

# **SOCIAL COMPUTING CSC 591 P2 – UTILITY FUNCTION**

## **Utility Function –**

The utility function depends on the user and caller contextual information sources.

The user's context includes –

1. User's location [#hunt, #eb2, #carmichael, #oval, #party]
2. Surrounding noise level [1-5. 1 indicating the lowest and 5 being the highest]
3. People surrounding the user
4. What is their relation to the user
  - Type (family, friend, colleague, or stranger)
  - Strength of relation (high, medium, or low)
  - What is the ringer mode they have?
  - What ringer mode do they expect to have?

Caller Context –

1. What is the relation to the user?
  - Type (family, friend, colleague, or stranger)
  - Strength of relation (high, medium, or low)
2. Urgency of the call

A good way to decide whether to pick up a call or not is to prioritize the combinations obtained from the contextual information sources.

A few basic assumptions are made. For instance, if the user is in the library, the user is studying whereas if he is in eb2, he is either in a class or in a meeting with a professor. If the user is in Carmichael or oval, the user is relatively free either waiting for a bus or eating lunch. If the user is at a party, it is late in the night.

1. The combination which has the highest priority is if the Caller is type family, the strength of relation is high and the urgency of the call is yes. In this case, the ringer mode should be loud and the user's phone should ring irrespective of where the user is and the noise level. Family is given the highest priority. The user's phone can be on silent mode if the user is in eb2 or hunt, the ringer mode is possibly in the silent mode.
2. Another combination is when the Caller type is family, the strength of the relation is high and if the urgency of the call is no. In that case, the user's location comes into picture. The odds are that the family member is calling casually. In this case, if the user is in hunt, eb2 or party, the phone should not ring. If the noise level is 5, the user's phone should not ring. However, if the user is at Carmichael or oval, the phone should ring.
3. If the caller is a family member and the strength of the relation is medium, the urgency of the call does not matter. If the user is in hunt or eb2, the user's phone should not ring. However, if the user is in any of the other locations, the phone should ring.
4. A combination of the family and low strength of relation is possible. If the call is urgent, then someone from your immediate family will ring you up so that case is redundant. If the user is either in hunt or eb2, it means he's either studying or in a class. In this case, the user's phone should not ring in loud. However, if the user in Carmichael or oval, the phone can ring in loud mode.

5. A combination of the friend and high strength of relation and urgency of call is yes, the user can pick up the call depending on the surroundings. If the user is in a party, Carmichael, oval or eb2 the user's phone should ring. Could be an emergency and since the strength of the tie is high, it means the person is in a tight situation. However, if the person is in the library (hunt) the person phone should not ring. The expected mode for the phone should be in silent.
6. If the friend is of medium strength in relation and the urgency of the call is yes, the user need not pick up the call. If the friend is of medium priority, then nothing can be so urgent that the user has to stop whatever he is doing and pick up the call. However, if the user is at oval or Carmichael the user's phone should ring.
7. If the friend is of low strength in relation, then the urgency of the call is irrelevant. A low strength friend will not have anything urgent for the user. Hence, if the user is in hunt, party or eb2 then the user's phone need not ring. However, if the user is in Carmichael or oval, the user's phone can ring.
8. If the caller is a colleague and the strength of the relation is high then the colleague is virtually like a friend so the same rules as described for a friend occur.
9. If the caller is a stranger, only if the call is an urgent one should the user pick up. Majority of the stranger calls are usually spam or pranks. In the event of it being urgent for instance an interview, the urgency indicates that the call should be picked up. If the user is at a party (which is usually at night), the chances of a stranger calling is extremely low so the user can ignore. Wherever the user is and irrespective of the noise and the number of people surrounding him, the user's phone should ring in loud. It's also possible that some stranger is calling to tell the user of tragic incident the family, but this case is previously covered when a family member of strong ties calls with an urgent yes.
10. A stranger cannot have a high or medium strength of tie with the user so that case is ruled out. If the person has either a high or a medium strength, then the person is not a stranger but a friend or a colleague, cases for which have been mentioned previously.

Taking these parameters into consideration, I have come up with the aforementioned definition of the utility function.