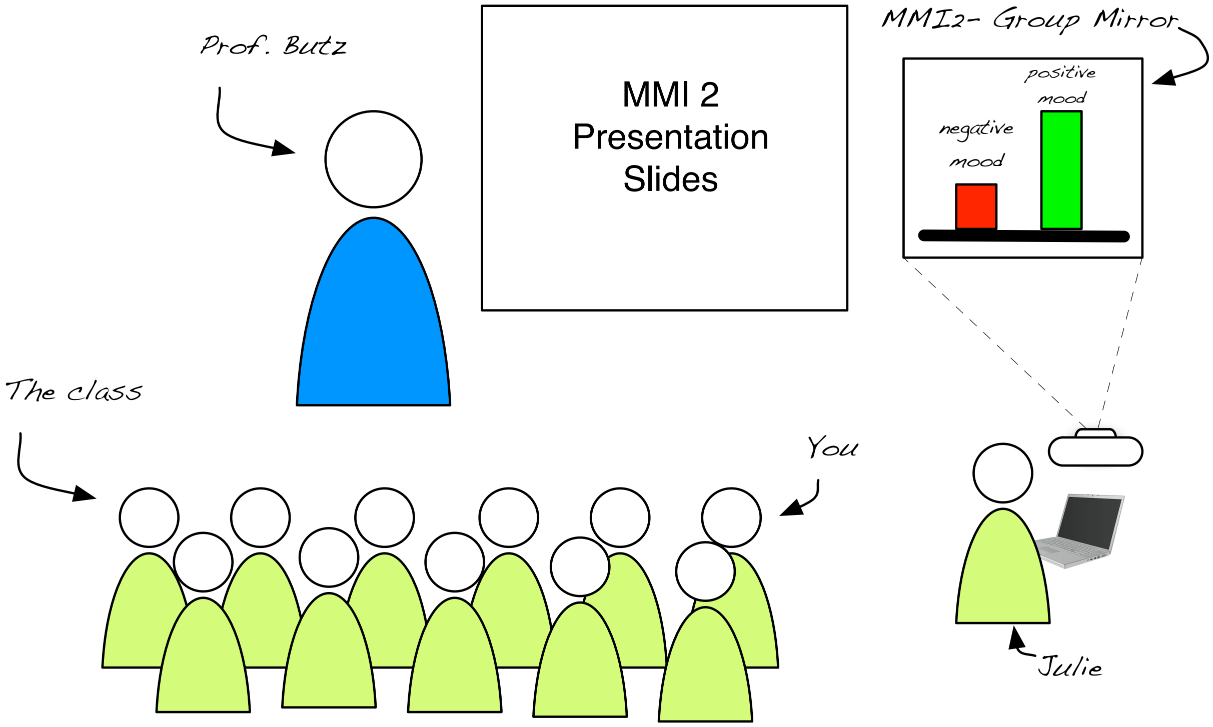


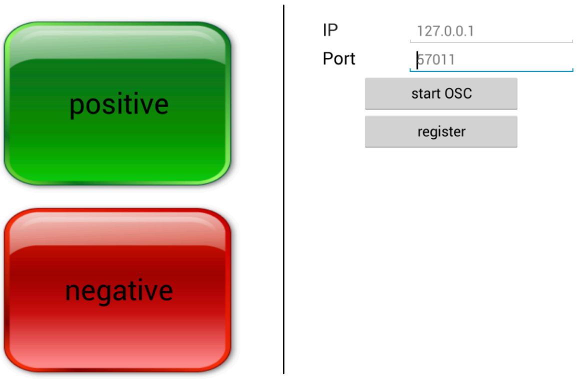
**Figure 1: The MMI2 group mirror setup**

**You are invited on january 8th 2014 to the MMI2 lecture. As usual, Prof. Butz will talk about lots of interesting MMI2 stuff. This time, however, we will be using a ‚group mirror' projecting everyones *‚mood'* to the wall. Afterwards, we discuss problems and potentials of this system. Try it out and bring Exercise 1 installed on your phone. Make sure you are connected to eduroam!**

# Assignment 4 – Mensch-Maschine-Interaktion 2

**Time frame:** 3 weeks
**Group size:** 1-2 persons
**First challenge:** people not having an Android phone need to find people who do. Use social networks or your physical attendance to lecture or exercises to find your partner for this assignment. 50 participated to the doodle I sent by mail in the beginning of the semester, 34 indicated to have either an Android phone or tablet.

**For this assignment you receive a maximum of 20 points. If you reached at least 15 points you get three bonus points. Bonus points will be added to the points achieved in the final exam.**



IP 127.0.0.1

Port 57011

**Figure 2: (left) the interface of the ‚group mirror'-labeled tab. (right) the interface of the ‚osc'-labeled tab.**

### Exercise 1: Create *Group Mirror* Client in Android (19 points)

1. Create a new Android project (Min. version: honeycomb) and create an ActionBar with two Tabs labeled ‚group mirror' and ‚osc'. Create the following interface elements and lay them out as indicated in Fig.2 (see Fig. 2): (2 point)
   a. Tab „group mirror" contains two buttons for sending a positive/negative mood to the group mirror. (download the following buttons: https://www.iconfinder.com/icons/34206/blue_box_icon#size=256 and https://www.iconfinder.com/icons/34203/box_orange_square_icon#size=256 )
   b. tab „osc" contains 2 labels (‚IP', ‚Port'), 2 text fields (with hint value), 2 buttons (‚start OSC', ‚register').
2. Use an existing OSC library (e.g. https://github.com/odbol/OSCLib) and open a UDP connection to the in both textfields indicated IP address and port. Don't forget to close the connection when the application is closed. (2 point)
3. „An OSC message consists of an OSC address pattern followed by an osc type tag String followed by zero or more OSC Arguments" (http://opensoundcontrol.org/spec-1_0). Send tot he server the following messages:
   a. ‚negative' – labeled button: (1 point)
      i. OSC address pattern = ‚/mood'
      ii. OSC string-argument = ‚negative'
   b. ‚positive' – labeled button: (1 point)
      i. OSC address pattern = ‚/mood'
      ii. OSC string-argument = 'positive'
   c. ‚register'-labeled button (1 point)
      i. OSC address pattern = ‚/register'
      ii. OSC string-argument = ‚<your name>' (e.g. „Julie")

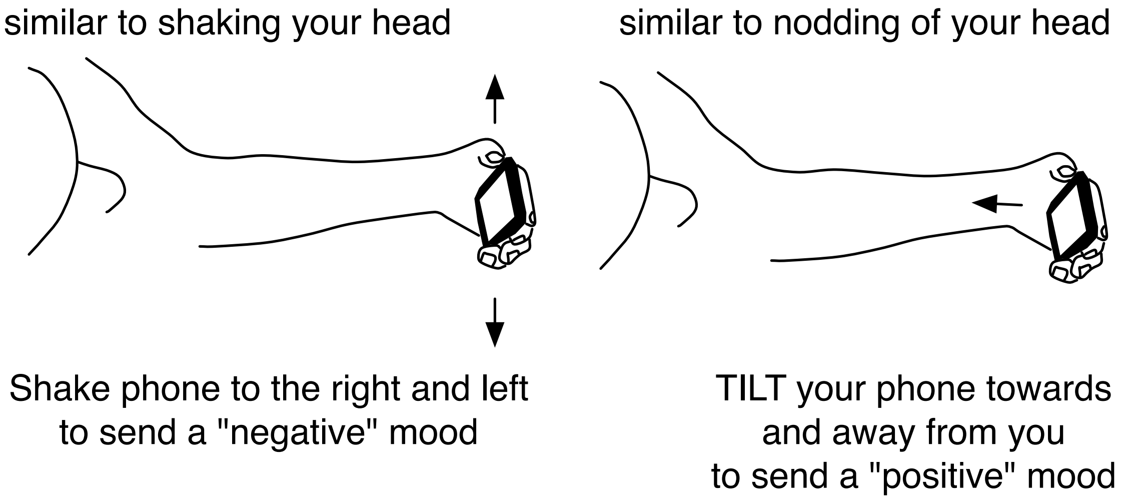

similar to shaking your head
similar to nodding of your head
Shake phone to the right and left to send a "negative" mood
TILT your phone towards and away from you to send a "positive" mood

**Figure 3: shaking phone (left) sends a 'negative' and tilting it (right) sends a 'positive' mood**

4. Implement the in Figure 3 illustrated movements (Shake is not equal to tilt!) to send ‚negative’ and ‚positive’ moods as alternative to the two buttons. Make it possible to switch between both interfaces to send moods (button vs. mid-air gesture) easily! (e.g. with an additional tab) (6 point)
5. Come up with a new way to send positive and negative moods and implement it. Hand in a description (if necessary with a sketch), explain your interaction idea and state at least one advantage and disadvantage of your technique compared to the two on-screen buttons. (6 points)

**Exercise 2: Testing your Android App with your computer (1 points)**
Create a new Java project (Java 7) that opens a UDP connection to listen to incoming messages (use existing OSC libraries)
Listen to incoming OSC messages from your Anrdoid app and print them to the console. (1 point)

**Submission:**

1. **source code of Android project and apk file**
2. **source code and executable file of Java project.**

**The submission date is january 8th 2pm in UniWorx.**