ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

Android Projects proposals 2020

Luca Sciullo, Federico Montori
luca.sciullo@unibo.it, federico.montori2@unibo.it

Introduction

- The following proposals must be considered just hints.
- All the main functionalities listed must be implemented (minimal requirements to have the project accepted).
- We strongly encourage to expand/customize the proposal based on your creativity.

Introduction

- Projects described in the following must be developed by a single student. Group projects are not allowed.
- Project implementation must be original and 100% student work (no code share or reuse).
- Submit the project by IOL (https://iol.unibo.it) including all code, a technical report, and a short presentation (10-15 slides)

Introduction

- Read and follow the instructions about projects submission policies (deadlines, validity, etc) on the course website: https://iol.unibo.it/course/view.php?id=43200#section-12
- This year, Android and iOS projects share the SAME tracks
  - We know iOS had less lectures -> because you can **always** do it in Android
  - iOS is considered an alternative based on your **own** choice.

Project 1: Personal health monitor

- track personal information about user's health to be saved into daily reports
- manage the reports within a calendar (of your choice)
- send notifications and plot the collected data according to specific filters

Project 1: Personal health monitor

Functionality 1: Create and modify reports

- Health reports are summaries of health information tracked by user that should be saved every time the user thinks to be a good idea. Each report includes a minimum number of two information related to the user's health (e.g., body temperature, blood pressure, Glycemic index, etc..)
- create, modify and delete health reports
- reports need to be stored by the application (we strongly suggest to use a database)
- show reports on a daily basis, like for instance inside a calendar.

Project 1: Personal health monitor

Functionality 2: Notifications

- notify if user has not inserted yet a report for that day. The time of the notification can be set in a settings page
- notify the user if the average of data collected for an information in a fixed period of time has exceeded a predefined threshold. User can customize which information to monitor, for how long time and what is the threshold

Project 1: Personal health monitor

Functionality 3: Graphs

- collect usage stats displaying at least two graphs of any kind (pie graph, box plot, histogram, line plot, etc.).
- each graph should show interesting data, for instance the variation of a health information over a week, the variation of the number of collected reports each day, etc..

Project 2: GiftToMe Client

- implement a client for the GiftToMe platform: GiftToMe is a web platform for sharing old stuff that can be gifted to people who need such things. For the sake of simplicity, we use Twitter as backend. You then have to use the Twitter API.
- Create, modify, delete and visualize posts
- Manage replies to an existing post
- Notifications and geofencing

Project 2

Functionality 1: Interface for articles

- A GiftToMe post is a tweet containing the hashtag #LAM_giftToMe_2020-article
- User can create, modify, delete and visualize posts
- The task has this format:

```
# LAM_giftToMe_2020 - article
{
" id ": "9a61bc0c-ce39-4d3b-b72d-e63af675522a" ,
" issuer ": " username " ,
" category ": " sport " ,
" name ": " Racchetta da tennis " ,
" lat " : -37.835309 ,
" lon " : 145.047363 ,
" description ": " Ottima racchetta usata solo un paio di volte ."
}
```

Project 2

Functionality 2: Manage replies to existing posts

- The reply is a tweet containing the hashtag #LAM_giftToMe_2020-reply
- User can create, modify, delete and visualize replies (a chat dashboard is considered as optional task)
- The task has this format:

```
# LAM_giftToMe_2020-reply
{
" id ": "04367a30-e487-439d-8f10-3f891f0883cc" ,
" sender ": " senderUsername " ,
" target ": "9a61bc0c-ce39-4d3b-b72d-e63af675522a " ,
" receiver ": " username " ,
" message ": " Ciao , sono interessato ."
}
```

Project 2

Functionality 3: Notification and geofencing

- the application must notify the user if there are available articles close to him. Use the location APIs.
- the application must notify the user if he/she has received a reply to a post (only the ones containing an article) that previously published on giftToMe

Alternatives

Propose your own

- propose your own project by writing an e-mail to luca.sciullo@unibo.it
- It **needs** to include a list of requirements that you aim to satisfy
- DO NOT BRING PROJECTS FROM THE LAST YEARS

Alternatives (and beyond…)

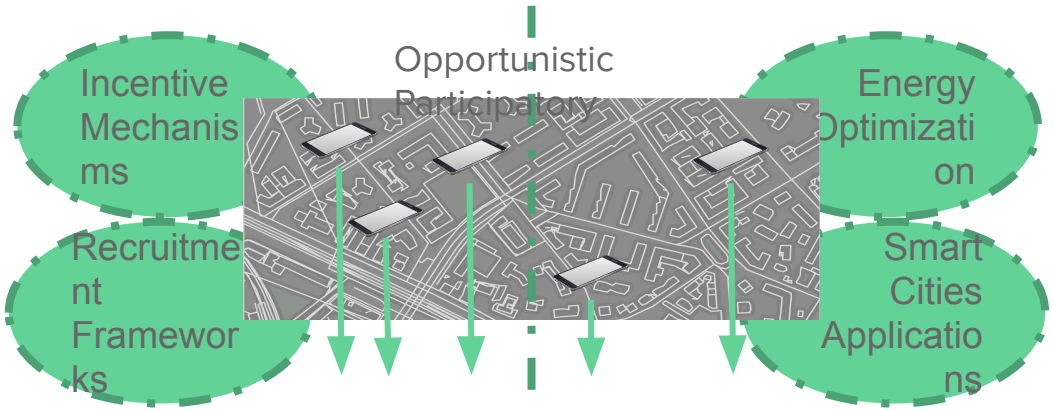
Web of Things (WoT)

- “A sensor on its own has limited value, but there are huge opportunities for open markets of services that combine sensors, actuators and multiple sources of information.”
- A W3C paradigm for IoT interoperability...

Alternatives (and beyond…)

Mobile CrowdSensing (MCS)

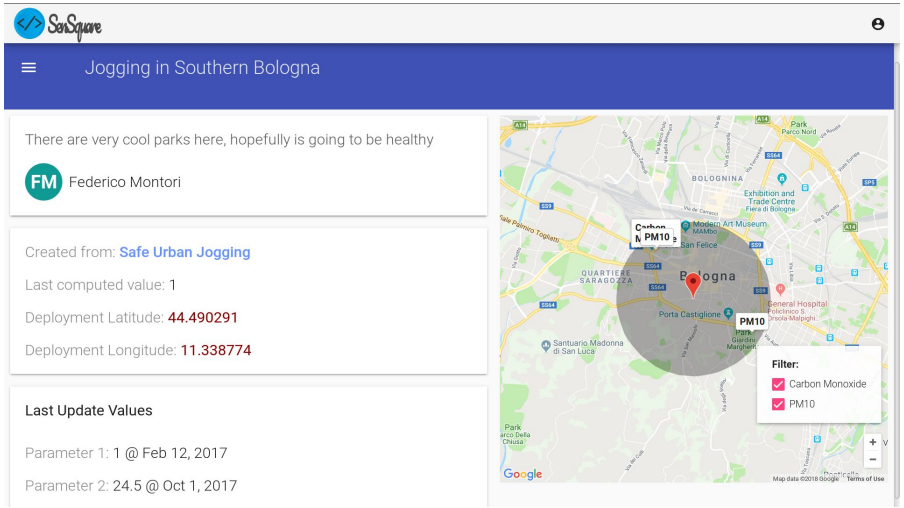
Mobile Crowdsensing uses smartphones of a big crowd to monitor phenomena of common interests happening in the real world (mostly cities but also nature). This can happen participatorily or opportunistically. Projects in this area involve the development of clients for MCS and need a decent set of skills in either C++, Python or simulation.



Alternatives (and beyond…)

Service Computing for IoT

Make use of Open Data (what is already in place) and combine it to provide citizens with services. Service computing, data analysis, classification, …



ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

Android Projects proposals 2020

luca.sciullo
luca.sciullo@unibo.it