



TECHNISCHE
UNIVERSITÄT
DRESDEN

Department of Computer Science Institute for System Architecture, Chair for Computer Networks

Application Development for Mobile
and Ubiquitous Computing

AUDITORIUM Mobile

Notification Service

GroupNo. 14

Team:

Valentina Pontillo

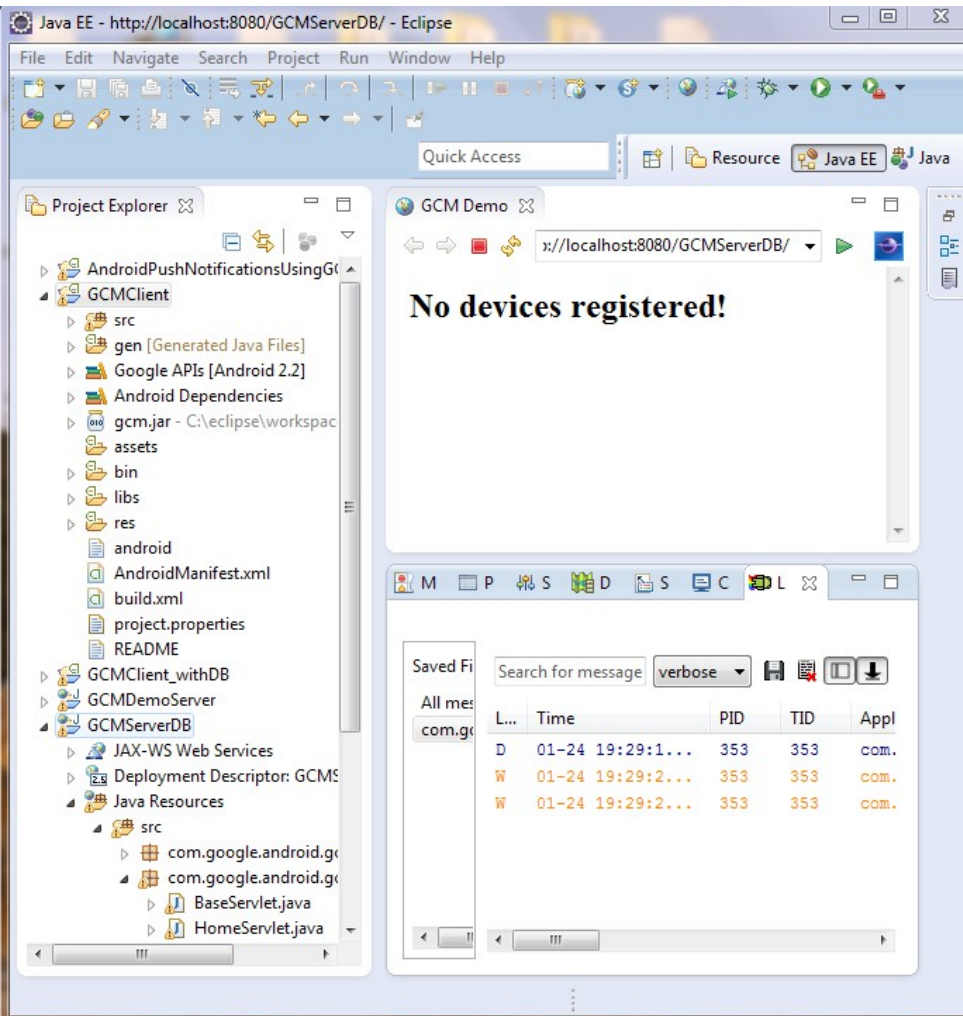
Bernardo Plaza

Components

Mobile Device	The device runs the Android and uses GCM with the version of Android 2.2
3rd-party Application Server	An application server (in our case Tomcat 7.0) that developers set up as part of implementing GCM in their applications. The 3rd-party application server sends data to an Android application on the device via the GCM server.
GCM Servers	The Google servers involved in taking messages from the 3rd-party application server and sending them to the device. In case the device is offline Gcm will store the message and will forward it when the device will be online
Database	We used a simple DB testing like SQLite (vs.2.0 b1) to store the data of the user on the server and the RegistrationId

Credentials

Sender ID	A project number you acquire from the API console. The sender ID is used in the registration process to identify an Android application.
Registration ID	An ID issued by the GCM servers to the Android application that allows it to receive messages. Once the Android application has the registration ID, it sends it to the 3rd-party application server, which uses it to identify each device that has registered to receive messages for a given Android application.
Google User Account	In order to GCM works, the mobile device must have a Google account synchronized.
Sender Auth Token	An API key that is saved on the 3rd-party application server that gives the application server authorized access to Google services.



Java EE - http://localhost:8080/GCMServerDB/ - Eclipse

File Edit Navigate Search Project Run Window Help

Quick Access Resource Java EE Java

Project Explorer

- AndroidPushNotificationsUsingG...
- GCMClient
 - src
 - gen [Generated Java Files]
 - Google APIs [Android 2.2]
 - Android Dependencies
 - gcm.jar - C:\eclipse\workspac
 - assets
 - bin
 - libs
 - res
 - android
 - AndroidManifest.xml
 - build.xml
 - project.properties
 - README
- GCMClient_withDB
- GCMDemoServer
- GCMServerDB
 - JAX-WS Web Services
 - Deployment Descriptor: GCM...
 - Java Resources
 - src
 - com.google.android.g...
 - com.google.android.g...
 - BaseServlet.java
 - HomeServlet.java

GCM Demo

://localhost:8080/GCMServerDB/

No devices registered!

Search for message: verbose

L...	Time	PID	TID	Appl
D	01-24 19:29:1...	353	353	com.
W	01-24 19:29:2...	353	353	com.
W	01-24 19:29:2...	353	353	com.



5554:user_1

7:30 PM

Basic Controls

Hardware Buttons

DPAD not enabled in AVD

LoginActivity

Welcome to auditorium

A way to change communication on your campus!

Username

berny

Password

...

Check it if you

Register with you

5558:user_2

7:30 PM

Basic Controls

Hardware Buttons

DPAD not enabled in AVD

LoginActivity

campus!

Username

valentina

Password

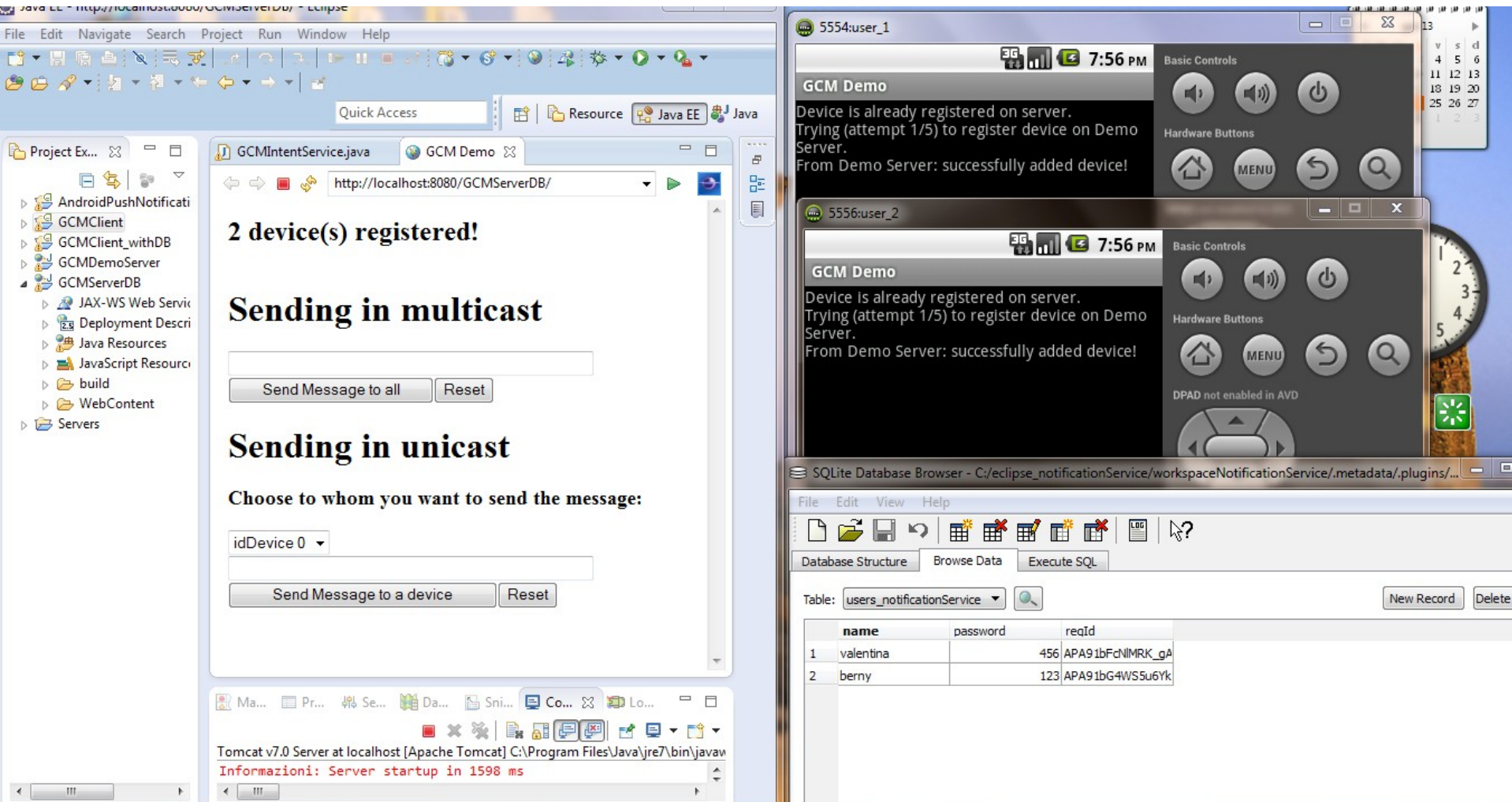
...

Check it if you want to login as teacher

Sing in

Register with your TU Dresden email address

Hardware Keyboard
Use your physical keyboard to provide in



The screenshot displays the Eclipse IDE environment. The main browser window shows the following content:

2 device(s) registered!

Sending in multicast

Send Message to all Reset

Sending in unicast

Choose to whom you want to send the message:

idDevice 0

Send Message to a device Reset

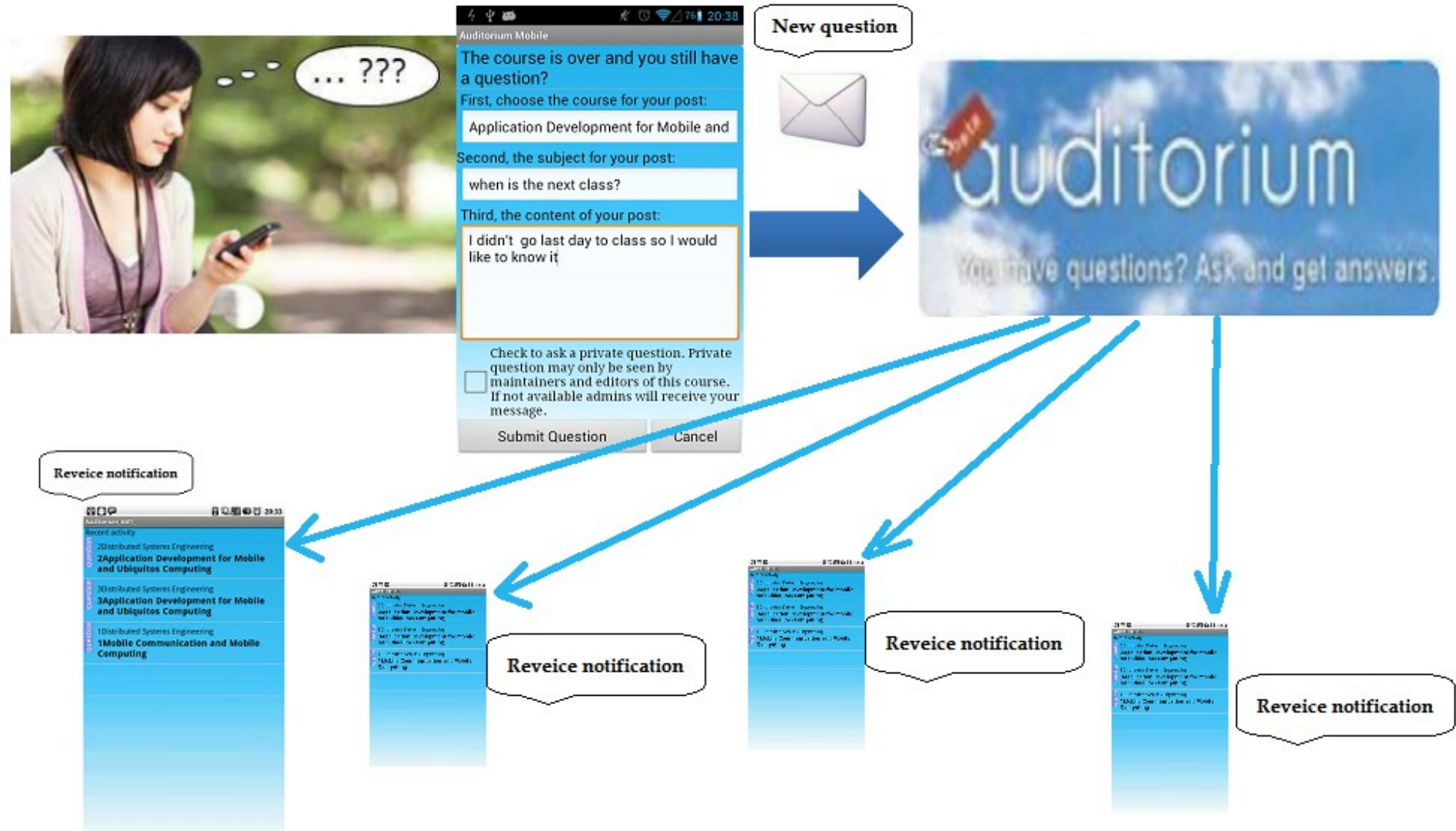
Tomcat v7.0 Server at localhost [Apache Tomcat] C:\Program Files\Java\jre7\bin\javaw
 Informazioni: Server startup in 1598 ms

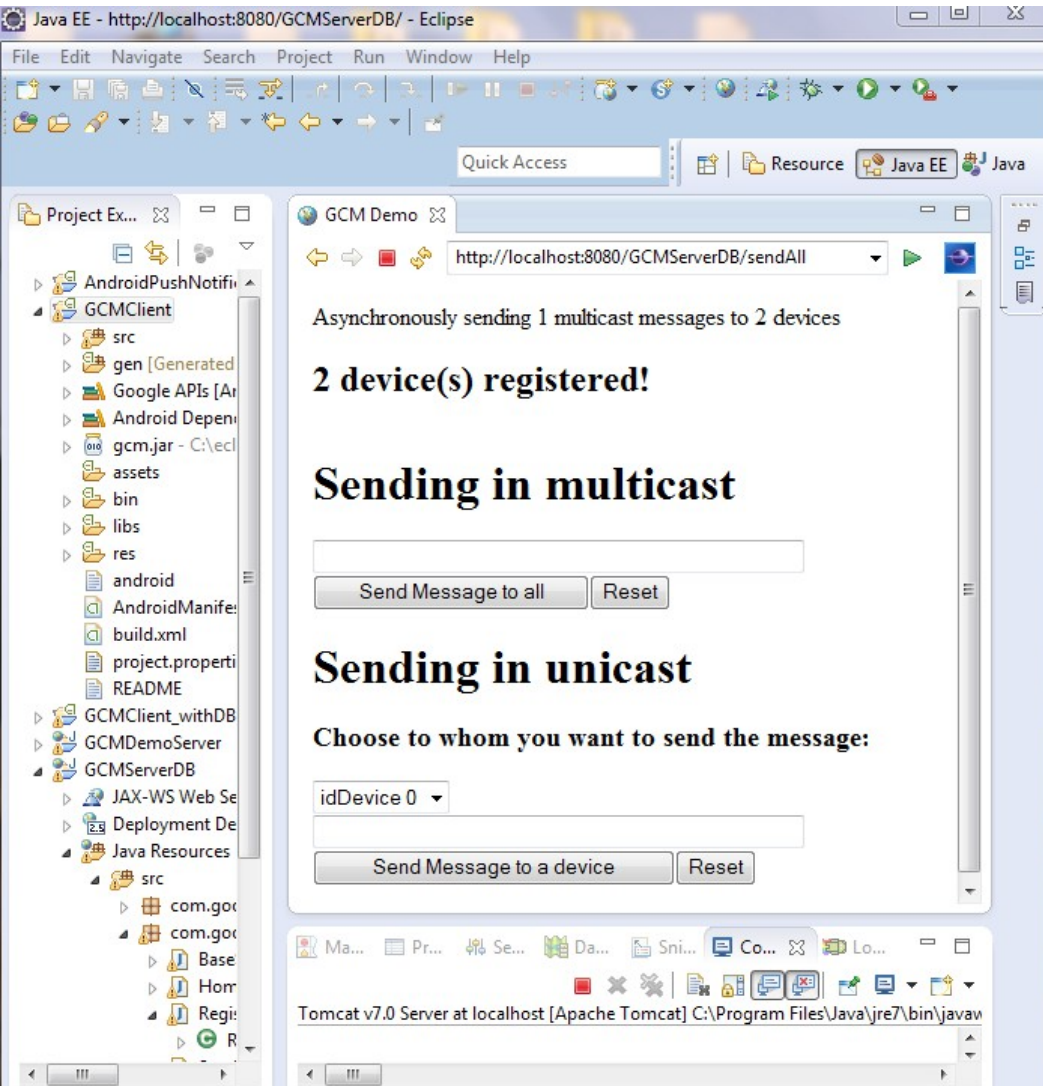
The background shows two Android emulator windows (5554:user_1 and 5556:user_2) displaying the app's UI. The UI includes a status bar with 3G, signal strength, and battery icons, and a time of 7:56 PM. The main content area shows a success message: "Device is already registered on server. Trying (attempt 1/5) to register device on Demo Server. From Demo Server: successfully added device!". The UI also features basic controls (volume, power), hardware buttons (home, menu, back, search), and a DPAD section.

The SQLite Database Browser window shows the following table structure and data:

name	password	reqId
1	valentina	456 APA91bFcNIMRK_gA
2	berny	123 APA91bG4WS5u6Yk

Use case: Message in Multicast





Java EE - http://localhost:8080/GCMServerDB/ - Eclipse

File Edit Navigate Search Project Run Window Help

Quick Access Resource Java EE Java

Project Ex... GCM Demo

src
gen [Generated]
Google APIs [Ar]
Android Depend
gcm.jar - C:\ec
assets
bin
libs
res
android
AndroidManife
build.xml
project.properti
README

GCMClient_withDB
GCMDemoServer
GCMServerDB
JAX-WS Web Se
Deployment De
Java Resources
src
com.goc
com.goc
Base
Hom
Regi
R

http://localhost:8080/GCMServerDB/sendAll

Asynchronously sending 1 multicast messages to 2 devices

2 device(s) registered!

Sending in multicast

Send Message to all Reset

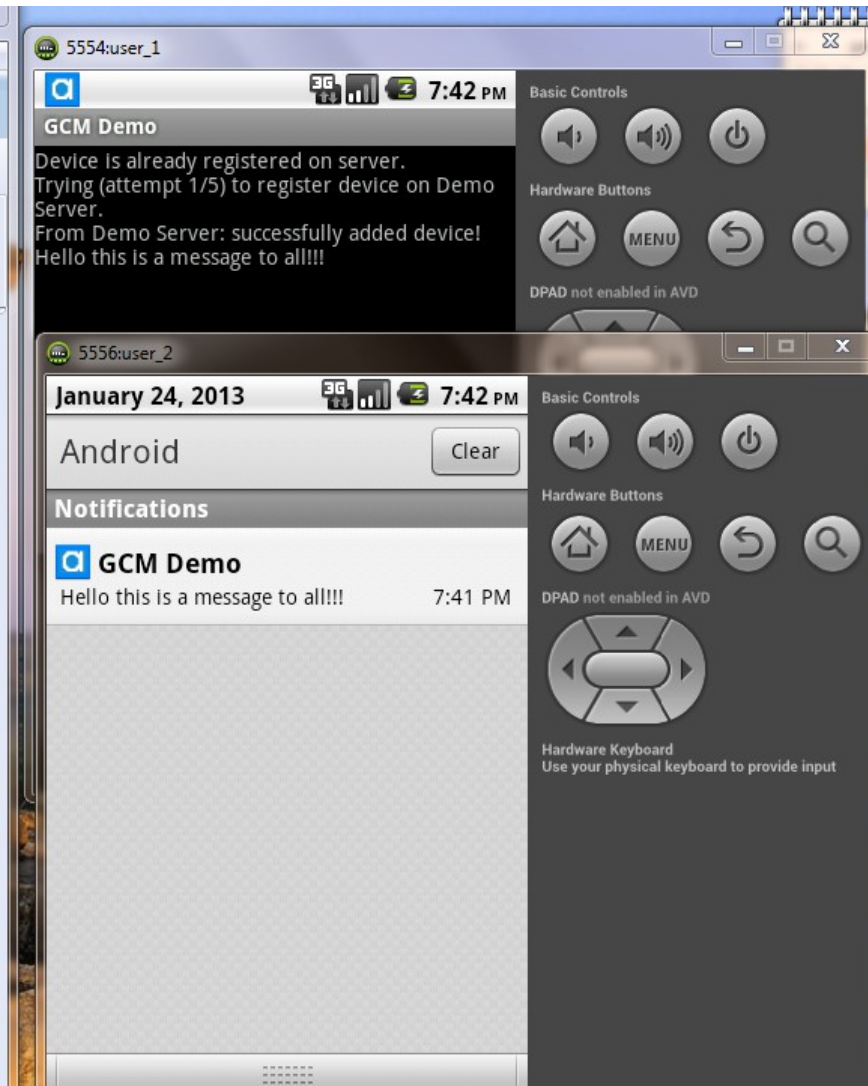
Sending in unicast

Choose to whom you want to send the message:

idDevice 0

Send Message to a device Reset

Tomcat v7.0 Server at localhost [Apache Tomcat] C:\Program Files\Java\jre7\bin\javaw



5554:user_1

7:42 PM

GCM Demo

Device is already registered on server.
Trying (attempt 1/5) to register device on Demo Server.
From Demo Server: successfully added device!
Hello this is a message to all!!!

Basic Controls

Hardware Buttons

DPAD not enabled in AVD

5556:user_2

January 24, 2013 7:42 PM

Android Clear

Notifications

GCM Demo

Hello this is a message to all!!!! 7:41 PM

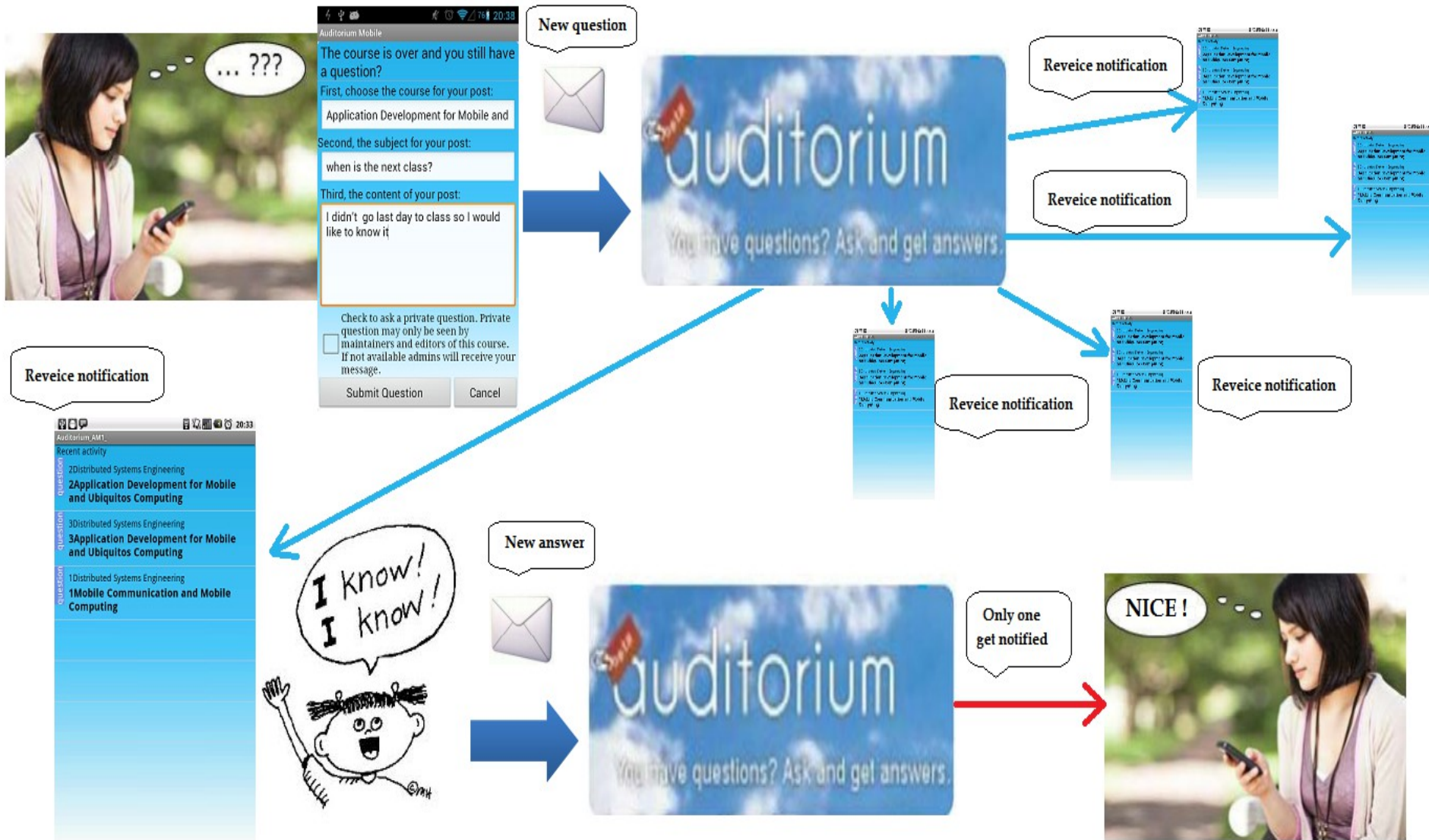
Basic Controls

Hardware Buttons

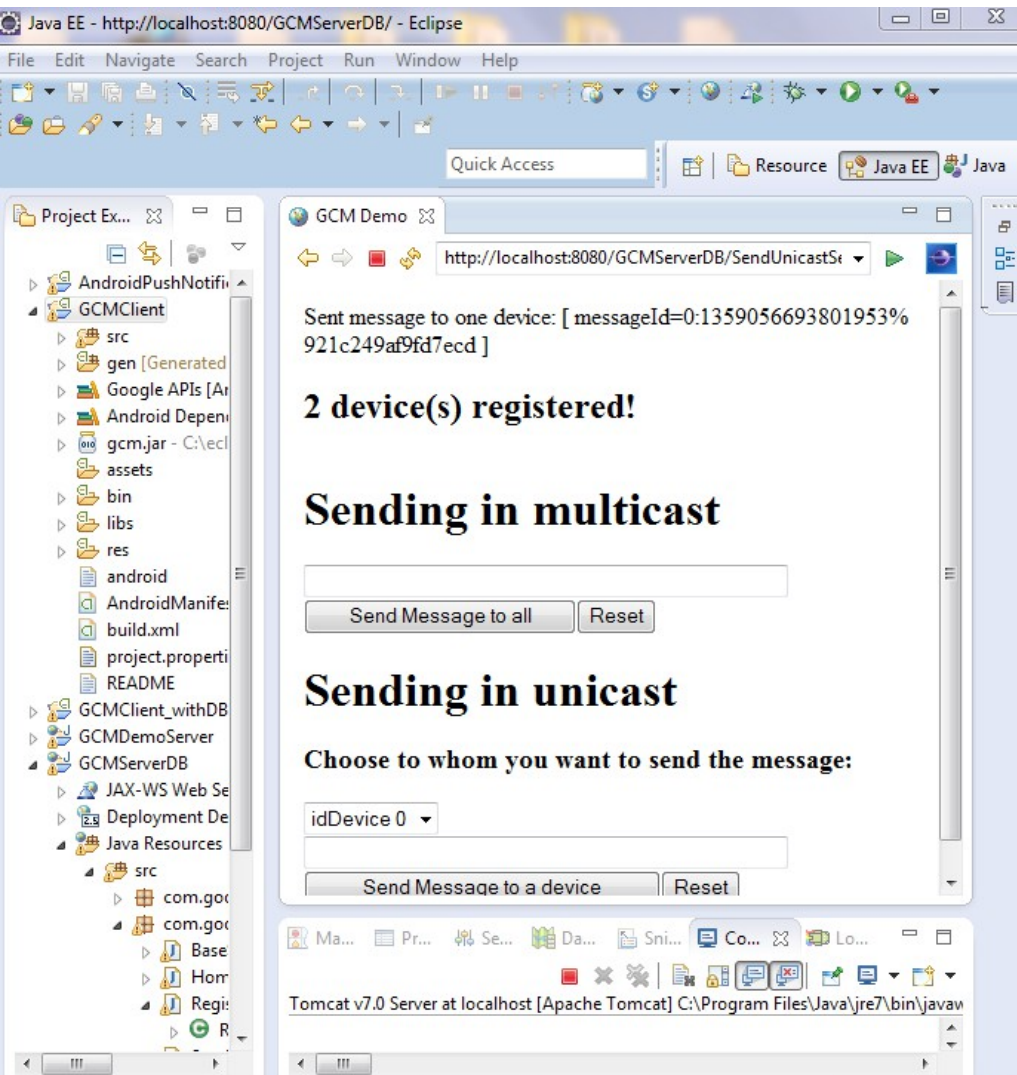
DPAD not enabled in AVD

Hardware Keyboard
Use your physical keyboard to provide input

Use case: Message in Unicast



Use case: Message in Unicast



Java EE - http://localhost:8080/GCMServerDB/ - Eclipse

File Edit Navigate Search Project Run Window Help

Quick Access Resource Java EE Java

Project Explorer: GCMClient

GCM Demo

http://localhost:8080/GCMServerDB/SendUnicastSt

Sent message to one device: [messageId=0:1359056693801953%921c249af9fd7ecd]

2 device(s) registered!

Sending in multicast

Send Message to all Reset

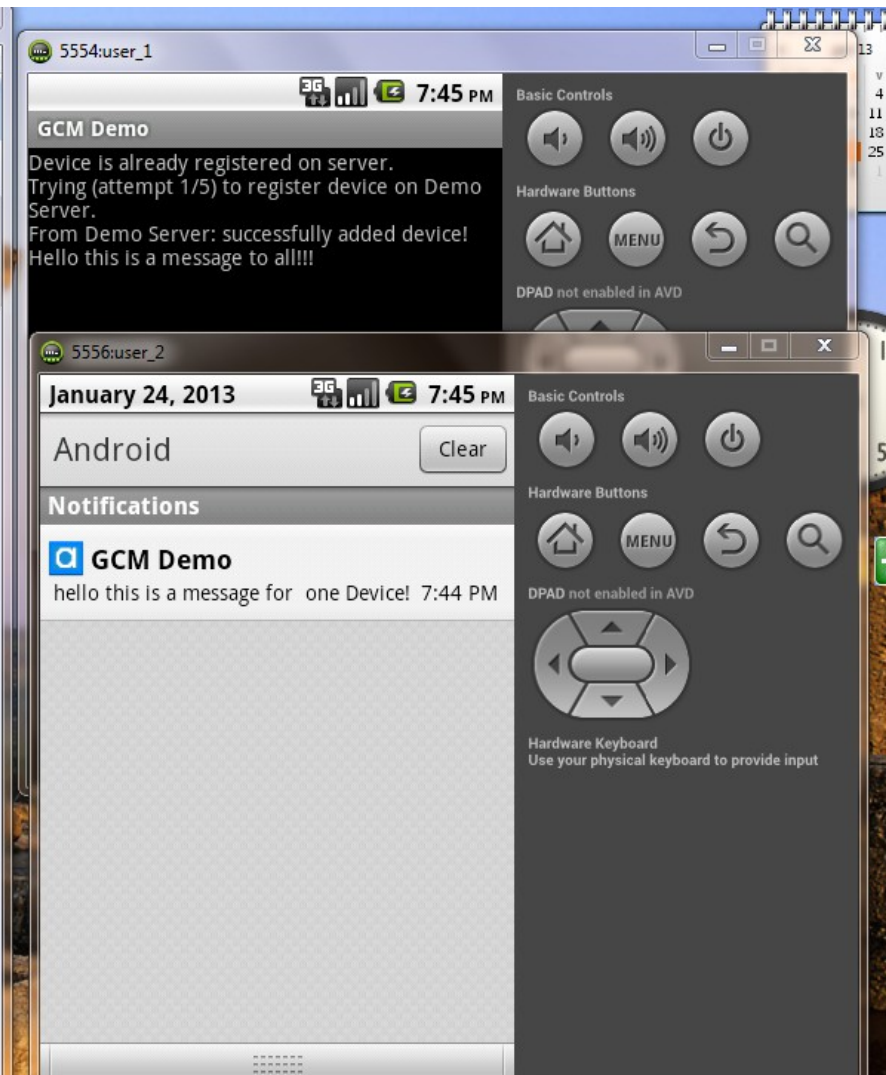
Sending in unicast

Choose to whom you want to send the message:

idDevice 0

Send Message to a device Reset

Tomcat v7.0 Server at localhost [Apache Tomcat] C:\Program Files\Java\jre7\bin\javaw



5554:user_1

7:45 PM

GCM Demo

Device is already registered on server.
Trying (attempt 1/5) to register device on Demo Server.
From Demo Server: successfully added device!
Hello this is a message to all!!!

5556:user_2

January 24, 2013 7:45 PM

Android

Notifications

GCM Demo

hello this is a message for one Device! 7:44 PM

- Ubiquitous:
 - Many user at the same time.
 - From different devices
- Usability:
 - Intuitive.
 - Easy to use.
 - Battery efficient.

- Integration with XMPP is not a good idea.
- Http/XMPP problems
- Solution could be used in the future
 - By another application that used http protocol.
 - By Auditorium Mobile thought the help of BOSH (for Bidirectional streams Over Synchronous HTTP).
 - In this moment there are no so much example to use it.

Questions?

You can add them in Auditorium Mobile

Thanks for your attention.

Grazie per la vostra attenzione.

Gracias por su atención.

Danke für Ihre Aufmerksamkeit.