

PROJECT 10 – ORANGE LABS SENSORS API

Group Members

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Overview

This biweekly details work carried out for the project as of March 13th. It includes further plans for progress and highlights issues encountered along with the current status of each.

Timeline/Summary of progress

- 8th Mar - Our Cassandra database is now fully-defined, with all column families ready for data entry
- 12th Mar - The Java API now features capabilities to register a new sensor operator (or 'holder') and add 'sensors' (currently simulated as Java objects) to the network. This is primarily to aid with the system design, and may not be used for the final source code.
- Mar 11th - Attempts at adding OAuth to RESTful API begun. **[Pending: At present, a tentative version has been added]**
- 18th March - The primary hardware components for the sensor prototypes have been acquired, assembled, and lightly tested.
[Pending: Our GSM module is yet to be installed to our zone controller.]
- 27th March - The final code for the microprocessors is in the process of being completed.

Summary of meetings [27/02/15 – 13/03/15]

Monday 9th March – Hardware & Continuation

[Team meeting]

Location: MPEB 4.03 (relocated 4th floor lobby)

Time: 2.30pm – 3.30pm

Attendees/ Absentees: Johan, Gulliver, Victoria / None

In this meeting, we paid a visit to Graeme McPhillips in room 4.03 in order to finalise the building of all hardware. Issues such as parts still missing (e.g. tsr 1-2450 DC-DC converter) to solve the problem of differences in voltage between components and the processing/ pending orders (3G shield module) were brought forth. Due to this, we were unable to proceed with the finalisation of hardware and were told that new orders would be made for the parts still missing. The chat with Graeme McPhillips was rounded up with the decision to continue the coming Friday 13th March, at which time the missing pieces should arrive for us to resume.

Following this, our next course of action was covered briefly. It was decided that, as hardware testing had to be put on hold again till the coming Friday, that work would be diverted to the software/ front-end requirements.

Potential areas that would require additional looking into such as the interface between firmware and software (how software-hardware will interact) along with other areas such as UML required, user guide and adding a forum feature to the current project website were discussed.

Friday 13th March - Finalisation of hardware **[Team meeting]**

Location MPEB 4.03

Time: 1.30pm - 2.30pm

Attendees/ Absentees: Johan, Gulliver, Victoria, Graeme McPhillips / None

In this subsequent meeting, now that all necessary hardware had arrived, we resumed work on hardware by firstly, following a brief tutorial given by Graeme McPhillips on how to assemble the components for the sensor units and zone controller properly. This was followed by soldering all separate components together.

At present, only one sensor unit has been completely finalised for proper testing. Plans have been made to meet up with Graeme again in the coming week on Wednesday 18th March once we have confirmed the hardware is indeed working via code and testing to complete the other three.

Friday 13th March - Discussion of current progress **[Supervisor meeting]**

Location MPEB 6th Floor

Time: 3.30pm - 4pm

Attendees/ Absentees: Johan, Gulliver, Victoria, Leslie Kanthan / None

This meeting was primarily targeted at updating our supervisor on our progress. We demonstrated our code simulating sensors, sending updates to the database every second, a tentative api displaying this data and detailed the developments we have made with the hardware implementation. Leslie was satisfied with our progress thus far, but showed concern regarding the hardware delays as this has stalled our progress to some extent on this front. We have set a target for completing all hardware-related coding tasks by 27th March to which Leslie has agreed with the feasibility, and made plans for another meeting with him this coming Friday 20th March to keep up-to-date with progress.

Next Actions:

GULLIVER

The core NoSQL database is now assembled and ready for data input for the proof-of-concept. For now, it consists of four tables: rawdata, sensor_meta, node_meta, and holders. In alignment with our prototype context of parking bay sensors, a future database will be established for storing processed, contextual data belonging to this use-case. I've also continued to develop the Java API, adding functionalities for creating holder records and establishing new simulated sensors. Over the coming two weeks I hope to fully scope out and prototype the systems and methods required for the final design. I also plan to make a strong start on producing the proof-of-concept website, working with Victoria to build the RESTful API and link the database to a web-based frontend. The most significant aspect of this will be a definitive requirements specification and careful planning.

VICTORIA

I have continued with my investigation into building the api for our system, reading into how to add authentication into the mix. While preliminary authentication has been added for the api, at present, this is tentative and will depend on whether users will in fact, have to be signed up to our maintenance GUI (to be built) in order to gain a reader token to access the data, or if another approach would be better suited. In the coming two weeks, I hope to work closely with Gulliver into the planning, design and implementation of the web-based frontend.

JOHAN

Over these past two weeks, I have been experimenting with the hardware. I mainly did test cases using zigbee to see what kind of information we could transfer and what paths we could create. I also started assembling hardware with my group. This involved soldering together different parts for the battery pack to make it compatible with our micro-controller. Now that our hardware is close to completed, I will spend the next week finish off code that will be run on the final version of our prototype. It will also include code for the arduino part of our zone controller which is yet to be constructed. This will involve more hardware wiring, as we still need to connect our arduino with the GSM shield to one of our microcontrollers, thus making it a zone controller. Once this is done, I will be doing experiments on our systems to check for things such as battery life. I will then start on the documentation side of the project.