Logbook

This is your logbook. Insert here all relevant information regarding the evolution of your project

Weekly Report

1st Week Report

1. Debating the different projects
2. Searching for informations to the Projects
3. Final decision to do the Travel Logging System

2nd Week Report

1. taking answers about project doubts in the first meeting with supervisors
2. starting to marketing research
3. starting to material researching

3nd Week Report

1. characterized and specified the project
2. task allocation for each members
3. continue to marketing research
4. continue to materials researching
5. starting to fill Gantt Chart

4th Week Report

1. specified the marketing plan
2. continue to materials researching
3. discussing the sustainability concern
4. meet with our supervisor ' Prf. Paulo Fereira'

5th Week Report

1. update the Gantt chart
2. making a material research plans
3. focusing on researching materials

6th Week Report

1. 3 different materal list was prepeared

2. started to write sustainabilty report
3. chosen one option of the material list

7th Week Report

1. presentation of interim report was done
2. started to prepare to interim report
3. first version of leaflet was created
4. all deliverables were uploaded to the wiki

8th Week Report

1. Concerned about heat that inside of the cork case
2. worked on power consumption calculation

9th Week Report

1. created Fritzing diagram
2. calculated estimation autonomy
3. started to project management
4. finalized sustainability part of final report

10th Week Report

1. created the power diagram
2. created the signal diagram
3. searched sopfware solution
4. finalized ethics and deontology part of the report
5. designed second version of leaflet

11h Week Report

1. arranged priorities for the development of the sofware
2. finalized project management part

12th Week Report

1. started to write paper
2. recieved the components
3. got some feedback for marketing report and corrected

13th Week Report

1. created the poster
2. recieved the cork block and started to design case

3. finalized paper
4. created final presentation
5. created lat version of the leaflet
6. started experiments

Meetings

1st Meeting (2014-02-27)

Agenda:

1. Presentation
2. Modus operandi
3. Project proposals
4. Electronic Logbook

Minute:

The first point on the meeting was the announcement of the group members. After that the different projects were introduced and discussed by the groups. In addition the supervisors told us how to use the wiki and do the electronic logbook. We were allowed to ask the supervisors questions about the projects so that we finally were able to choose the project “Travel Logging System”.

2nd Meeting (2014-03-06)

Agenda:

1. Is there a size Limit?
2. What are the areas the device has to be used?
3. Who is our customer? What needs have to be satisfied?
4. Should the system inform the delivering company or the end-user?
5. How often does the client get informations? Everytime? Realtime or after delivering?
6. Can we choose our client?
7. What is the measurement range of the different sensors?
8. What exactly physical quantity have to be measured?
9. How does the System warn the client?
10. What construction programs are recommended? Any programs here in ISEP?
11. What material should/can we use?
12. How is the connection between the “box” and the Receiver? GPS,internet,telephone network
13. What are the compatibility Standards? Battery? Software? Charging Connection? Sensors?
14. How much is the limit for the production costs?
15. Are there any patents or rights that have to be respected?
16. Are there problems caused by privacy?

Minute:

We haven't define an objective for our product so the answer for our questions related with the characteristics was to look for an application and define our objective. Once we have an application/objective we have to search for other products that already exist and compare it with our idea and save the information find for the marketing analysis.

Related with the software they recommend us Solidworks for the design and related with the power supply they recommend us to watch out for the consumptions and the autonomy.

We have to respect copyrights but the patents only for the production.

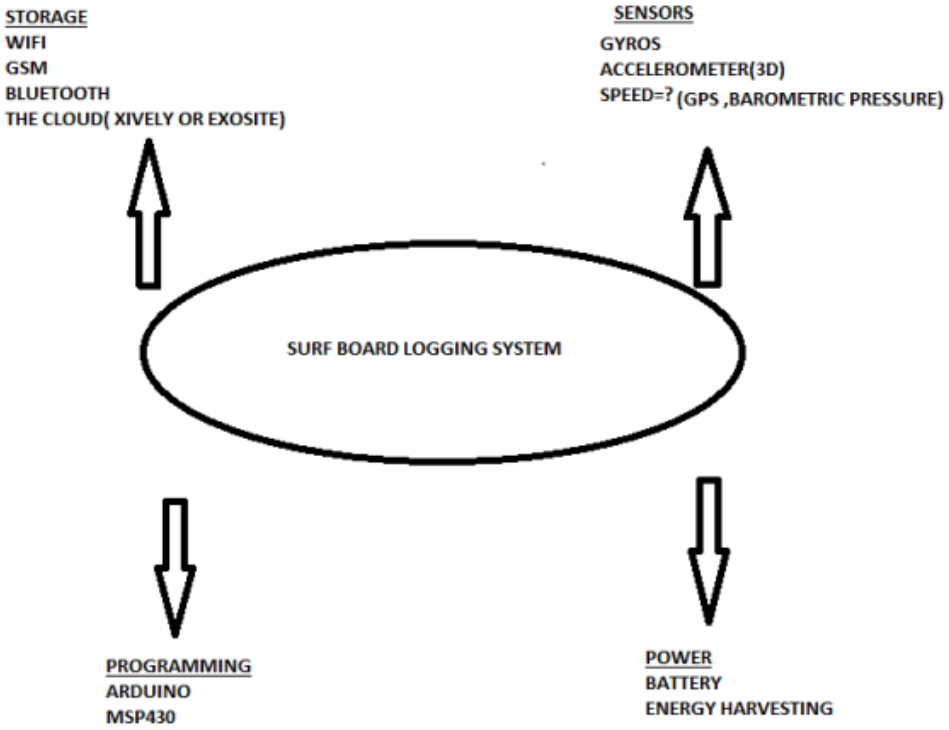
3nd Meeting (2014-03-13)

Agenda:

1. Our project 'travel logging system' has already existed in the logging field. So, we have a lot of competitors. We thought that if we focus on spesific field for example 'food delivery' or more spesifed ' meat and meat product delivery. is it possible and is there anything that out of concept of this project?
2. In our group we do not have any software knowledge. So, can we get any help from you about software installation?
3. We have already started the material reserching. We will give you a list on the deadline but what if we need more materials after the Deadline, can we buy any materials afterwards?
4. In our project description we find a company name that is called' ITSector'. which roles plays that Company to our project?
5. Can you give us any common website to buy the components or materials?
6. Where can we assemble the prototype?
7. What do they recomend us for the electronics?

Minute The third meeting startet at 10 o clock, our chairman was Ozge. We introduced two ideas of a travel logging System, the first was about a sensorbox for foodtransport and the other about a System for a surfboard. We received homepages of some stores where we can buy our materials. In addition Paulo showed us a example of a cpu-platine. Manuel mentioned laws which are relevant for the Food Industrie regarding our materials we are going to choose.

4th Meeting (2014-03-20)



1. What should we write under the topics of 1.5 Requirements and 1.6 Functional Tests?
2. How can we measure the height of the waves?
3. How should we start with the programming, do we need the parts for that or how do start?

Minute:

The meeting started at 12.30. We started to discuss our project in general and what kind of parts we should use for our product.After that we discussed what to fill in the report on the topics 1.5 and 1.6, the answer was to decide on our requirenments and for topic 1.6 we should fill out after the functional tests. For question 2, the height of the waves, the answer was that it maybe be to difficult and that we should concentrate on the other sensors. Last we discussed the software of the product and came to the conclusion to order the materials first and after that start with the software.

5th Meeting (2014-03-28)

1. Should we add the cables to material list or can we use ISEP's cables?
2. Can you give us some clue about the design of the case? where can we find? should the case convenient only our device or can we use simple box?
3. Is the materiallist okey?

Minute:

After the 5th meeting we had to look for cables to connect the different components. In Addition we got the advice to use vulcanic tape to make the case waterproofed. Another idea was to use a kork case. After that Paulo mentioned there will be a possible problem with the Arduino board and the IMU, because there a two different processors.

6th Meeting (2014-04-03)

1. We have made three different material lists and we have enough budget. Can we buy the three options to cover our backs in case one does not work?
2. Can we develop our software from the free software provide with the IMU?
3. We couldn't find the IMU for option B in any Portuguese Dealer. Is it possible to buy it from another european dealer?
4. What should we do for 'Proposed Solution' part of report?
5. How much percent is the interim report of the final grade?

Minute:

The answer to the first question was no, we must choose one material list. This because the professors thought it was better to concentrate on one. Regarding the software, we would see when we get the components. It is possible to buy it somewhere else but easier and cheaper to get from Portugal. The professors explain how the grade for the interim report is given.

7th Meeting (2014-04-30)

1. When are we going to receive the components?

Minute:

The expectation for the interim presentation was asked to supervisors and according to them, we prepeared to interim presentation. Also, receiving time for components was asked.

8th Meeting (2014-05-08)

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                    Calculation of ΔT
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ɳ=Pout /pin= useful power output /total power output

Pin X ɳ= Pheat

P= I^2.R=I^2.R =V^2.R

Arduino :

- Input voltage (recommended) 7-12 V
- Input voltage (limit) 6-20 V
- Operating Voltage 5 V
- DC Current per I/O Pin 40 mA
- DC Current for 3.3V Pin 50 mA

-This pin outputs a regulated 5V from the regulator on the board.

Battery:

- Charge voltage 4-2 V
- Nominal Voltage 3.7 V

- Standard Discharge constant current 0.5C 3.0 V Cut-off
- Max. Discharge constant current 2.0 C (for non-continuous discharge mode),1.0C (for continuous discharge mode)
- Operating temperature charging 00C ~ 450 C
- Delivery Voltage 3.7 ~ 3.95 V

-Heat test of Battery: the temperature of the oven is to be raised at rate of 5±20 C/min. to a temperature of 130± 20 C and remains for 10 minutes at this temperature.

Power consumtions working at maximun power

SENSOR STICK:

- input voltage 3.3 V
- Digital Accelerometer ADXL345 145 µA
- 3-Axis Digital Compass HMC5883L 100 µA
- Triple-axis MEMS gyroscope ITG-3200 6500 µA
- Sum 6745 µA————–>6.745 mA

Arduino uno has 3.3 volt supply generated by the on-board regulator. Maximum current draw is 50 mA so we don’t need an extra power converter for the sensors.

ARDUINO UNO:

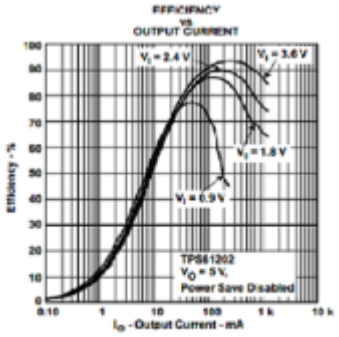
- ATMEGA 328P
- Active 8MHz, VCC = 5V typical 5.2 mA max 9 mA

BLUETOOTH MODULE:

- input voltage 3.3 V
- Shield can be neglected
- Radio 40 mA

POWER CELL:

- 600 mA Output Current at 5 V (VIN ≥ 3 V) more than 90% EFFCIENCY



Connections between the arduino uno and the sensors stick:

- Sensor stick VCC → Arduino 3.3V POWER

- Sensor stick GND → Arduino GND SIGNAL AND POWER
- Sensor stick SDA → Arduino A4 (Arduino's SDA, or data line) SIGNAL
- Sensor stick SCL → Arduino A5 (Arduino's SCL, or clock line) SIGNAL

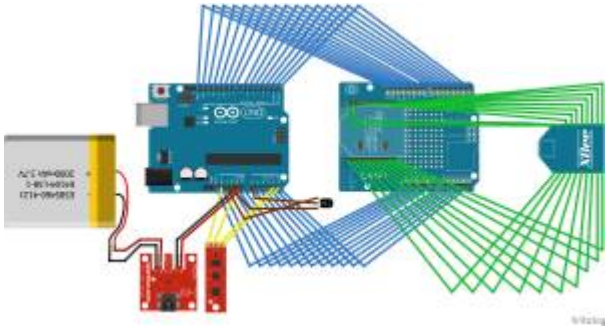
We will need 8 male to male wires and 8 female headers

Minute:

ΔT that is inside of the cork was tried to calculate but was agreed to use temprature stick to measured the ΔT because of the diffculties that is to calculate. power consumption was tried to calculated and the doubts were argued.

9th Meeting (2014-05-15)

1. what do you expect from our project? we need spesific answers because of the project management.
2. Fritzing diagram of the prototype



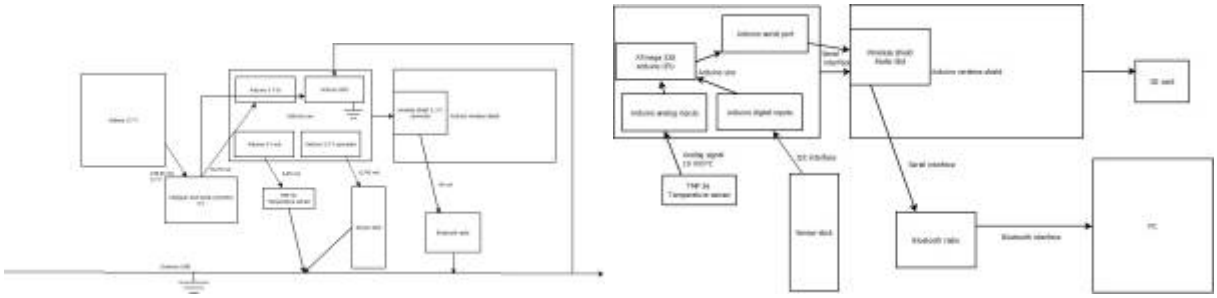
1. Estimation of the autonomy

https://drive.google.com/file/d/0BxN1665smBF_WTZmREVVUXNxUGc/edit?usp=sharing

Minute: expectation of the project manaegment was asked to supervisors. fritzing diagram of the prototype was shown and estimation of the autonomy was calculated and shown.

10th Meeting (2014-05-22)

1. Estimation of the autonomy(corrected) https://drive.google.com/file/d/0BxN1665smBF_dDFkc0lNTmM2WTg/edit?usp=sharing
2. Power diagram
3. Signal diagram
4. software solution https://github.com/ptrbrtz/razor-9dof-ahrs/wiki/Tutorial (Tutorial) https://github.com/ptrbrtz/razor-9dof-ahrs (code)



Minute:

Estimation of the autonomy was corrected by supervisors. Afterthat, power and signal diagram has shown. the proposal of the software solution was shown to supervisors and some feedback was gotten.

11th Meeting (2014-05-28)

Battery

We've found the same we want in botnroll page http://www.botnroll.com/product.php?id_product=234

Priorities software development

Because we do not have much knowledge in coding and we are limited in time we will establish some priorities for the development of the software

1. Make it work by USB
2. Make it work by Bluetooth
3. Implement a function that turn off the device when the temperature is a risk for the components
4. Improve the PC software in order to have better visual appearance
5. Start saving data in the SD card
6. Developed and android app

Minute:

We had some priorities before meeting. At the meeting, we asked that which priorities are more important than the others. The most important one is to make it work by USB maybe after to make it work by bluetooth and accroding to the answers we were start to work on them.

12th Meeting (2014-06-05)

1. what is the deadline of the paper?
2. which part of report do we suppose to consider for paper?

Minute:

Structure of the paper was asked to supervisors and they have explained us. ıt should be consider

state of the art, project devlopment but also we should mention about (not much) marketing and sustainability.

13th Meeting (2014-06-12)

1. show the visual interface in computer

Minute:

Last version of prototype and the visual interface were shown in the last meeting and gotten some feedback. the supervisors recomended us to think about aerodynamic of device on the board. Also, they informed us that we have a meeting on 23th june with IT Sector(the company that provided us the materials).

Activities

Please register here all project activities

Start	End	Task	Description	Who
27.2.2014	3.3.2014	Choose project	-	All
3.3.2014	7.3.2014	Divide the tasks to team members	-	All
7.3.2014	7.3.2014	Market researching	-	Matthias, Edward and Kasia
7.3.2014	7.3.2014	Start to task allocation chart	-	Ozge
7.3.2014	7.3.2014	Load to first eddition of Gant chart	-	Matthias
7.3.2013	25.3.2014	Make list of materials	-	Ozge and Daniel

Material List

Option A (Arduino + IMU)

Materials	Name	Model	Price	Website
Control Panel	Arduino Uno Rev.3	UNO-REV3	20,00	http://www.inmotion.pt/store/arduino-uno-rev-3
Shield Module for Bluetooth	Arduino Wireless SD Shield	ARDU-0019	19,90	http://www.inmotion.pt/store/Search-Resultskeywords=Arduino+Wireless+SD+Shield&osCsid=61cb04f71da4bfabf3e1ad5190b1ee20&x=0&y=0
Bluetooth Module	RN41-XV Bluetooth Module - Chip Antenna	INM-0553	27,95	http://www.inmotion.pt/store/rn41-xv-bluetooth-module-chip-antenna
All Sensors	9 Degrees of Freedom - Sensor Stick	INM-0431	78,95	http://www.inmotion.pt/store/9-degrees-of-freedom-sensor-stick
Battery	Poymer Lithium Ion Battery-2000mAh	INM-0138	13,95	http://pt.mouser.com/ProductDetail/mikroElektronika/MIKROE-1120/qs=sGAEpiMZZMuXcNZ31nzYhZWKDTS6Fwr59iEzhr92eGE%3d
Shield Module for Battery	Power Cell - LiPo Charger/Booster	INM-0496	17,95	http://www.inmotion.pt/store/power-cell-lipo-chargerbooster
Micro SD card	Kingston 8GB Class 10 microSD	INM-0719	9.95	http://www.inmotion.pt/store/kingston-8gb-class-10-microsd
Temperature sensor	TMP36 - Temperature Sensor	INM-0428	1.25	http://www.inmotion.pt/store/tmp36-temperature-sensor
All	—	—	189.90	—-

Option B (IMU)

Materials	Name	Model	Price	Website
CPU + IMU	9 Degrees of Freedom - Razor IMU	SEN-0021	124,51	http://www.bricogeek.com/shop/medicion-inercial-imu/294-9-dof-razor-imu-ahrs.html
Module for Bluetooth	bluetooth mate gold	INM-0137	51,95	http://www.inmotion.pt/store/bluetooth-mate-gold
Progaming cable	FTDI Basic Breakout - 3.3V	INM-0100	12,85	http://www.inmotion.pt/store/ftdi-basic-breakout-3.3v
Battery	Poymer Lithium Ion Battery-2000mAh	INM-0138	13,95	http://pt.mouser.com/ProductDetail/mikroElektronika/MIKROE-1120/?qs=sGAEpiMZZMuXcNZ31nzYhZWKDTS6Fwr59iEzhr92eGE%3d
Shield Module for Battery	Power Cell - LiPo Charger/Booster	INM-0496	17,95	http://www.inmotion.pt/store/power-cell-lipo-chargerbooster
SD card shield	Stackable SD Card Shield	INM-0778	6,5	http://www.inmotion.pt/store/stackable-sd-card-shield
All	—	—	227,71	—

Option C (Arduino + seperate sensors)

Materials	Name	Model	Price	Website
Control Panel	Arduino Uno Rev.3	UNO-REV3	20,00	http://www.inmotion.pt/store/arduino-uno-rev-3
Shield Module for Bluetooth	Arduino Wireless SD Shield	ARDU-0019	19,90	http://www.inmotion.pt/store/arduino-wireless-sd-shield-(xbee-ready)
Bluetooth Module	RN41-XV Bluetooth Module - Chip Antenna	INM-0553	27,95	http://www.inmotion.pt/store/rn41-xv-bluetooth-module-chip-antenna
Accelerometer	ADXL345 Digital 3-Axis Accelerometer for Arduino	INM-0748	14,95	http://www.inmotion.pt/store/adxl345-digital-3axis-accelerometer-for-arduino
Battery	Poymer Lithium Ion Battery-2000mAh	INM-0138	13,95	http://pt.mouser.com/ProductDetail/mikroElektronika/MIKROE-1120/?qs=sGAEpiMZZMuXcNZ31nzYhZWKDTS6Fwr59iEzhr92eGE%3d
Shield Module for Battery	Power Cell - LiPo Charger/Booster	INM-0496	17,95	http://www.inmotion.pt/store/power-cell-lipo-chargerbooster
Micro SD-card	Kingston 8GB Class 10 microSD	INM-0719	9.95	http://www.inmotion.pt/store/kingston-8gb-class-10-microsd
Gyro	Gyro Breakout Board - MLX90609	INM-0053	42,95	http://www.inmotion.pt/store/gyro-breakout-board-mlx90609
All	—	—	167,6	—