

Massachusetts Institute of Technology
6.883, Spring 2007 Telephone Support for
Telephone
Problem Set 5
Due: Thursday, April 19, 2007

1 Motivation

We tried to play the game of telephone using our telephones. It was a failure mostly for lack of organization. Some people tried to impose some organization but that only partially worked. It is interesting that we resorted to very basic technology of whiteboard and marker. We do have much more advanced technology that we were holding in our hands. The purpose of this problem set is to use our phones to organize the experiment.

Clearly we should not telephone each other, but we can send sms messages or use bluetooth.

2 What to do

We want to be able to receive a message that tells the individual the current status and what he or she should do. Suppose Alice starts by calling Bob. Alice's program will first send a message to Bob, telling him that she is about to call him and then waits for a reply. When Bob replies that it is ok, Alice's program tells her that everything is going well. Alice calls Bob (either manually or via the python program), and her program records the time of the connection. It then waits for a call to be received from Zeta. If the connection fails, the time of the failure should be recorded as well.

Bob gets a message to expect a call from Alice and replies that it is OK. Then the call arrives and he answers it. He in turn should call the next person on the list. Everyone should have the same list. Ideally, this list should be on some server, but for now, we can hardwire them into the code (and everyone has the same ordered list.)

If Bob does not reply, then either automatically timeout or manually select some menu item. Then proceed to the next person on the list.

I am not sure that Python can deal with the conference call stuff, so that may have to be done manually. The Python API only has **dial** and **hang-up**. (The current release of python is 1.3.20; check to see which version you are using.)

3 Message Passing

SMS messages can be sent and recieved via python. This is the easiest way, but I am not sure that it is the fastest. Better would be to communicate over bluetooth, but by setting up and then tearing down a connection.

4 Coordination

Please use the wiki to coordinate phone numbers, bluetooth ids, etc. You may also post and share code.

Can we get other phones (without code) to join in? Sure, so perhaps the database can have each entry with name, phone number, bt-id, alien fields. When someone joins, perhaps we should have a way to dynamically add them to the database on someone's phone. Then, insert the alien phone between two class phones. Alice adds Alpha to her list. She will call Alpha and have Alpha call Bob, but Alice will send message to Bob and Bob will ack.

5 Statistics

The goal is to see how long of a telephone chain we can manage. Therefore each phone should keep as much relevant statistics as possible. Ideally these should be funneled to a server, but we can collect them latter (or sms them to everyone or one central receiver).

You can record the `gsm_location`, the `signal_strength`, and the time of each activity. Write this to a local file on the phone, and perhaps to a server (does someone want to write a server?) and sms me a message. I will post a number that can be used.

6 What to do on Thursday

As usually, there is much detailed organization lacking; some amount of self organization is needed.

Show up to class as usual on Thursday. If there is sufficient connectivity in the classroom, then just stay there, else go outside.

For the experiment itself, I suggest loading up several different versions of the assignment. Hopefully, someone will have a good version.

1. Synchronized calling. Everyone attempts to make a call at the same time. Do this very simple first test. Find a phone number you can call (without bothering anyone). Someone says go, and everyone hits a button on their application which should automatically dial. I think the dial api returns after the call is answered. Record the time when you start dialing and after receiving the call.
2. Play telephone game.
3. Tell me what happened.