

# Mobile Computing

Interacting with External Apps

# Direct the User to Another App

- Users can be redirected to another app based on an "action" it would like to perform.
  - Show a place in a map:
    - Opens a map software
  - Navigate to a web address
    - Opens an internet browser
- Explicit intent: Defines the exact class name of the component which is needed to start. Explicit intents are used to navigate between activities within the same app.
- Implicit Intent: Defines the action rather than a class name. Implicit intents are used to open separate apps to perform the specified action.

# Build an Implicit Intent

- Specify action with a uri.
  - Telephone call
    - <tel:0777333456>
  - Geo location with an address
    - <geo:0,0?q=491+Weerodara+Mawatha,+Arewwala,+Pannipitiya,+Sri+Lanka>
    - <geo:38.112349,-88.18163?z=14>
  - Web address
    - <http://www.android.com>
  - Image Viewer  
`intent.setDataAndType(  
Uri.parse("file://" + "/sdcard/img.jpg"), "image/*");`

## Direct Dial Implementation

```
Uri number = Uri.parse("tel:0777333456");  
Intent callIntent = new Intent(Intent.ACTION_DIAL, number);
```

## View the Specified Content

```
Intent mapIntent = new Intent(Intent.ACTION_VIEW, location);  
  
Intent webIntent = new Intent(Intent.ACTION_VIEW, webpage);
```

# Build an Implicit Intent

- Sending an email

```
Intent emailIntent = new Intent(Intent.ACTION_SEND);  
// MIME type  
emailIntent.setType(HTTP.PLAIN_TEXT_TYPE);  
  
// Recipients  
emailIntent.putExtra(Intent.EXTRA_EMAIL,  
new String[] {"ravimalb@uom.lk"});  
  
emailIntent.putExtra(Intent.EXTRA_SUBJECT,  
"Email subject");  
  
emailIntent.putExtra(Intent.EXTRA_TEXT,  
"Email message text");
```

- ## Creating a Calendar Event

```
Intent calendarIntent = new Intent(Intent.ACTION_INSERT,  
Events.CONTENT_URI);
```

```
Calendar beginTime =  
Calendar.getInstance().set(2015, Calendar.JANUARY, 20, 8, 30);
```

```
Calendar endTime =  
Calendar.getInstance().set(2015, Calendar.JANUARY, 20, 10, 30);
```

```
calendarIntent.putExtra(  
CalendarContract.EXTRA_EVENT_BEGIN_TIME,  
beginTime.getTimeInMillis());
```

```
calendarIntent.putExtra(  
CalendarContract.EXTRA_EVENT_END_TIME,  
endTime.getTimeInMillis());
```

```
calendarIntent.putExtra(  
Events.TITLE, "Wedding");
```

```
calendarIntent.putExtra(  
Events.EVENT_LOCATION, "Hotel California");
```

# Check Availability of Intent Receiver

- If the app invoke an intent and there is no app available on the device that can handle the intent, the calling app will crash.
- To verify there is an activity available that can respond to the intent;

```
PackageManager packageManager = getPackageManager\(\);  
List activities = packageManager.queryIntentActivities(intent,  
    PackageManager.MATCH_DEFAULT_ONLY);  
boolean isIntentSafe = (activities.size() > 0);
```

```
if (isIntentSafe)  
    startActivity(intent) ;
```

# Exercise

- Create a meeting scheduling application.
  - The application should keep the necessary details of the meeting and create a calendar event.
  - Once a meeting is scheduled an email should be sent to all the participants.