apk/  
   res/android"  
3 android:name="enter_permission_name_here">  
4 </uses-permission>
```



Matthias Keil

Android Telephony

13. Januar 2015

8 / 12

Notizen

---

---

---

---

---

---

---

---

## SMS

How to use `SmsManager`  
University of Freiburg



- Receive reference to `SmsManager`

```
1 static SmsManager SmsManager.getDefault();
```

- Send message

```
1 void SmsManager.sendTextMessage(  
2 String destinationAddress,  
3 String srcAddress,  
4 String text,  
5 PendingIntent sentIntent,  
6 PendingIntent deliveryIntent);
```



Matthias Keil

Android Telephony

13. Januar 2015

9 / 12

Notizen

---

---

---

---

---

---

---

---



- How to check if a phone number is present in the Contact List?
- Use `ContactsContract.PhoneLookup`

```
1 <uses-permission android:name="android.permission.READ_CONTACTS" />
1 Uri uri = Uri.withAppendedPath(PhoneLookup.CONTENT_FILTER_URI, Uri.encode(phoneNumber));
2 Cursor cur = context.getResolver().query(uri, new String[]{PhoneLookup.DISPLAY_NAME, ...});
```



Notizen

---

---

---

---

---

---

---

---



- Functionality to monitor phone information included in class `TelephonyManager`.
- Application can place calls, but not much more for security reasons.
- Muting phone when phone state changes to ringing allows more interference.
- `SmsManager` allows sending of SMS.



Notizen

---

---

---

---

---

---

---

---



- ANDROID DEVELOPERS. `android.telephony`. <http://developer.android.com/reference/android/telephony/package-summary.html>.
- ANDROID DEVELOPERS. `AudioManager`. <http://developer.android.com/reference/android/media/AudioManager.html>.
- ANDROID DEVELOPERS. `SmsManager`. <http://developer.android.com/reference/android/telephony/SmsManager.html>.
- ANDROID DEVELOPERS. `TelephonyManager`. <http://developer.android.com/reference/android/telephony/TelephonyManager.html>.
- ANDROID DEVELOPERS. `WallpaperService`. <http://developer.android.com/reference/android/service/wallpaper/WallpaperService.html>.
- ANDROID DEVELOPERS. `WallpaperService.Engine`. <http://developer.android.com/reference/android/service/wallpaper/WallpaperService.Engine.html>.
- [DEVELOPER.COM.



Notizen

---

---

---

---

---

---

---

---