

Context based phone priority lists.

By: Andreas Thuen
– UNIK4710

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The idea for this application/system originated in our previous lecture on context based systems, UNIK4710. The thought is to have a mobile phone contact list that is divided into different groups, and that the phone will utilize the information in for example the calendar to determine which groups you are most interested in/involved with through the day, and prioritize the messages/communication to the people in these groups when you are in a specific context or setting.

The system will consist in three different services. Your contacts and your connection with them, your calendar and the different activities that makes up your schedule, and a controlling service. The controlling will be the administrator of the system and as it gets to know your habits it will adapt to these and also be able to handle deviation from your schedule in a better way.

A basic use case will be if Paul is to attend a project meeting for a big project that he has been working on for the past 6 months. He is going to present the progress of the project to the management in his company, and he is very excited about this. He has spent several hours preparing for this, and the last thing he wants is to have his final preparations interrupted by a sales agent for the local newspaper. But since his phone and calendar is coupled with each other, the phone knows who else has been working on the project with him, and therefore only accept calls and messages from his coworkers on the project. This is because on his calendar he has made an entry with high priority, where he is to make his final preparations and do not wish to be disturbed. However, the call from his coworker telling him that the latest figures from the project are in will be let through, making Paul able to include this in his upcoming presentation.

The first part will be the contact list, where all your contacts will be divided into groups. A contact can be a member of several groups, since they can be both your colleagues and your work out buddies. A group can contain as many people as needed, from one to all your contacts. When you add contacts to your list, it is critical that you add as much information about as them as possible. This will enable the filtering function to work more efficiently. All data such as name, number, interests, work, hobbies and so on. Examples of groups can be: Friends, family, colleagues and so on.

The next essential part of the system will be integration with your calendar and for example GPS unit on your smartphone. This feature will also be reliant on the users ability to keep a tidy, updated and accurate schedule. When you add an entry, it is important that you try to

include as much information as possible. The first and most important data field will be the time of the entry, when does it start and when does it end? A good description will also help you to review the schedule afterwards. A location may also be very helpful, in order for the phone to be able to learn and analyze your behavior. And if you approve it, let it adapt to it. It will also be a good help if you use a joint calendar function, where you can invite your contacts to join your calendar entries. This will help the phone to more easily see which people are involved in an activity.

The controlling service will be the most challenging part of this system, it will take a lot for testing and the success rate will probably not be the same for all the users. If you are a very structured person, that has a very tight and precise schedule and very few deviations, you will be able to adapt the system to your preferences, since most events will be repeating itself and is therefore easier for the system to learn. However, if you are a person with a loose schedule and every day can be different from the previous one, the system will have much harder time to learn your behavior and schedule. A temporary solution to this problem can be manual status setting. Where the user changes his status several time throughout the day, hence making sure the phone knows who and what the person is interested in at any given time. However, if the user has to manually change the status every time he changes from on activity to the next, it will most likely result in the user not changing at all. A third option will then be to primarily focus on the activities where it is most important that the user does not get interrupted. So that every time the user changes his mobile device to a do not disturb state, an option where you can choose if there is still any groups that are allowed to disturb you, and the user can then select the groups he still wishes to receive phone calls or messages from. You could also build in a fail safe mechanism in the system, where if someone you do not have on your contact list needs to tell you something very urgent, they would still be able to reach you even though you have set your phone to do not disturb. This could be solved with a simple counter or timer that detects if someone tries to call you from the same number three times in less than 10 minutes, the call would be let through the do not disturb barrier allowing the phone to ring, even though it is in do not disturb mode.

Another crucial part of this system, is that your other contacts also have to use it. If all your contacts use this system it will make it a lot easier to rely on for example the GPS feature, since you could use the proximity of your other contacts in order to see who you are most likely to interact with.

The biggest challenge about this idea is privacy. To be able to make a system like this work efficiently, the processing and data flow would need to be done through a server of some kind. This would require the server to store or at least use a lot of informatin regarding your personal habits and whereabouts at any given time. This has been a very controvercial issue the last few years, and I doubt it will become any less important in the years to come. However, it is a fact that the use of mobile phones on a daily basis to is a very inreasing

trend, and the amount of data collected is increasing by the year. Therefore the success of such a system would be reliant on the systems ability to work smooth and without hassle, and at the same time being able to ensure its users that the information collected about them and their habits, is only collected for the purpose of improving the system. The users must also feel certain that their personal information does not get sold or in any other way is used for other purposes than the one originally intended.

The system would have to be made available to all mobile platforms, and the interaction and communication between these would have to work flawlessly. The best result would therefore be achieved if the system was pre installed on your device, and came as a part of your operating system. This however is probably the biggest challenge of the whole project, as it would require the different operating system providers to cooperate in the production of this system, which is at this point very unlikely. You would also need a server that can handle the information from each unit connected, and is able to recognise patterns in the use and behaviour of the users. The server could then analyze the data and use this to for example send you push notifications, if someone you know, that is in your area, is doing the same activity as you are.

But fortunately the most basic idea of this system does not rely on big server parks, interconnecting mobile apps, and comprehensive databases of interests, whereabouts and other information. The most basic foundation of this system is also the easiest part of it to create and implement. It only requires two components and is rather easy to create. A slightly altered phonelist where you can add tags, relations and sort assign your contacts to groups. And a do not disturb function on your phone, where you can choose the duration of your do not disturb period, the people or groups that are still allowed to contact you. With these simple components you could easily keep your phone silent for a meeting or any other event, and still be available to anyone who may have something important to tell you. The privacy of this system is also no problem to take care of, as it does not need to store any data except from your relations to your contacts on your phone.