Bat Signal

Cellular Network and Mobile Computing

Motivation

Sensors in smart phones can be used to detect accidents.

In case of an accident, user's friends could be notified of this emergency.

Know when your friends battery is low, so you can communicate ASAP.

Use Cases

Know when your friends battery is low

Know when your friend has met with an accident

Architecture

Technical Details

- *RDS tables store information about users, contacts, battery and accelerometer data.*
- *Analysis phase: Used the G-force formula which is: $(x^*x + y^*y + z^*z) / (9.8)^*(9.8)$*

- *To detect accidents, the RDS tables are continuously monitored in a round-robin fashion.*

Features

Efficient design: Backend work is on the Django server.

Data can still be monitored, though the phone is slightly damaged.

Saving battery consumption, reducing computational complexity overhead on the android client.

Concepts Applied

e-bugs

Android concepts - sensors and services

Scaling with amazon web services

Challenges/Lessons Learnt

- *To monitor the sensors in the background and switch them on/off at particular intervals of time.*
- *Establishing a connection to RDS from the android client.*
- *To use only the stand-alone part of Django.*

Limitations

Including the analysis of microphone data would provide more accurate results.

Need to obtain the permission of the user's contacts to receive SMS.

Future Aspects

iOS Application

GPS Integration

Customized calls/SMS

Literature Reviewed

Wreck-watch paper
http://www.dre.vanderbilt.edu/~schmidt/PDF/wreckwatch.pdf

Android documentation

Django documentation

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